

RBC Global Asset Management

RBC Global Asset Management Climate Report 2022

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 (GAM) includes the following affiliates: BlueBay Asset Management LLP (BlueBay), 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, which are separate, but affiliated subsidiaries of Royal Bank of Canada (RBC). 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, exposure or security types that do not integrate ESG factors. Examples of what would not integrate ESG factors 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 third climate report guided by the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). This year's RBC GAM Climate Report (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. 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 6](#).

In 2022, BlueBay operated as a separate but affiliated legal entity of RBC GAM. As such, we provide additional disclosures in this Report to identify instances where policies and practices at BlueBay differ from those of RBC GAM and our other affiliates. These additional disclosures are included in the main body of the Report and additional disclosures related to BlueBay can be found in [Appendix 1](#) and [Appendix 5](#), as well as in footnotes throughout the Report. Please note that any material differences in approach between the entity-level and product-level reports, will be disclosed as part of the product-level reports, as per the ESG Sourcebook.

Reporting period

All data and examples in this Report reflect activities undertaken during the 2022 calendar year (January 1, 2022 – December 31, 2022), 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.

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Letter from our Chief Investment Officer

As a global investment manager that is active across regions and capital markets, we work to anticipate change and manage complexity. The past year brought plenty of both. The war in Ukraine and the energy crisis in Europe shone a light on energy security and affordability, while inflation soared, exacerbated by extreme weather events and disruptions to supply chains. Similarly, rising food, heating, and transportation costs fed through to a slowdown in the global economy. And at the same time, rising stakeholder expectations and emerging regulations have sustained focus on transparency and disclosure. Events of the past year have only served to reaffirm the need to take an informed and thoughtful approach to responsible investment, and the importance of considering environmental, social, and governance (ESG) factors as part of the investment process.

Our Approach to Climate Change details our strategy and the actions we are taking to address the systemic risks of a changing climate and related impacts on economies, markets, and society. We continue to focus on expanding the climate knowledge of our investment teams and on enhancing our climate data and analysis. Advancing our stewardship activities has also been a priority. We believe that active stewardship aligns with our fiduciary duty to clients, and that it is one of the most effective ways for investors to drive real world, economy-wide emissions reductions.

The integration of ESG into our investment decision-making remains an important priority for RBC GAM, and we continue to make progress in this area. Over the past year, we focused on expanding the tools that allow us to do this effectively, and on implementing the frameworks necessary to report to clients on key ESG and climate metrics. During the year we continued to expand our internal ESG data infrastructure, further enabling the use of ESG data as part of the investment process. This robust infrastructure provides an automated

and scalable platform for creating customized views of ESG data. We have, as a result, broadened and deepened our Climate Dashboards, building on the foundation we provided to our investment teams in 2020 and 2021, and demonstrating our ability to innovate in this space.

Many of our clients want to know how their investments may be affected by climate-related risks, and their impact on climate change. We work closely with our clients to provide solutions that meet their needs and continue to expand our ESG and climate reporting in support of that. We recognize that transparency and accountability are essential to achieving our shared goals, and consider these to be pillars of Our Net-Zero Ambition, described within this Report. Increasingly, regulators across regions are focusing on standardizing and expanding disclosure requirements. We continue to provide disclosure on our responsible investment and climate change activities to support our institutional clients in their reporting needs.

While RBC GAM first made a voluntary commitment to publish a report that is guided by the TCFD recommendations in 2020, it has since become a regulatory requirement in the United Kingdom, a jurisdiction in which we operate. This year's Report therefore expands on our reporting over the past several years to address the specific requirements outlined in U.K. regulation.

This Report has been reviewed and approved in its entirety by the RBC GAM Leadership Committee, which includes the Head of Corporate Governance and Responsible Investment, the Chief Investment Officer, and the Chief Executive Officer, among others.

Daniel E. Chornous, CFA

Chief Investment Officer, RBC Global Asset Management

Introduction

[Our Approach to Climate Change](#) is built upon a core belief that integrating material ESG factors¹ into our investment approach can enhance long-term, risk-adjusted returns. Climate change is one such factor. We support this belief by integrating material climate change considerations in our investment decisions, for applicable types of investments. We use our influence as active investors to engage on this topic with the issuers in which we are invested,² and we make investment decisions based on our in-depth due diligence and analysis. Through both engagement and proxy voting activities we seek to motivate companies to consider the impacts of climate change on their business and operations, and where appropriate, to implement strategies that enable climate change mitigation and adaptation.

In 2022, global efforts to address climate change focused on the implementation of commitments and actions announced as part of the United Nations climate conference (COP26) in 2021. Significant government action has also been seen in some areas – such as the passing of the U.S. Inflation Reduction Act, which marks a significant change in U.S. government funding for climate-related spending and clean-energy tax credits.³ Despite progress however, there remains a significant gap between current government policies and the ambition established in the Paris Agreement to hold global warming to no more than 2°C by the end of the century, and to aim for 1.5°C.⁴ One impact from rising global temperatures is an increase in the intensity and frequency of extreme weather events. This was evident throughout 2022, with the devastating floods in Pakistan, droughts in the U.S., extreme heat in Europe and more. It is no surprise therefore that climate adaptation and the need for governments to invest in resilience is also gaining attention. This was a key area of discussion at the 2022 United Nations climate conference (COP27), which succeeded in establishing a Loss and Damage fund to provide financial assistance to those nations most vulnerable to, and impacted by, the effects of climate change.⁵

This year also saw global governments and other stakeholders turn their focus on addressing nature-related risks and investing in nature-based solutions. The recent United Nations global biodiversity conference (COP15) was a focal point for these discussions. The conference brought together governments from around the world to negotiate and finalize a post-2020 Global Biodiversity Framework. Read more in [investor perspectives on biodiversity and COP 15](#), including insights from members of our Corporate Governance and Responsible Investment (CGRI) team who were in attendance. RBC GAM first wrote about the interconnections between [biodiversity and climate change](#) in 2021. Since then, we have continued to research and understand the materiality of nature-related risks to our investments, and approaches for integrating material risks,

including biodiversity loss, in our investment decisions. We also continue to engage collaboratively on nature-related issues as part of the [Investor Policy Dialogue on Deforestation \(IPDD\)](#) initiative, which BlueBay co-leads, and in which RBC GAM is a participant. In this report, we have included a special feature on [Climate change and nature-related risks](#).

Amidst these developments, 2022 was also a challenging year for investors. A number of macroeconomic headwinds weighed on global markets, including Russia's invasion of Ukraine, stubbornly high inflation, and abrupt rises in interest rates that aimed to contain it. And while climate change was not a central focus in these storylines, it was certainly intertwined. For starters, the war in Ukraine disrupted global energy markets and triggered a scramble for alternative sources of energy across Europe. Despite the short-term solution of relying largely on fossil fuel-based sources, a renewed focus on energy security may bode well for a low-carbon transition as countries reappraise the associated benefits of renewables. Rapidly rising inflation through 2022 has also brought attention on the role of climate change as a potential driver or contributor to this. While inflation's recent multi-decade highs are not directly attributable to climate change, it is linked to a number of the inflationary driving forces. This includes the increase in energy and food prices as well as commodity prices, supply chain constraints, and a labour shortage. As an example, the link between climate change and food prices is particularly relevant. Diminished crop yields and harvest instability due to extreme heat and drought, exacerbated by heat-induced labour productivity losses, exert long-term inflationary forces on the price of food. Given the complexity of factors involved, and the various time horizons of climate impacts, understanding the potential for climate change to affect economics, markets and society remains top of mind for investors.

¹Material 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 and may depend on different factors such as the sector and industry of the issuer

²For applicable types of investments. 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

³[By the numbers: The Inflation Reduction Act](#), The White House, August 15, 2022

⁴United Nations, [Emissions Gap Report 2022](#)

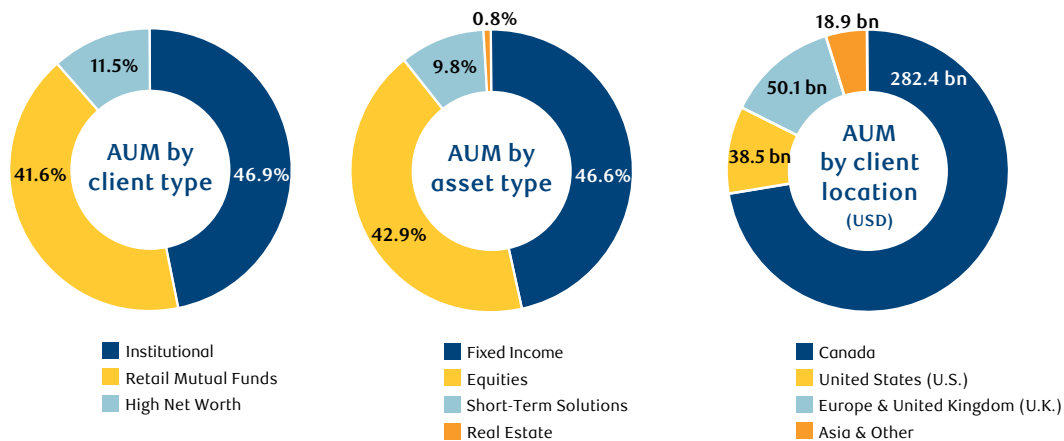
⁵[What you need to know about the COP27 Loss and Damage Fund](#), UNEP, November 29, 2022

About RBC GAM

RBC Global Asset Management is the asset management division of Royal Bank of Canada (RBC). RBC GAM manages US\$390 billion in assets under management (AUM) and has approximately 1,400+ employees located across Canada, the United States, Europe, and Asia.⁶

RBC GAM is 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 teams⁷ are active across capital markets and asset classes, deploying traditional and innovative strategies. Our investment solutions span a range of asset classes such as equities, 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, 2022



Our client base is comprised of retail (53%) and institutional (47%) clients. All of our retail clients are based in Canada, and our retail mutual funds are each managed according to their respective mandates. Individual retail investors and their financial advisors select mutual funds based on their needs and objectives. RBC GAM has a long history of serving institutional clients, and our institutional client base

is regionally diverse, with 40% in Canada, 24% in the U.S., 26% in Europe and the U.K., with the remainder from Asia and other regions.⁸ Institutional clients establish specific mandates that are based on their needs and objectives. RBC GAM works directly with our institutional clients so that we may be effective stewards of their capital.

CLIMATE REPORT 2022 HIGHLIGHTS

US\$390 billion

Assets under management (AUM), as at December 31, 2022

INTEGRATION OF MATERIAL CLIMATE RISKS AND OPPORTUNITIES

in our investment process, for applicable types of investments



Participated in **9 collaborative engagements** focused on climate change.



1,800+

engagements with significant focus on ESG topics in 2022*



Provide climate-related metrics for **74% (\$US 287 billion)**

of RBC GAM's total AUM, as of December 31, 2022. This represents **93% of equity holdings** and **73% of fixed income holdings**.

Investment teams received a quarterly **CLIMATE DASHBOARD**

with data on carbon emissions, net-zero alignment, transition risks and opportunities, and climate scenario analysis.**



*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.

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

⁶As at December 31, 2022.

⁷In this report, references to investment teams are inclusive of the BlueBay investment team, unless otherwise noted.

⁸As at December 31, 2022.

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](#)⁹ 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 funds 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 duty 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 part of our fiduciary duty.
- 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.
- That engagement through direct dialogue is often effective at facilitating change.¹⁰
- 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	Active stewardship	Client-driven solutions and reporting
<ul style="list-style-type: none"> ▪ Investment teams evaluate material ESG factors as part of their investment decision-making processes, for applicable types of investments. ▪ ESG integration is investment-led, focuses on materiality, promotes transparency and accountability, and aims for continuous improvement and innovation. ▪ Each year, we document and review the ESG integration tools and processes used by investment teams. 	<ul style="list-style-type: none"> ▪ As stewards of our clients' assets, we strive to ensure that the issuers in which we invest act in alignment with the long-term interests of our clients. ▪ We engage with issuers on topics deemed material for the specific investments or portfolios, where applicable, including ESG issues such as board structure, executive compensation, diversity and inclusion, and climate change. ▪ We conduct all our proxy voting independently, in accordance with our Proxy Voting Guidelines, which are updated annually.¹¹ ▪ Results from our proxy voting and engagement activities are regularly shared with clients. ▪ We disclose our proxy voting records on our regional websites in accordance with applicable regulations. 	<ul style="list-style-type: none"> ▪ Transparency and accountability are key to maintaining meaningful relationships with our clients and delivering on our fiduciary duty. ▪ We tailor our reporting to clients based on what is most meaningful, across asset classes and regions. ▪ As our clients' needs evolve, we are continuously improving our reporting and product solutions to meet those needs. ▪ We report on our commitments and progress in our annual Climate Report, Corporate Governance and Responsible Investment (CGRI) Annual Report, United Nations Principles for Responsible Investment (PRI) Transparency Report, and on our website.

⁹[Our Approach to Responsible Investment](#) was updated in 2022 to be inclusive of BlueBay. Additional details on BlueBay's approach can be found in the [BlueBay ESG Investment Policy](#).

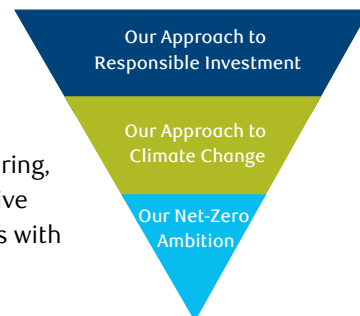
¹⁰In some instances involving certain fixed income investments, quantitative investment, buy-and-maintain, passive and certain third-party sub-advised strategies, there is no engagement with issuers by RBC GAM.

¹¹This does not include proxy voting at BlueBay. See [BlueBay UK Stewardship Code 2021](#) for details.




Our Approach to Climate Change and Our Net-Zero Ambition

RBC GAM has long had a focus on responsible investment, which is inclusive of climate change. [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. We also recognize the need to achieve a just and orderly transition to a net-zero economy that promotes widely shared economic prosperity. 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,¹² where applicable, 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 Net-Zero Ambition and Our Approach to Climate Change are described below.

<p>Our beliefs</p> 	<ul style="list-style-type: none"> Climate change is a pressing issue that may impact issuers and the economies, markets, and society in which they operate. A just and orderly transition to a net-zero economy that promotes widely shared economic prosperity is critical. 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.
<p>Our commitments</p> 	<ul style="list-style-type: none"> 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 maintain carbon neutrality in our global operations.
<p>Our actions</p> 	<ul style="list-style-type: none"> 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 are a formal supporter of the Task Force on Climate-Related Financial Disclosures (TCFD), and have published annual TCFD reports since 2020.

¹²For 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.

Climate change and nature-related risks

Nature-related risks, including those stemming from biodiversity loss, have historically been discussed separately from climate change. The United Nations Framework Convention on Climate Change (UNFCCC) focused on global warming, while the Convention on Biological Diversity (CBD) considered nature and biodiversity loss. There is growing recognition however of the interconnections between [climate change and biodiversity](#), and the potential materiality of nature-related risks to investments.



Climate change is a direct driver of biodiversity and nature loss. As temperatures rise, an increasing portion of species are put at risk of extinction. The Intergovernmental Panel on Climate Change (IPCC) estimates that up to 14% of species in terrestrial ecosystems will likely face very high risk of extinction, even if current efforts to mitigate climate change are successful. This figure increases to 29% if average global temperatures rise by 3°C from pre-industrial levels by 2100, and up to 39% if they rise by 4°C by 2100.¹³



Nature and biodiversity loss exacerbate the negative effects of climate change. This is because healthy and biodiverse ecosystems play an important role in absorbing emissions and heat, thereby helping to mitigate climate change, as well as in improving the Earth's ability to adapt to, and be resilient to natural disasters.

¹³ [IPCC Report 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability](#), Intergovernmental Panel on Climate Change (IPCC), Feb 2022

Due to nature's positive contribution to climate mitigation and its role in climate adaptation, there is growing interest from governments and the financial community in investing in nature-based solutions, which are activities that aim to protect and restore natural ecosystems. Climate adaptation and nature-based solutions were both key themes at the COP27 climate conference and COP15 biodiversity conference, both held in 2022. In 2021, the Taskforce for Nature-related Financial Disclosures (TNFD) was established in response to the increasing attention on the importance of integrating nature-related risks into financial and business decisions. Since then, the TNFD has worked to provide a risk management and disclosure framework for defining and reporting on nature-related risks and opportunities.¹⁴

The TNFD defines nature-related risks as potential threats posed to an organization, linked to their (and wider society's) dependencies on nature and impacts on nature. These can derive from physical, transition and systemic risks. There are also nature-related opportunities, which are activities that avoid, reduce, mitigate or manage nature-related risks, or that actively work to reverse the loss of nature, including through restoration, regeneration of nature, and implementation of nature-based solutions.¹⁵ Identifying and measuring these risks and opportunities continues to be difficult due to challenges with data coverage, data standardization, transparency, data accessibility, and data relevance to decision-making.

KEY DEFINITIONS

Nature is defined as the natural world, with an emphasis on the diversity of living organisms (including people) and their interactions among themselves and with their environment ([Diaz et al, 2015](#)). It is made up of four realms – land, oceans, freshwater and atmosphere ([TNFD, 2022](#)).

Biodiversity is defined as the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems. This includes diversity of species and ecosystems ([CBD, 1992](#)).

¹⁴ [Task Force for Nature-related Financial Disclosure \(TNFD\)](#), Accessed Nov 2022.

¹⁵ ['Understanding nature' for market participants](#), TNFD Framework v0.3, Task Force for Nature-related Risks, Nov 2022.

RBC GAM perspective on nature-related risks

Investment teams consider material ESG factors as part of their investment decisions, for applicable types of investments. In 2022, RBC GAM took steps to better understand how nature-related risks and opportunities relate to investments. This work focuses on evaluating the materiality of nature-related risks across sectors, on evaluating data and tools to assess issuer level exposure to these risks, and on the practicality of applying emerging frameworks and initiatives in this area.

To date RBC GAM has:

- Published insight articles on; the interconnections between [climate change and biodiversity](#) and [investor perspectives on biodiversity and COP15](#).
- Updated Our Approach to Climate Change in 2022 to include a commitment to continue assessing the role of land use dynamics in climate change mitigation and adaptation, and to establish a plan to engage with issuers on material land-use impacts, where applicable.
- Participated in the United Nations PRI delegation at COP15, the CBD's global biodiversity conference.

- Conducted engagements with issuers on nature-related topics. For example, starting in 2020, BlueBay became the co-chair of the Investor Policy Dialogue on Deforestation (IPDD), which focuses on engaging sovereign issuers on deforestation. In 2022, the IPDD published a report on the initiative's progress (see [here](#)). In 2022, the RBC emerging markets equity team conducted a biodiversity-related review of issuers in which they are invested, and conducted engagements on this topic with certain issuers (see the [CGRI Annual Report](#)).

Moving forward, RBC GAM will focus on:

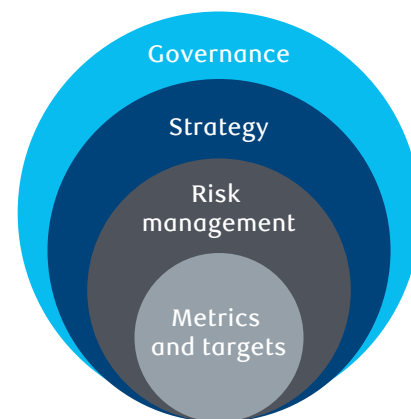
- Continuing to build knowledge and understanding of the potential material risks that nature loss, and biodiversity loss specifically, may pose.
- Identifying and assessing the materiality of nature-related risks to investments, from the perspective of both impacts and dependencies, as defined by the 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.

RBC GAM support for the TCFD

The TCFD, mandated by the Financial Stability Board, issued its recommendations in 2017, and updated these again in 2021. The TCFD recommendations are a set of reporting guidelines for disclosure of material climate-related risks and opportunities.

Enhancing the comprehensiveness, consistency, and comparability of climate-related metrics and disclosures is a critical imperative for financial institutions, corporate issuers, regulators, and governments. RBC GAM has supported and encouraged TCFD disclosures since 2018. RBC GAM became a formal supporter of the TCFD in 2020, and we issued our first climate-related disclosure guided by the recommendations of the TCFD the following year. BlueBay signed on as a TCFD investor supporter in March 2020, and has been included in the scope of RBC GAM's climate-related disclosure each year, except in areas where otherwise stated.

This Report covers calendar year 2022. We have structured this Report according to the TCFD disclosure framework. RBC GAM seeks to continuously improve the transparency of our disclosure. For example, this year's Report includes, for the first time, climate-related metrics related to the BlueBay investment team. We expect our climate-related disclosures and the actions we take to address climate change will continue to evolve and advance over time.





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 (RBC GAM UK) Limited, RBC Global Asset Management (Asia) Limited, and BlueBay Asset Management LLP. In 2022, BlueBay operated as a separate but affiliated legal entity of RBC GAM. See [Appendix 1](#) for governance oversight specific to BlueBay.

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 (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.¹⁶

This total firm-level oversight and integration strives 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 board's oversight of climate-related risks and opportunities

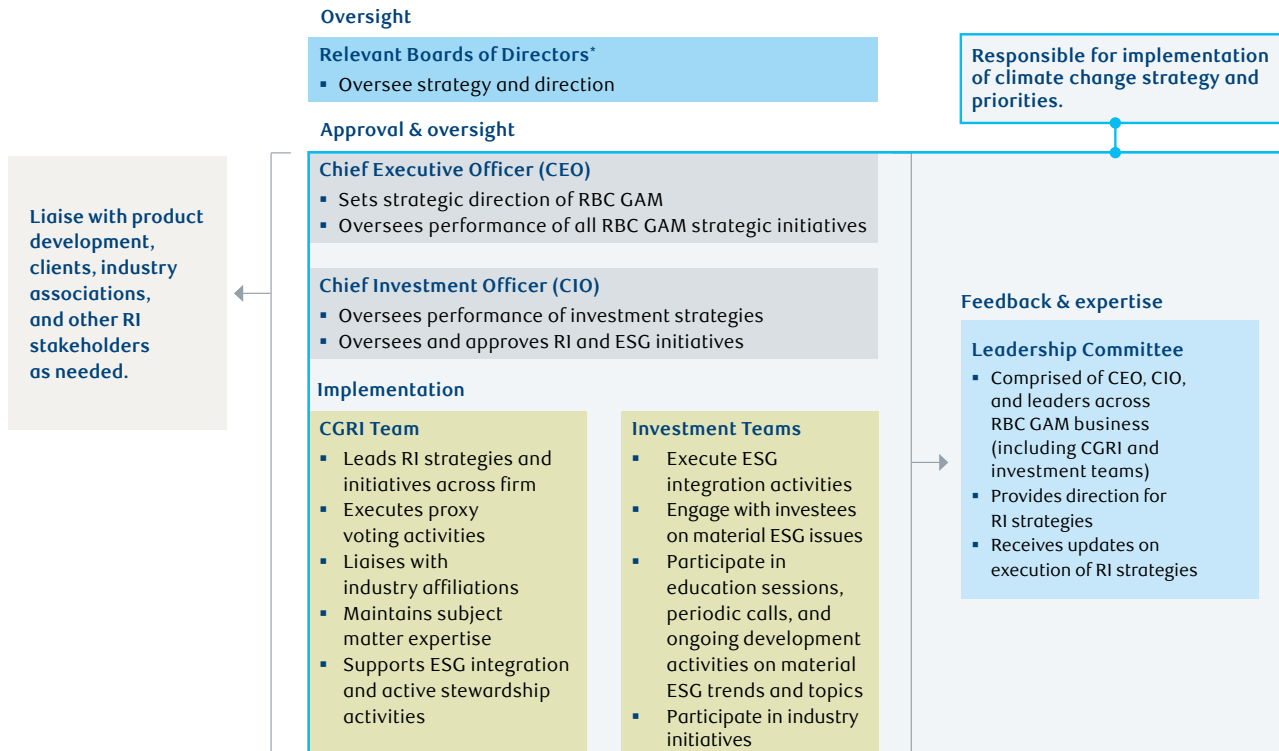
The Boards oversee the overall performance of their firms, which includes strategic priorities related to responsible investment. The Boards may consider climate-related issues as part of strategic, financial, or other business decision-making.

The Boards delegate responsibility for the implementation of strategic priorities to the RBC GAM Leadership Committee (Leadership Committee). The Leadership Committee has identified the advancement of responsible investment, inclusive of climate change, as a strategic objective for the organization. The 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 Chief Executive Officer (CEO), Chief Investment Officer (CIO), and leaders from the CGRI team and the fixed income and equities investment teams, among others. The CEO and CIO of BlueBay are members of the Leadership Committee. Starting in 2022, the Leadership Committee received a quarterly Climate Memo, which includes regulatory and competitive developments, collaborative initiatives, and/or climate metrics.

¹⁶In some instances, strategies, policies and risk management processes may differ for RBC GAM affiliates. In 2022, BlueBay operated as a separate but affiliated legal entity of RBC GAM. As such, we provide additional disclosures in this report to identify instances where practices at BlueBay may differ from those of RBC GAM and our other affiliates.

Figure 2: RBC GAM’s governance oversight of climate change.¹⁷



*RBC Global Asset Management Inc., RBC Global Asset Management (UK) Limited, RBC Global Asset Management (U.S.) Inc. RBC Global Asset Management (Asia) Limited, and BlueBay Asset Management LLP.

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 Head of CGRI reports quarterly 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. In addition, performance on strategic initiatives can also contribute to the overall firm-level performance factor that is applied to employees’ annual variable compensation amount. CGRI 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 responsibilities related to climate change include the following:

Specific roles with global responsibilities include:

- The CEO of RBC GAM oversees the performance of all RBC GAM affiliates. The CIO, and the Chief Operating Officer (COO) report to the RBC GAM CEO.
- The CIO of RBC GAM oversees the investment strategies, policies, and performance across all affiliates. The heads of all investment teams and the CGRI team report to the RBC GAM CIO. The CIO of BlueBay reports directly to the RBC GAM CIO, and the BlueBay ESG team reports directly to the CIO of BlueBay.¹⁸
- The COO of RBC GAM oversees operations and technology, including associated strategies, policies, risks, and initiatives across all affiliates.
- The Head of CGRI is responsible for all responsible investment activities across RBC GAM, and for the implementation of these strategies by RBC GAM’s centralized CGRI team.¹⁹
- The heads of global investment teams are responsible for the establishment and implementation of ESG integration processes for applicable strategies.

¹⁷ Governance oversight of climate change specific to BlueBay is described in [Appendix 1](#).

¹⁸ BlueBay management oversight of climate change is described in [Appendix 1](#).

¹⁹ The BlueBay ESG team is responsible for the implementation of responsible investment activities for the BlueBay investment team.

- 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 Head of CGRI, and members of the Investment Risk, Investment Policy, Compliance, and Legal teams.²⁰

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

Corporate Governance and Responsible Investment (CGRI) Team

The CGRI team is comprised of ten full-time employees who sit within the investment platform. CGRI team members have a mix of investment, ESG, risk management, data engineering, and legal expertise. The Head of CGRI 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 CGRI 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 CGRI 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.²¹ RBC GAM generally votes in the same way across all internally-managed funds, in accordance with our custom RBC GAM Proxy Voting Guidelines.²² 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 CGRI 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 CGRI 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 preparing client reporting and thought leadership pieces related to RBC GAM's RI activities and insights.

Investment teams²³

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 ensures that their ESG integration approach adds value to, and complements, the characteristic investment approach of each team. Specific responsible investment responsibilities of investment teams include:

- Integrating ESG factors into their investment processes in a way that adds 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.²⁴
- 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.

²⁰ The product development and approval process at BlueBay differs from that of RBC GAM. The product committee includes the BlueBay CEO, COO, General Counsel, Head of Business Development, Head of Product Development, Head of Luxembourg Management Company and the Chief Risk Officer.

²¹ Proxy voting activities described herein, and Proxy Voting Guidelines do not apply to BlueBay. Please see the [Annual Stewardship Report 2021](#), for details.

²² 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.

²³ Details on the BlueBay investment team's climate-related responsibilities are described in [Appendix 1](#).

²⁴ 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.

2.1 Description of climate risks and opportunities

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

Climate-related risks and opportunities that may be financially material to RBC GAM are those that have the potential to affect RBC GAM's business, the investments we manage, and our operations. We assess risks and opportunities on an ongoing basis and report on the potential impact of climate-related risks annually in the RBC GAM Climate Report.²⁵ This Report is reviewed and approved by our CIO, CEO and Leadership Committee. On a quarterly 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.

We define climate risks as *physical risks* from more extreme weather events and changing climate patterns, and *transition risks* from the shift to a low-carbon economy. 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, which 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, which 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.

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. An orderly transition in which government policy and action occur in 2025 or sooner is preferable to a disorderly transition, as our climate scenario analysis finds that potential financial impacts are greater for disorderly scenarios (see [Section 2.3](#)). It is important to assess the financial impact of transition risk scenarios. However, according to the United Nations the world remains far from the Paris Agreement's goal.²⁶ As physical risks become more apparent at higher temperature pathways, we believe it is increasingly important to consider physical risk scenarios

²⁵ In 2020 and 2021 this was called the RBC GAM TCFD Report.

²⁶ United Nations, [Emissions Gap Report 2022](#).

as well. There are areas of intersection between transition and physical risks that are not currently addressed in most available climate scenarios. This includes food security, energy security and affordability, water stress, geopolitical risks and inflation, among others.

Corporate and sovereign issuers may be directly and indirectly affected by both climate-related risks and opportunities. Depending on the issuer, this may impact profitability, the value of their financial assets, and productivity across different time horizons. Climate change may also impact economic growth, prices and inflation, employment and labour productivity, trade flows, debt, and financial stability within 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 with the greatest impacts expected to occur over the long-term. This in turn can lead to an increase in volatility and uncertainty in markets, which may positively or negatively impact long-term risk-adjusted returns.

Figure 3: Description of climate-related risks and opportunities²⁷

Climate-related risks	
Transition risks	
Policy	<ul style="list-style-type: none"> Due to government policies and regulations aimed at constraining activities that contribute to climate change. Includes policies that promote low-carbon substitutes.
Legal	<ul style="list-style-type: none"> Due to litigation claims related to failure to mitigate climate change, insufficient disclosure, or material misstatements.
Technology	<ul style="list-style-type: none"> Due to new, low-carbon technologies disrupting traditional systems.
Markets	<ul style="list-style-type: none"> Due to shifts in supply and demand for certain commodities, products, and services.
Reputation	<ul style="list-style-type: none"> Due to changing customer or community expectations of a company, based on the impact of their activities and their contribution to climate change.
Physical risks	
Acute events	<ul style="list-style-type: none"> 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.
Chronic impacts	<ul style="list-style-type: none"> 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.
Climate-related opportunities	
Resource efficiency	<ul style="list-style-type: none"> 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.
Energy source	<ul style="list-style-type: none"> Shifting energy usage towards low emitting energy sources, such as wind, solar, wave, tidal, hydro, geothermal, nuclear, biofuels, and carbon capture and storage.
Products and services	<ul style="list-style-type: none"> Innovation and development of new low-emissions products and services may improve competitive positioning and capitalize on shifting consumer and producer preferences.
Markets	<ul style="list-style-type: none"> 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.
Resilience	<ul style="list-style-type: none"> Adaptive activities that aim to enable the better management of climate-related risks. Includes improving efficiency, designing new production processes, and developing new products.

²⁷Adapted from the Recommendations of the [Task force on Climate-related Financial Disclosures](#), 2017, and [Implementation Guidance](#), October 2021

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

RBC GAM prioritizes climate-related risks and opportunities based on their potential financial impact and the time horizon of those impacts for RBC GAM’s business, the investments we manage, and our operations.

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 for 1.5°C, 2°C, 3°C, and 4°C temperature pathways (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 the due diligence process, based on internally established guidance.

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. We consider the materiality of climate-related risks and opportunities 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.

Policy and legal risks related to new and emerging regulatory requirements	Market risks due to climate-related impacts on markets and asset values	Shifts in client demand for products and service
Time horizon: ST-MT	Time horizon: MT-LT	Time horizon: MT-LT
<p>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.</p>	<p>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.</p>	<p>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.</p>
Actions to mitigate risk	Actions to mitigate risk	Actions to mitigate risk
<ul style="list-style-type: none"> ▪ Track and monitor existing and emerging regulations related to environmental and social topics through internal working groups, industry associations and the CGRI team’s research. ▪ Establish internal working groups to implement new requirements, where appropriate. ▪ Submit comments on regulatory and policy consultations, where appropriate. 	<ul style="list-style-type: none"> ▪ 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. 	<ul style="list-style-type: none"> ▪ New product development committee includes representative(s) from the CGRI 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.

Climate-related risks and opportunities for our investments




As investors and fiduciaries of our clients' assets, we actively consider how climate-related risks and opportunities impact equity, fixed income, and real assets 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 each investment decision for applicable types of investments. 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.

Our principal duty 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. (See Figure 4).

RBC GAM expects 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.

Figure 4: Time horizon of potential impact by asset class

	 Equities	 Fixed income	 Real assets
Description	As equity investors, we are concerned about the value of 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 will determine the size and impact of climate-related factors on its profits and valuation.	Debt issuers' credit risk ratings and ability to pay their debts may also be affected by climate change. The impact of climate change on fixed income securities depends on a range of factors including the nature of the issuer (e.g., corporate versus sovereign), the nature of the instrument type, the yield being offered, and the duration of the investment.	The effects of climate change on real assets is primarily due to physical impacts, and therefore depends in large part on the geographic location of these assets. Acute and chronic physical risks, like flooding, hurricanes, and rising sea levels typically pose the greatest climate risk for real assets. 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.
Time horizon of potential impacts			
Transition impacts (+/-)			
Policy	ST-MT	MT-LT	MT-LT
Technology	MT-LT	MT-LT	MT-LT
Markets	ST-MT	ST-MT	MT-LT
Physical impacts (+/-)			
Acute events	ST-MT	MT-LT	ST-MT
Chronic impacts	MT-LT	MT-LT	ST-MT

²⁸ May also include other applicable types of investments.

Climate-related risks and opportunities to our operations

The performance, goals, and reporting of operational GHG emissions is established as part of the climate strategy of RBC,²⁹ which is inclusive of RBC GAM. This is described in [Section 4.2](#) and [Appendix 5](#).

RBC makes efforts to address potential disruptions to its operations and client services due to climate-related risks. Actions RBC takes to mitigate this risk are as follows:³⁰

- Classification of critical environment sites based on business risk tolerance for site-specific downtime and, among other things, site location, power supply, exposure to flooding, geological stability and other hazards.
- As required, assessment of the impact of climate-related events (e.g., floods, hurricanes) on RBC businesses and client operations.
- RBC's Operational Resilience and Enterprise Business Continuity Management (BCM) teams, together with the first line of defense, have collaboratively taken a risk-based approach to identify and prioritize a preliminary ranking of RBC's services and products based on severe but plausible scenarios to avoid intolerable harm to clients, marketplace, organization safety and soundness and financial stability

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 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, which 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.

We have included the results of our climate scenario analysis in our annual climate-related disclosure since 2020. Climate scenario analysis is also included in the quarterly Climate Dashboard provided to investment teams (see [Section 3.1](#)).

Resilience of investments to climate-related risks and opportunities

RBC GAM evaluates the impact of transition and physical risks and opportunities on portfolios for different climate scenarios. In order to assess the impact of climate scenarios on an individual security or portfolio, scenario outputs must be translated into a measure of financial risk. We use Climate Value at Risk (VaR) to determine the potential change in valuation of a security or portfolio due to climate change, which is expressed as a percentage. Climate VaR is calculated by modelling the future costs and revenue for issuers due to policy risk, technology opportunities, and physical risks and opportunities. Financial modelling is then used to derive valuation impacts over time. Valuation impacts can be assessed at an aggregate level (Aggregated Climate VaR) or based on transition and physical risks and opportunities. (See [Appendix 3](#)).

In 2022, RBC GAM conducted climate scenario analysis for 58% (US\$226.2 billion) of our assets under management, which covers both equity and corporate fixed income asset classes across geographies.³¹

RBC GAM's climate scenario analysis leverages the transition scenarios recommended by the Network for Greening the Financial System (NGFS).³² The NGFS scenarios 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, with policy action beginning in 2025 for orderly transitions, and in 2030 for disorderly transitions.






²⁹ See [RBC Climate Blueprint](#) and [RBC Climate Report 2022](#)

³⁰ See [RBC Climate Report 2022](#)

³¹ Climate scenario analysis was conducted on equity and corporate fixed income assets only and does not include sovereign fixed income assets. This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay climate scenario analysis, and [Appendix 2](#) for the scope of analysis.

³² Based on [NGFS Scenarios](#), June 2021

Description of NGFS scenarios - See [Appendix 3](#) for a summary of key variables for each scenario

	Orderly	Net Zero by 2050 limits global warming to 1.5°C through stringent climate policies that begin in 2025, and reaches net-zero around 2050. This scenario assumes moderate use of carbon dioxide removal technology, and corresponds to the International Energy Agency's (IEA) Net Zero Emissions (NZE) scenario.
	Disorderly	Divergent Net Zero limits global warming to 1.5°C and reaches net-zero around 2050, but with higher costs due to climate policies beginning later (in 2030), and greater divergence in policies across sectors. The failure to coordinate policy stringency across sectors results in a high burden on consumers (highest carbon price of all scenarios), while decarbonization of energy supply and industry is less stringent. This scenario assumes low availability of carbon dioxide removal technologies.
	Orderly	Below 2°C limits global warming to below 2°C with climate policies introduced starting in 2025 and becoming gradually more stringent. Under this scenario carbon pricing remains relatively low, but net-zero emissions are achieved significantly later, around 2100.
	Disorderly	Delayed Transition limits global warming to below 2°C but assumes that climate policies only start in 2030, which is when annual emissions begin to decrease. The level of action differs across countries and regions, which is determined based on currently implemented policies. Carbon prices in this scenario are assumed to be higher than in the Below 2°C scenario, but less than the Net Zero 2050 and Divergent Net Zero scenarios.
	Hot House World	Nationally Determined Contributions (NDCs) includes all government pledged policies as of December 2020, even if not yet implemented. Emissions decline but lead nonetheless to about 2.5 °C of warming. This scenario has the lowest carbon prices, which only reach \$34 (US\$ 2010/tCO ₂) in 2050.

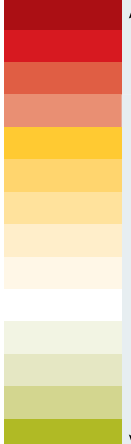
RBC GAM measured the Climate VaR for orderly and disorderly transition scenarios. Overall, disorderly transition scenarios are found to pose a potentially higher financial risk to assets under management.

Value at risk due to transition risks and opportunities

The Divergent Net Zero scenario has the most significant impact on Climate VaR for AUM in the scope of this analysis (see Figure 5). We found that disorderly transition scenarios pose a higher financial risk than orderly transition scenarios, with carbon-intensive sectors generally facing the greatest relative negative impact. This is primarily due to the fact that policy action in disorderly scenarios is delayed until 2030, and there is a higher cost for carbon-intensive sectors as a result of higher carbon prices in those scenarios.

Figure 5: Climate Value at Risk for transition risks and opportunities, for equity holdings, by sector³³

Inclusive of Policy risk Climate VaR and Technology opportunity Climate VaR, as described in Appendix 3. Based on equity holdings in scope of analysis as at December 31, 2022. NDCs = Nationally Determined Contributions

Sector	1.5°C		2.0°C		3.0°C	LEGEND
	Net Zero 2050	Divergent Net Zero	Below 2°C	Delayed Transition	NDCs	
	Orderly	Disorderly	Orderly	Disorderly	Hot House World	
Communication Services	Yellow	Yellow	Yellow	Yellow	Yellow	 <p>More Climate VaR</p> <p>Transition Risk</p> <p>Less Climate VaR</p>
Consumer Discretionary	Yellow	Yellow	Yellow	Yellow	Yellow	
Consumer Staples	Yellow	Yellow	Yellow	Yellow	Yellow	
Energy	Red	Red	Yellow	Red	Yellow	
Financials	Yellow	Yellow	Yellow	Yellow	Yellow	
Health Care	Yellow	Yellow	Yellow	Yellow	Yellow	
Industrials	Yellow	Yellow	Yellow	Yellow	Yellow	
Information Technology	Yellow	Yellow	Yellow	Yellow	Yellow	
Materials	Yellow	Yellow	Yellow	Yellow	Yellow	
Real Estate	Yellow	Yellow	Yellow	Yellow	Yellow	
Utilities	Yellow	Yellow	Yellow	Yellow	Yellow	

³³ Only equity holdings are included in this table, as different sector codes are used for fixed income holdings. RBC GAM analysis, based on MSCI Climate Change Research, December 31, 2022, MSCI®. These values do not include BlueBay AUM. See [Appendix 1](#) for BlueBay climate scenario analysis, and [Appendix 2](#) for the scope of analysis.

Value at risk due to physical risks and opportunities

Events from the past year, including the devastating floods in Pakistan, summer heat-waves across Europe, and historic droughts in California, illustrate that the impacts of climate change are already being felt around the world. Looking ahead, 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 physical impacts lower than what might be intuitively expected. As a result, assessing the relative materiality of physical risks by sector and natural hazard type is often more informative than focusing on absolute values.

RBC GAM measures the Climate VaR for ten natural hazards, including coastal and fluvial flooding, extreme heat, tropical cyclones and wildfire.

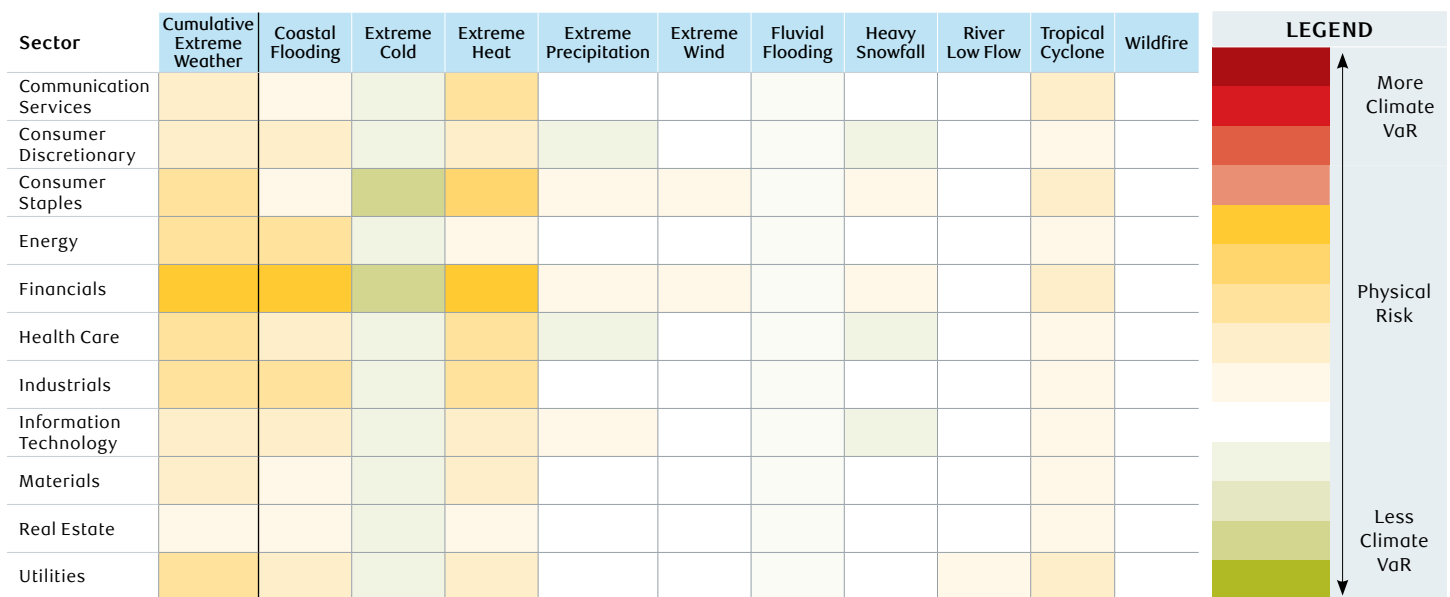
The sectors most exposed to physical risks are Financials, Consumer Staples and Industrials. The natural hazards that pose the greatest risk across all sectors are extreme heat and coastal flooding.³⁴

RBC GAM currently evaluates physical Climate VaR under a high-emissions, “business as usual” scenario (RCP 8.5) with a temperature target in the 4°C range.³⁵ Across our equity holdings, the Financials and Consumer Staples sectors are most affected by physical risks. Physical risk stemming from the Financials sector is most evident across the Canadian equity portfolio, and is largely concentrated in the insurance sub-sector. Meanwhile, risk stemming from the Consumer Staples sector is largely seen in the U.S. and Asia-Pacific regions, and is concentrated in the food & beverage sub-sector. (See Figure 6).

Across all sectors, extreme heat and coastal flooding are the natural hazards that pose the greatest potential impact on valuations. The implications of extreme heat can be felt through adverse effects on a business’ operations – including reduced labour availability and productivity. Meanwhile, coastal flooding can result in severe asset damage and prolonged business interruptions. Additional factors that may impact a company’s physical risk exposure, but are not currently included in the 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 disasters.

Figure 6: Climate Value at Risk for physical risk scenario, for equity holdings, by sector³⁶

Based on equity holdings in scope of analysis (see [Appendix 2](#)), as at December 31, 2022



³⁴ Climate scenario analysis was conducted on equity and corporate fixed income assets only and does not include sovereign fixed income assets. These values do not include BlueBay AUM. See [Appendix 1](#) for BlueBay climate scenario analysis, and [Appendix 2](#) for the scope of analysis.

³⁵ [Representative Concentration Pathways \(RCP\)](#). Riahi, K., Rao, S., Krey, V. et al. RCP 8.5—A scenario of comparatively high greenhouse gas emissions. *Climatic Change* 109, 33 (2011).

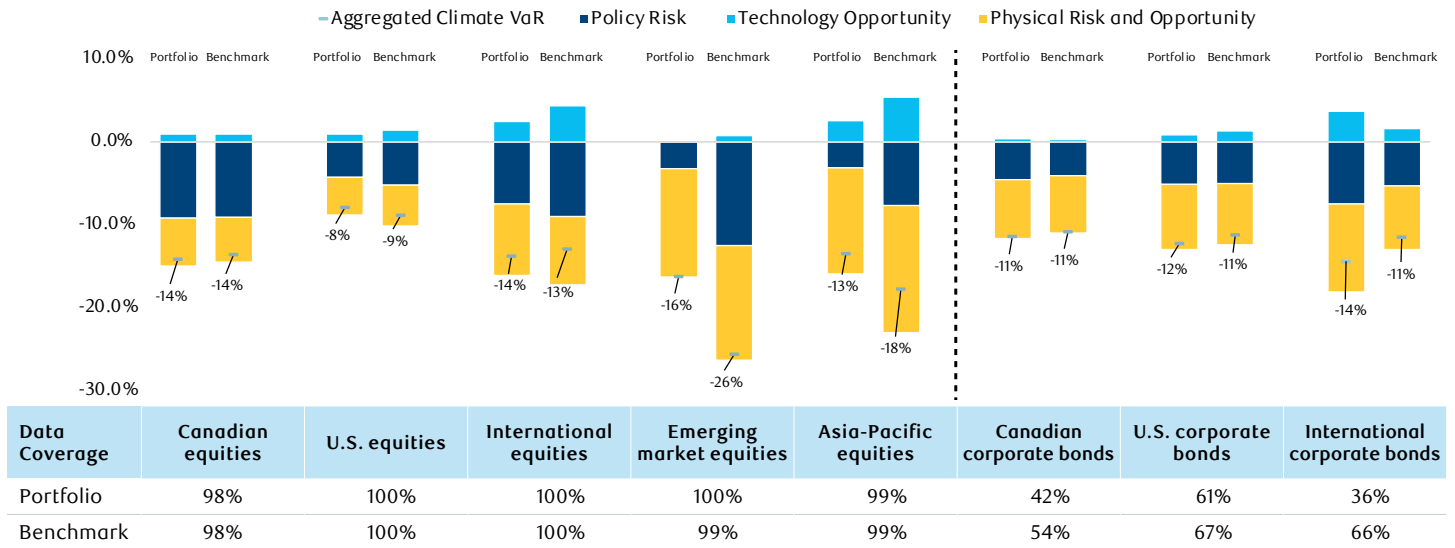
³⁶ Only equity holdings are included in this table, as different sector codes are used for fixed income holdings. RBC GAM analysis, based on MSCI Climate Change Research, December 31, 2022, MSCI®. See [Appendix 1](#) for BlueBay climate scenario analysis, and [Appendix 2](#) for the scope of analysis.

Value at risk due to transition and physical risks and opportunities

In order to provide an aggregated view of how both transition and physical risks and opportunities may affect valuations across portfolios, we include an Aggregated Climate VaR in Figure 7. This includes the Net Zero by 2050 scenario for policy risk and technology opportunities, and the RCP 8.5 (aggressive scenario) for physical risks and opportunities,

as described in Appendix 3. The Net Zero by 2050 scenario assumes rapid expansion of clean technologies, such that a positive Climate VaR due to technology opportunities exists across all portfolios, which may present additional opportunities for investors. The Aggregated Climate VaR for the Net Zero by 2050 scenario for equity and corporate fixed income investments is -11.5%.³⁷

Figure 7: Aggregated Climate VaR for Net Zero by 2050 scenario, by asset class and geography³⁸
As at December 31, 2022.



³⁷ Climate scenario analysis was conducted on equity and corporate fixed income assets only and does not include sovereign fixed income assets. These values do not include BlueBay AUM. See [Appendix 1](#) for BlueBay climate scenario analysis, and [Appendix 2](#) for the scope of analysis.

³⁸ RBC GAM analysis, based on MSCI Climate Change Research, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 3](#) for climate scenario analysis methodology.



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, such as investment risk and operational risk. The impacts of climate change on specific markets, regions, and investments are complex, varied, and uncertain. RBC GAM's investment teams prioritize those ESG factors, including climate-related factors that are considered to be most material to each investment decision. 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. Risks are deemed material if they have the potential to impact the risk-adjusted returns of our investments.

Examples of how our teams may determine materiality for specific asset classes are described below:³⁹

- **Equities:** Prioritize ESG factors that could impact the company's value by impacting its revenue growth, operating costs, and/or its reputation with customers and suppliers.
- **Corporate fixed income:** 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, which includes factors like board structure and management quality.
- **Sovereign fixed income:** Prioritize ESG factors that could impact the sovereign 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 estate & 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.

³⁹See [Appendix 1](#) for additional details on BlueBay.

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, making Climate Dashboards available to investment teams, and conducting climate-related research.

Climate knowledge and expertise

In order to assess the impact of climate-related risks and opportunities on individual issuers, securities, and portfolios, the CGRI 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 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 climate-related topics. In 2022, topics included climate change and finance, and the role of energy security in the energy transition.
- **Monthly CGRI newsletter**, which provides high-level ESG insights and news items related to corporate governance and responsible investment.
- **ESG Champions network**, which enables knowledge sharing on ESG and climate-related topics across investment teams. In 2022, ESG Champions met on approximately a bi-monthly basis.
- **ESG briefing notes** and guided discussions on climate-related topics.
- **Participation in 2022 in the UN PRI Net Zero Equity Practitioners Group**, which focused on sharing experiences and building knowledge. As part of this initiative, RBC GAM published a case study highlighting our efforts to measure the net-zero alignment of portfolios. View [here](#).

Climate data and technology

Climate change is a complex issue. Identifying and assessing the direct and indirect impacts of climate change for issuers and portfolios is equally complex. To do so requires knowledge and understanding of how climate-related risks and opportunities may affect different sectors, geographies, issuers, and investment types. It also requires high-quality climate data with broad coverage.

Climate metrics and methodologies continue to expand and evolve. Through internal data systems, investment teams have access to a range of climate data at an issuer and portfolio level. In addition, the quarterly Climate Dashboards provide climate metrics at a portfolio level for certain investment strategies.⁴⁰ 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 modeled data. Where possible, independently verified and reported data collected by third-party providers is used, and supplemented by direct research collected through due diligence and engagements. The CGRI team provides investment teams with access to detailed guidance and education on climate metrics and methodologies. This is provided in the form of methodology handbooks, webinars, and one-on-one education sessions.

In 2022, RBC GAM expanded our internal ESG data infrastructure to further enable and enhance the use of ESG data as part of the investment process.⁴¹ This data infrastructure brings together ESG and investment data in one place, and provides an automated and scalable platform for creating customized views of ESG data. In July 2022, we rolled out our quarterly Climate Dashboards using the platform. Although RBC GAM has provided Climate Dashboards to our investment teams since 2020,⁴² the updated infrastructure has transformed these into an interactive and online tool that investment teams can use to explore and assess climate metrics at a portfolio, sector, and issuer level.

Climate Dashboards

Investment teams assess and monitor climate-related risks and opportunities on an ongoing basis through the Climate Dashboard (Dashboard), which includes a suite of climate metrics provided at the portfolio level, with detailed breakdowns by sector and top holdings. The Dashboard is produced for a number of equity and fixed income portfolios, and updated on a quarterly basis.⁴³

The Dashboards provide a view on portfolio, sector and issuer-level carbon emissions, transition risks and opportunities, net-zero alignment, and climate scenario analysis (see Figure 8). This includes both current and forward-looking analysis, as well as data that is reported, estimated, and modeled. The Dashboards focus on what we consider to be the most material data factors and aim to reflect current climate science, standards, and best practices. As new data becomes available, additional metrics and insights may be included in the Dashboard.

⁴⁰The 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. In 2021 and 2022, the Climate Dashboards did not include sovereign fixed income, and only included a small number of BlueBay investment strategies.

⁴¹In 2022, BlueBay had their own ESG data infrastructure.

⁴²The 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. In 2021 and 2022, the Climate Dashboards did not include sovereign fixed income, and only included a small number of BlueBay investment strategies.

⁴³Ibid

Figure 8: Illustrative example of climate-related metrics included in the Climate Dashboard (2022)⁴⁴

CARBON EMISSIONS	TRANSITION ANALYSIS	NET-ZERO ALIGNMENT	CLIMATE SCENARIO ANALYSIS
<ul style="list-style-type: none"> Financed emissions Weighted average carbon intensity Emissions/\$M invested Sector contribution Top holdings <p><i>Metrics inclusive of: Scope 1, scope 2, and scope 3 emissions</i></p>	<ul style="list-style-type: none"> Low carbon transition risks and opportunities Fossil fuel exposure Green revenue exposure Low-carbon patents Power generation exposure Top holdings 	<ul style="list-style-type: none"> Climate targets of issuers Temperature alignment Top holdings 	<p>Climate Value at Risk (VaR), by scenario:</p> <ul style="list-style-type: none"> 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).

Climate-related research and insights

Climate-related research and insights are important to inform and advise our responsible investment policies and practices, and to further enable our ESG integration and active stewardship activities, where applicable. In 2022, we conducted thematic and/or applied research on climate-related topics including scope 3 emissions, net-zero alignment methodologies, nature-related risks and biodiversity, sector deep-dives, and climate engagement strategies.

RBC GAM publishes ESG insights and thought pieces for clients and other stakeholders in order to share our thinking on specific topics, and to build knowledge and understanding on ESG-related issues. In 2022, this included publications on understanding carbon markets, the importance of climate-related financial disclosures, a guide to portfolio carbon emissions, insights from proxy voting season and say-on-climate proposals, the future of water, ESG ratings, and biodiversity and nature-related risks. See [ESG insights](#) for RBC GAM publications.⁴⁵

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 CGRI team's research. RBC GAM also contributes to regulatory consultations, where appropriate, primarily through industry association submissions. Members of the CGRI 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, such as the European Union Sustainable Finance Disclosure Regulation (SFDR).

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.⁴⁶
- 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,

⁴⁴The 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. In 2021 and 2022, the Climate Dashboards did not include sovereign fixed income, and only included a small number of BlueBay investment strategies.

⁴⁵BlueBay publications are available [here](#).

⁴⁶In 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.

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. While divestment is an option that investment teams may consider, our preference is to engage with issuers on material climate-related risks.

ESG integration

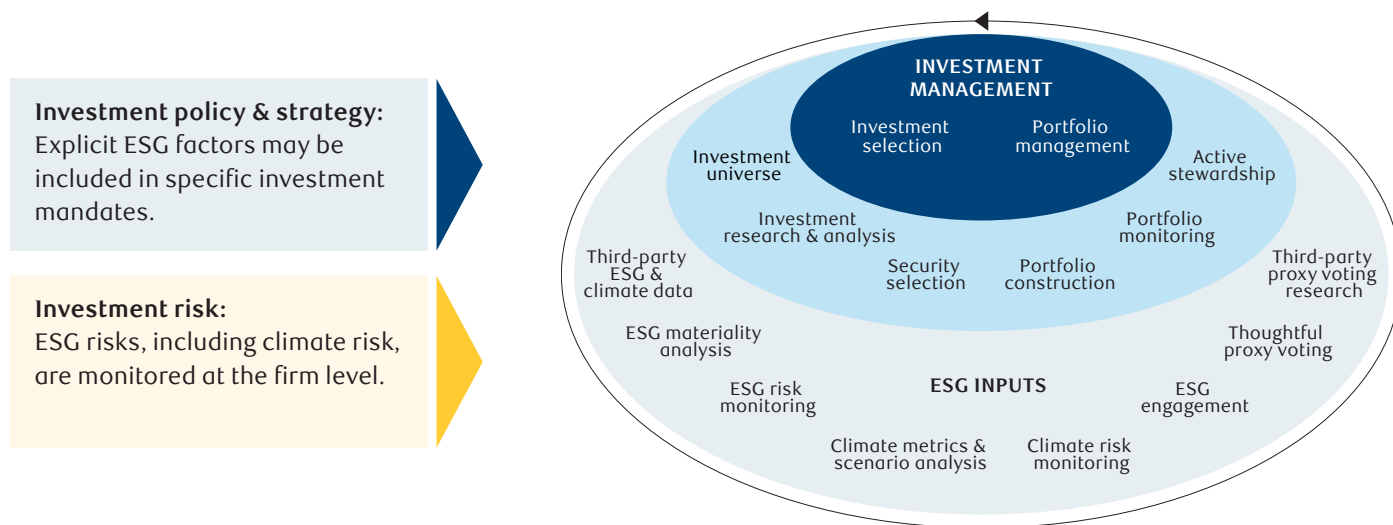
RBC GAM believes that issuers that manage their material ESG risks and opportunities effectively are more likely to outperform on a risk-adjusted basis, over the long term. Each investment team has the discretion to determine the materiality of ESG factors for its investments, drawing from tools like the Sustainability Accounting Standards Board (SASB) materiality matrix and both internal and external research and expertise.

Investment teams are responsible for ESG integration and for considering climate-related risks. Every year, the CGRI team documents the ESG integration processes of investment teams.⁴⁷ This includes teams' overarching approaches, data inputs used, 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 CGRI 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 Head of CGRI 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 9. Specific processes may vary depending on asset class, geography, and investment team philosophy.

Figure 9: 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.



Active stewardship

RBC GAM uses active stewardship for applicable types of investments, 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. Our Approach to Climate Change and Our Net-Zero Ambition lay out our expectations of issuers related to climate change, which are described below:

- We expect all issuers in which we are invested to work towards identifying and publicly disclosing material financial and strategic impacts resulting from the transition to a net-zero economy.
- We expect issuers in which we are invested, where climate change represents a financially material risk, to establish credible targets and to develop action plans aligned to the global ambition of achieving net-zero emissions by 2050 or sooner. We also expect them to demonstrate progress in meeting their commitments.

⁴⁷In 2022, this included the BlueBay investment team.

In 2022, our investment teams completed 1,800+ ESG-related engagements that focused on various ESG factors, including climate change.⁴⁸

Public equity engagements represented approximately 66% of these engagements, and fixed income engagements represented approximately 34%. Our investment teams meet with the issuers in which we invest on an ongoing basis, where applicable. The specific ESG factors we engage on may differ based on sector, asset class, and geography, as

engagement cases 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.

We also work collaboratively with other investors through initiatives such as the UN PRI, Climate Action 100+, and Climate Engagement Canada 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. Our collaborative initiatives related to climate change include:⁴⁹



CDP (formerly, Carbon Disclosure Project)

RBC GAM and BlueBay are signatories to the CDP, which runs a global disclosure system that enables entities to measure and manage their environmental impacts. BlueBay participates in the annual information requests to companies related to climate change, water, and forests. In 2022, BlueBay continued to support the CDP's Science-Based Targets Campaign, which engages with select companies in order to seek their adoption of credible science-based climate targets.



Climate Action 100+ (CA100+)

RBC GAM and BlueBay have been signatories to Climate Action 100+ since 2020. Climate Action 100+ is an investor-led initiative that engages with the largest global GHG emitters with the objective of seeking action on climate change. In 2022, RBC GAM and BlueBay participated in five Climate Action 100+ engagements. The purpose of these engagements is to encourage companies to take action to reduce GHG emissions, improve governance oversight of climate change, and enhance climate-related disclosures.



Climate Engagement Canada (CEC)

In 2021, RBC GAM became a founding participant in CEC, 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, akin to Climate Action 100+. A member of RBC GAM's CGRI team is on the Technical Committee of the CEC. In 2022, RBC GAM participated in the launch of four collaborative engagements as part of CEC.



Farm Animal Investment Risk and Return (FAIRR)

BlueBay is a member of FAIRR, a collaborative investor network that raises awareness of the ESG risks and opportunities brought about by intensive livestock production. Addressing deforestation risks resulting from agricultural activities is within the scope of this initiative.

IPDD Initiative

Investor Policy Dialogue on Deforestation (IPDD)

BlueBay co-chairs, and RBC GAM is a supporting investor, of the IPDD. The IPDD initiative aims to coordinate a public policy dialogue with authorities and to monitor developments to assess exposure to financial risks arising from deforestation. In 2022, in its capacity as co-chair of the broader initiative, and for the Brazil dedicated work stream, BlueBay continued to support the IPDD in securing support from investors for the initiative's goals, as well as continued to engage with Brazilian and international stakeholders on the issue of deforestation. The IPDD published a report detailing the progress and outcomes of engagement, available [here](#).



Responsible Investment Association

RBC GAM is a sustaining member of the RIA, Canada's association for responsible investment whose mandate is to promote responsible investment in Canada's retail and institutional markets. In 2022, a member of the CGRI 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 distinct context of Canada.



Task Force on Climate-related Financial Disclosures (TCFD)

RBC GAM and BlueBay are supporters of the TCFD, which was created by the Financial Stability Board to improve and increase reporting of climate-related financial information.

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⁴⁸This 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.

⁴⁹A full list of RBC GAM's collaborative initiatives can be found at rbcgam.com/cgri. A list of collaborative initiatives that BlueBay participates in can be found [here](#).

Proxy voting

As an asset manager, RBC GAM has an obligation to act in the best interests of our clients, which includes 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.⁵⁰ 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. 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.

⁵⁰RBC GAM Proxy Voting Guidelines do not apply to BlueBay. See [Annual Stewardship Report 2021](#) for details.




Escalation of stewardship activities

We assess our stewardship activities through the lens of our clients' best interests. 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 company 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 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 for their businesses.
 Proxy voting	We use proxy voting to signal to management teams and boards of directors, our views on material ESG issues, in line with our Guidelines. 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-related 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. In rare cases, the CIO or CEO may intervene when they disagree with the team's conclusion or have a broader context.

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.

The impact of material climate-related risks on our principal risk types is considered as part of our investment risk process. The Investment Risk team, which reports into the CIO, is responsible for measuring risks at both a firm and portfolio level. The RBC GAM Investment Risk Committee (GIRC), chaired by the CIO, is responsible for monitoring the firm's risk profile, including ESG and climate-related risks when material. Risk appetite is established by the Boards and interpreted by the CIO.

The RBC GAM Investment Strategy Committee (RISC) is also 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 risks, including climate change. Results of the RISC deliberations are published quarterly in the Global

Investment Outlook.

At RBC GAM, our Investment Risk team is responsible for maintaining a risk register of the most material risks facing the sum of all of our investments across all mandates. These risks are monitored by the various risk oversight committees, which includes our Chief Risk Officer (CRO) for North America, CRO for EMEA-APAC,⁵¹ and BlueBay CIO. These include market-wide risks, such as geopolitical issues and currency rates, and may include systemic risks like climate change.

At the firm level, these risks are managed as follows:

- For quantifiable market factors like currency and concentration risks, limits may be placed on each investment mandate's allowable exposure to these factors. These limits vary with the strategies' investment goals, risk tolerance, and benchmarks. For RBC GAM strategies, they are monitored daily by internal systems and reviewed at least quarterly by the regional Investment Risk Oversight Committees (IROC), which include the CRO North America and the Head of Investment Policy, among others. For BlueBay strategies, these are monitored daily by internal systems and reviewed at least weekly by the Market Risk Committee, which includes the BlueBay CIO and CRO for EMEA-APAC, among others.

- 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.

At the investment level, our investment teams are also 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, including 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 investment teams, as described in [Section 3.1](#).

⁵¹Europe, the Middle East and Africa (EMEA)-Asia-Pacific (APAC)





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 emissions⁵² of our assets under management in 2020, as part of our annual climate-related disclosure.⁵³ We endeavor to provide key climate-related metrics that align with established and emerging best practices. As such, we rely on the recommendations of the TCFD,⁵⁴ the methodologies of the Partnership for Carbon Accounting Financials (PCAF), and the Science-based Targets Initiative (SBTi)⁵⁵ to inform our selection of climate metrics and the methodologies we use.

In this Report, climate-related metrics are provided for 74% (US\$287.0 billion) of RBC GAM's total AUM, as at December 31, 2022.⁵⁶ This represents 93% of equity holdings and 73% of fixed income holdings.

We fully support efforts to advance and standardize credible, comprehensive, and comparable approaches to quantifying the impact of climate change. As a member or signatory to the PRI, TCFD, and SASB we continue to work with experts and investors to advance these efforts and move towards

a more standardized approach. This will require action to improve data quality, coverage and comparability; agreement on methodologies and metrics for measuring the financial impact of climate change; and the ability to model the complex direct and indirect impacts of climate change on corporate and sovereign issuers, as well as the economies and markets within which they operate.

RBC GAM continues 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, we include the disclosure of climate-related metrics for sovereign fixed income assets for the first time in this Report. This analysis has only been applied to the related BlueBay investment team holdings, as we continue to build and expand our capabilities in alignment with emerging standards and to reflect available data. Methodologies for calculating sovereign bond financed emissions, carbon emissions intensity and other climate-related metrics are still nascent. For example, PCAF released a standard for calculating the financed emissions of sovereign bonds in December 2022.⁵⁷ As data availability and methodologies mature, we will seek to expand our disclosure of climate-related metrics for sovereign bonds. Please see [Appendix 1](#) for sovereign bond analysis for BlueBay.

Due to changes in the underlying climate data, methodologies used for calculating metrics, and changes in the assets

⁵² In this Report, references to carbon emissions refers to CO₂ equivalents (CO₂ eq.), which is inclusive of all GHG emissions.

⁵³ See [RBC GAM TCFD Report 2020](#) and [RBC GAM TCFD Report 2021](#) for details on scope of AUM included.

⁵⁴ [TCFD Guidance on Metrics, Targets and Transition Plans](#), October 2021.

⁵⁵ [Financial Sector Science-based targets guidance, SBTi](#), August 2022, and [Foundations for science-based net-zero target setting in the financial sector](#), April 2022

⁵⁶ This value is inclusive of US\$67.6 billion of BlueBay AUM.

⁵⁷ [The Global GHG Accounting and Reporting Standard Part A: Financed Emissions](#). Second Edition. Partnership for Carbon Accounting Financials, December 2022

included in the scope of analysis, among other items, it is not possible to provide historical trend analysis for key climate-related metrics. In 2022, RBC GAM expanded our ESG data infrastructure, which is a key step in enabling our ability to run additional analysis, such as historical trend analysis, in the future. As the investment industry continues to standardize climate data and methodologies, and as our ESG data technology infrastructure matures, we expect to be able to provide improvements in this area over time.

Summary of key climate-related metrics

The climate-related metrics and discussion provided in this section apply to 58% (US\$226.2 billion) of assets under management.⁵⁸ This does not include AUM managed by BlueBay investment teams. Climate-related metrics for BlueBay are provided in [Appendix 1](#).

Other assets that are not included in the scope of analysis

are: government bonds, cash and equivalents, ETFs or mutual funds, mortgages, asset-backed securities, other assets (mainly real estate), private placements, and derivatives. These assets are excluded from this analysis primarily due to limitations in data availability, inapplicability of methodologies, and/or minor financial materiality to the overall AUM.

In order to provide increased transparency and context, the data coverage percentage for each metric is provided. Consideration of the data coverage percentage should be taken alongside the value of all metrics. Where data coverage is low, this may result in values that are not representative of the entire portfolio.

For the scope of analysis refer to [Appendix 2](#). For a description of climate-related metrics and methodology refer to [Appendix 3](#) and [Appendix 4](#).

Table 1: Key climate-related metrics for RBC GAM equity and corporate bonds in scope of analysis⁵⁹

EQUITY AND CORPORATE BONDS			
AUM in scope of analysis	Climate metrics are calculated for 58% (US\$226.2 billion) of RBC GAM AUM ⁶⁰		
Data reporting period	January 1, 2022 to December 31, 2022 ⁶¹		
Calculation date	All holdings and climate data is calculated as of December 31, 2022		
Data coverage	Carbon emissions data coverage is available for 87% (US\$197.1 billion) of AUM included in the scope of analysis. ⁶² Of this, 72% is reported carbon emissions data, 15% is estimated emissions data, and 13% have no available data. Reported and estimated carbon emissions data is from MSCI®.		
KEY CLIMATE-RELATED METRICS		DATA COVERAGE (%)	
Carbon emissions (Scope 1 and 2)	Financed emissions	9.4 Mt CO ₂ eq.	87%
	WACI (by sales)	200 tCO ₂ eq./\$M Sales	
	Carbon intensity	171 tCO ₂ eq./\$M Sales	
	Emissions/\$M invested (carbon footprint)	42 tCO ₂ eq./\$M invested	
Investment in issuers with climate targets	% AUM invested in issuers with verified or committed SBTi targets ⁶³	35% (US\$78.3 billion)	89%
	% of AUM invested in issuers with a carbon emissions reduction target (SBTi and other)	76% (US\$172.0 billion)	
Temperature alignment	Implied Temperature Rise	3.1°C	86%
	% of AUM aligned with an Implied Temperature Rise of below 2°C	45% (US\$101.7 billion)	
Aggregated Climate Value at Risk (VaR) (policy risk + transition opportunity + physical risks and opportunities)	Aggregated Climate VaR (Net Zero by 2050)	-11.5%	82%
	Aggregated Climate VaR (Divergent Net Zero)	-31.3%	
	Aggregated Climate VaR (Below 2°C)	-7.7%	
	Aggregated Climate VaR (Delayed Transition)	-21.9%	
	Aggregated Climate VaR (NDC)	-7.0%	

⁵⁸ See [Appendix 2](#) for scope of analysis.

⁵⁹ Values may not add up to totals due to rounding. This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay, and [Appendix 2](#) for the scope of analysis.

⁶⁰ Ibid

⁶¹ Data is accessed January 1, 2023. MSCI ESG Climate Change Metrics, MSCI®.

⁶² Data coverage is based on issuers with either reported or estimated *Carbon Emissions - Scope 1+2 Intensity (t/USD million sales)*, as sourced from MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®.

⁶³ Issuers' climate targets are considered to be Paris-aligned (also called science-based) or net-zero aligned if they have been verified by the [Science-based Targets initiative \(SBTi\)](#) as meeting their related target-setting criteria. SBTi provides a publicly available database of companies that have verified science-based and net-zero targets, and of companies that have committed to set a target within 24 months.

Key climate-related metrics by asset class and geography⁶⁴

In this section, holdings have been aggregated into portfolios based on asset type and issuer country of risk,⁶⁵ and compared to a representative benchmark, as described below and in Appendix 2.

Table 2: Scope of analysis for climate-related metrics, by asset class and geography⁶⁶

Portfolio (Port.)	AUM		Representative benchmark (Bmk.)
	USD (billion)	% data coverage ⁶⁷	
Canadian equities	\$51.8	98%	S&P/TSX Capped Composite Index
U.S. equities	\$57.6	100%	S&P 500 Index
International equities	\$18.2	100%	MSCI Europe, Australasia, Far east (EAFE) Index, ex-Asia-Pacific ⁶⁸
Emerging market equities	\$2.5	99%	MSCI Emerging Markets (EM) Index, ex Asia-Pacific ⁶⁹
Asia-Pacific equities	\$24.6	99%	MSCI All-Country Asia-Pacific Index
Canadian corporate bonds	\$48.8	59%	FTSE Canada All Corporate Bond Index
U.S. corporate bonds	\$17.3	67%	ICE BofA U.S. Corporate Master Index
International corporate bonds	\$5.4	60%	Bloomberg Barclays Global Aggregate Corporate Index (BAGACC)
Total	\$226.2	87%	

Carbon emissions analysis

Carbon emissions analysis provides a view on the relative exposure of portfolios, sectors, and 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 a portfolio, sector, or issuer 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 backwards-looking metric in that it 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 a suite of metrics to assess climate-related risks and opportunities at an issuer and portfolio level. (See [Appendix 4](#)).

Carbon emissions analysis in this Report is inclusive of issuers' scope 1 and 2 emissions. RBC GAM conducts analysis for internal purposes that is inclusive of all emissions scopes (scope 1, 2, and 3), for applicable types of investments. However, as scope 3 emissions are infrequently and inconsistently reported by issuers,⁷⁰ we rely on estimated data for this analysis. As there continue to be challenges in the quality and consistency of scope 3 emissions estimation methodologies, and concerns regarding double-counting of emissions when aggregating emissions at a portfolio level, we do not include issuers' scope 3 emissions in the carbon emissions analysis provided here. We continue to evaluate and assess data quality and availability to address this.

⁶⁴This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay key climate-related metrics, and [Appendix 2](#) for the scope of analysis and representative benchmarks.

⁶⁵Country of risk is used in order to reflect the location of potential risk exposure. Note that analysis in the RBC GAM TCFD Report 2021 was aggregated based on asset type and issuer country of domicile.

⁶⁶Values may not add up to totals due to rounding. This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay key climate-related metrics, and [Appendix 2](#) for the scope of analysis and representative benchmarks.

⁶⁷Data 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, 2022, MSCI®.

⁶⁸The representative benchmarks were constructed from the MSCI EAFE Index and the MSCI EM Index, with a sub-set of countries excluded. This approach was taken to avoid overlap between the MSCI EAFE Index, MSCI EM Index and the MSCI All-Country Asia-Pacific Index. The subset of countries excluded from the MSCI EAFE Index are: Australia, Hong Kong, Japan, New Zealand, and Singapore. The subset of countries excluded from the MSCI EM Index are: China, Indonesia, India, South Korea, Malaysia, Philippines, Thailand, and Taiwan. To remain consistent, the same subset of countries were used across the International equities and Emerging market equities portfolios.

⁶⁹Ibid.

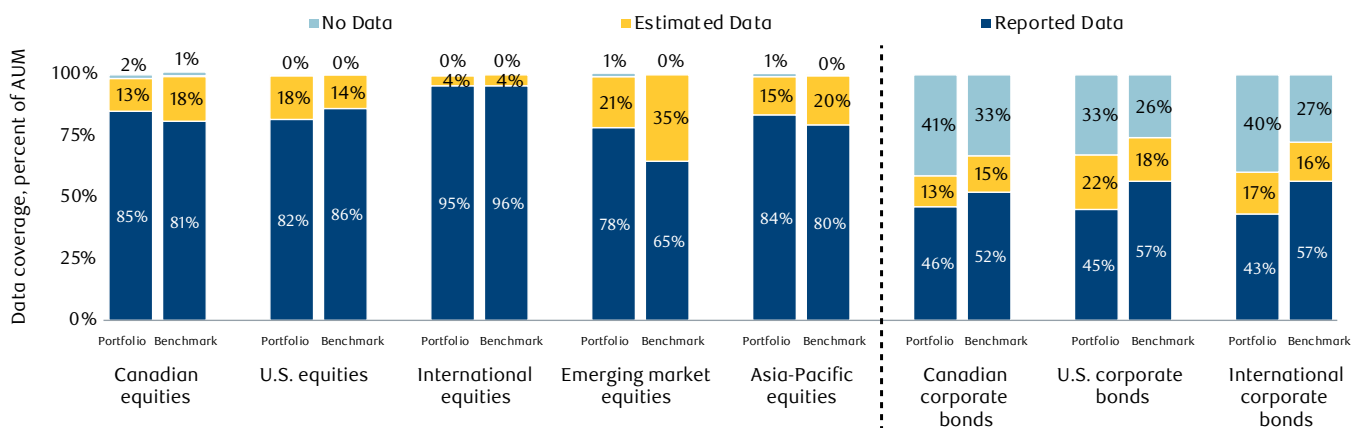
⁷⁰At least one category of Scope 3 emissions is reported for 27% of MSCI ACWI constituents, as compared to 42% of constituents that report Scope 1 and 2 emissions, as at December 31, 2022. RBC GAM analysis based on MSCI ESG Climate Change Metrics, MSCI®.

We believe data quality and coverage is important in conducting carbon emissions analysis. Our preference is to use reported emissions data, calculated in line with the GHG Protocol, and collected from a verified third-party data provider. Where reported data is not available, we use estimated data, calculated using physical activity-based emissions (e.g., megawatt hours by fuel type) and economic activity-based emissions (e.g., sector average tCO₂ eq./revenue).⁷¹ 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, in the MSCI All Country World Index (ACWI), 70% of reported carbon emissions data is from 2021, 29% of reported carbon emissions data is from 2020, and any remaining reported data is from an earlier year.⁷²

Carbon emissions data coverage is generally higher for equity versus fixed income portfolios, with the lowest percentage of reported emissions data in emerging market portfolios (See Figure 10). Data coverage is generally lower for fixed income assets, which is in large part due to the fact that emissions are typically reported at the parent level for corporations, and reported carbon emissions data is not frequently available for subsidiaries. This affects data coverage for bonds issued by those subsidiaries. As the operations (and thus, emissions profiles) of subsidiaries can differ significantly from their parent, in this Report RBC GAM does not allocate the reported emissions from the parent company to the bonds of a subsidiary.

Figure 10: Carbon emissions data coverage, by asset class and geography⁷³

As at December 31, 2022



The Weighted Average Carbon Intensity (WACI) of a portfolio indicates how efficient it is at using carbon emissions to generate a unit of output (e.g., sales), and provides a view of the exposure to carbon intensive issuers for the related portfolio.

The WACI (by sales) of our equity portfolios is generally less than their representative benchmarks. The Canadian equities portfolio, as of the calculation date, is the only one with a marginally higher WACI (by sales), resulting from exposure to higher carbon-intensive companies within the Utilities sector. For corporate bond portfolios, WACI (by sales) is generally higher than the benchmark, largely due

to overweight positions in Utilities, and lower data coverage for fixed income holdings, which may affect results. (See [Appendix 4](#) and Figure 11).

Across all portfolios, WACI (by sales) is generally driven by sector exposure. To this end, the carbon-intensive Energy, Utilities, Industrials, and Materials sectors tend to be the greatest contributors to portfolio carbon emissions. These sectors account for 88% of the WACI (by sales) for equity holdings, across all geographies. Meanwhile, the sector attribution is even more concentrated across our fixed income holdings, where Utilities and Energy sectors collectively account for 89% of the WACI (by sales). Carbon-intensive sectors are often more exposed to transition risks, due to government policy risk and technology disruption.

⁷¹ MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®.

⁷² MSCI ESG Climate Change Metrics, February 2023, MSCI®.

⁷³ Data coverage is based on issuers with either reported or estimated Carbon Emissions - Scope 1+2 Intensity (t/USD million sales). This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay key climate-related metrics, and [Appendix 2](#) for the scope of analysis and benchmarks.

Figure 11: Weighted Average Carbon Intensity, by sales (inclusive of scope 1 and 2 emissions), by asset class and geography⁷⁴

As at December 31, 2022

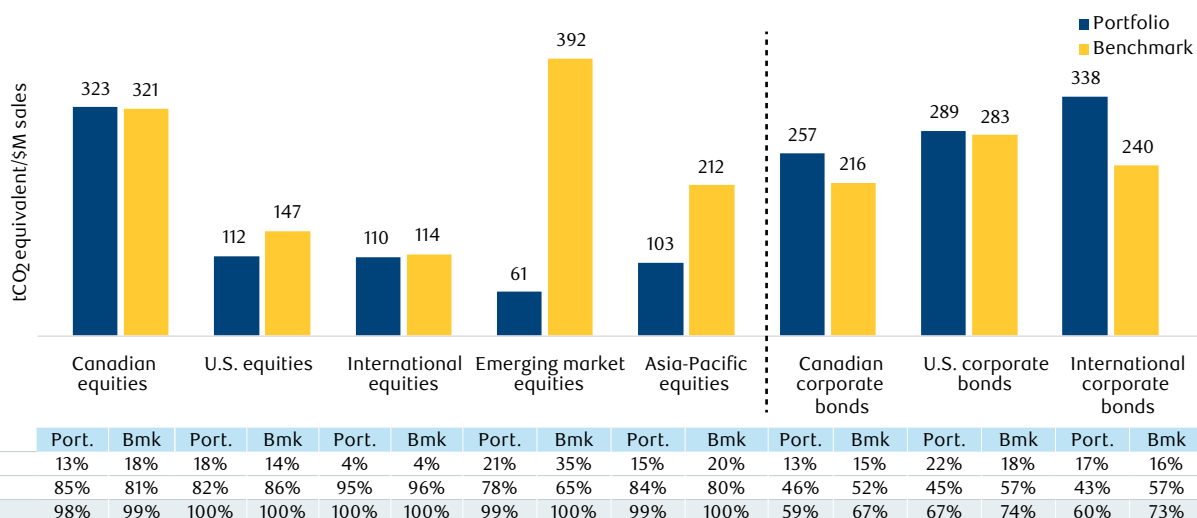


Table 3: Carbon emissions metrics, by asset class and geography⁷⁵

As at December 31, 2022.

	Canadian equities		U.S. equities		International equities		Emerging Market equities		Asia-Pacific equities		Canadian corporate bonds		U.S. corporate bonds		International corporate bonds	
	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk
Data Coverage (%)	98%	99%	100%	100%	100%	100%	99%	100%	99%	100%	59%	67%	67%	74%	60%	73%
AUM (\$US Billions)	\$51.8	-	\$57.6	-	\$18.2	-	\$2.5	-	\$24.6	-	\$48.8	-	\$17.3	-	\$5.4	-
Weighted average carbon intensity (tCO ₂ eq./\$M sales)	323.0	321.5	111.6	147.0	110.2	114.3	61.2	392.0	102.6	212.4	257.2	216.2	289.4	283.4	338.3	240.0
Financed emissions (MtCO ₂ eq.)	4.47	-	1.75	-	0.75	-	0.06	-	0.83	-	0.79	-	0.57	-	0.22	-
Carbon emissions/\$M invested (tCO ₂ eq./\$M)	86.4	86.6	30.4	33.6	41.5	72.1	26.4	156.9	33.6	90.6	16.1	17.6	32.9	29.4	40.5	29.5
Carbon Intensity (tCO ₂ eq./sales)	285.4	290.6	108.5	135.1	121.0	175.7	62.1	441.3	96.7	221.9	176.0	130.4	204.6	139.4	490.9	144.0

Investment in issuers with climate targets

In addition to the carbon emissions of portfolios, we also consider our investment in issuers that have set carbon emissions reduction targets (climate targets). As discussed above, carbon emission analysis provides a current view of potential exposure to climate-related risks, but does not consider the actions companies are taking, or are committed to taking to reduce emissions over time. It is for this reason that we assess investments in issuers with carbon emissions reduction targets in order to get a forward-looking view of the relative level of commitment and expected trajectory of emissions for portfolio companies.⁷⁶

35% (US\$78.3 billion) of equity and corporate fixed income investments are in issuers with verified or committed science-based targets (based on SBTi targets).⁷⁷

⁷⁴ Values may not up to totals due to rounding. RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay key climate-related metrics, and [Appendix 2](#) for the scope of analysis and benchmarks.

⁷⁵ Ibid

⁷⁶ [Foundation for Science-based Net-zero Target Setting in the Financial Sector](#), Science-based Targets initiative, April 2022.

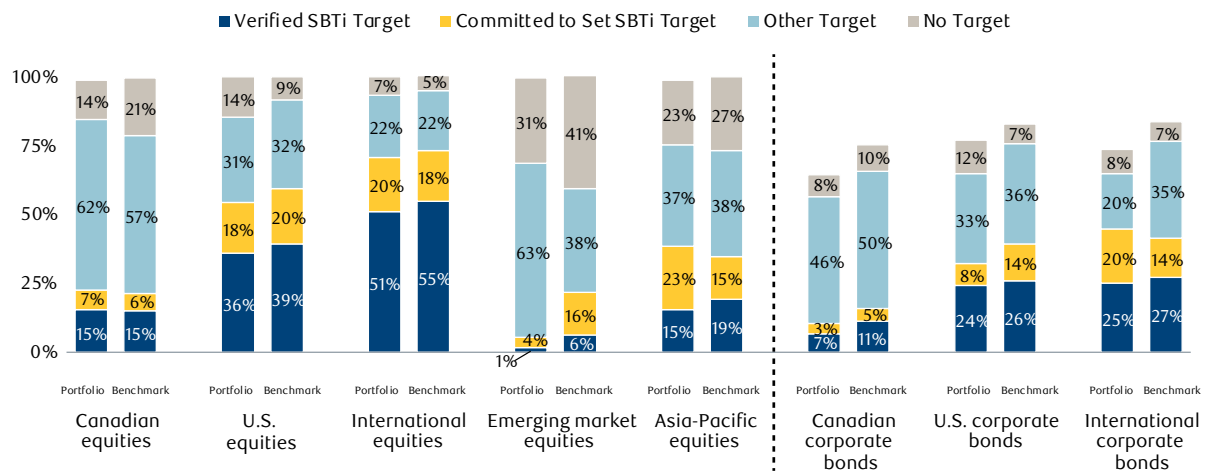
⁷⁷ RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay key climate-related metrics, and [Appendix 2](#) for the scope of analysis and benchmarks.

76% (US\$172.0 billion) of equity and corporate fixed income investments are in issuers with a carbon emissions reduction target (includes SBTi verified and committed targets, and other climate targets).⁷⁸

Carbon emission reduction 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 targets to be Paris-aligned (also called science-based) or net-zero aligned if they have been verified by SBTi as meeting their related target-setting criteria. SBTi provides a publicly available database of companies that have verified 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 however 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.⁷⁹ For this reason, we also track and monitor AUM invested in issuers with any carbon emissions reduction targets (other targets). (See Figure 12).

Figure 12: Percent of AUM invested in issuers with a climate target, by asset class and geography⁸⁰
As at December 31, 2022



Data Coverage (%)

Port.	98%	100%	100%	99%	98%	64%	77%	73%
Bmk.	99%	100%	100%	100%	100%	75%	83%	83%

Across geographies, for both the equities and fixed income asset classes, Canadian and emerging markets portfolios have a lower percentage of investment in issuers with a verified or committed science-based target (based on SBTi targets). These results largely align with the SBTi Progress Report, which identifies these as regions with lower penetration of SBTi targets.⁸¹ The lower coverage for emerging market equities is to be expected given that issuers from these regions tend to be earlier in their ESG disclosure and target-setting processes. In Canada, the lower coverage is likely affected by the fact that SBTi does not currently accept commitments or provide verification of targets from

oil and gas or fossil fuel sectors, which make up a significant portion of the Canadian economy.⁸² It is worth noting that 62% of the Canadian equities portfolio is invested in issuers with a carbon emissions targets other than SBTi. Within the Asia-Pacific equities portfolio, 23% of investments are in issuers that have committed to set a SBTi target within the next 24 months, largely driven by issuers in China, Hong Kong and Japan. This indicates potential future reduction in carbon emissions for portfolio investments, if emissions reduction targets are successfully implemented.

⁷⁸ Ibid

⁷⁹ [Guidance for the oil and gas sector](#), SBTi, accessed January 18, 2023.

⁸⁰ RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks.

⁸¹ [Science-based targets initiative annual progress report 2021](#)

⁸² [Energy Factbook, 2022-2023](#), Government of Canada,

Temperature alignment

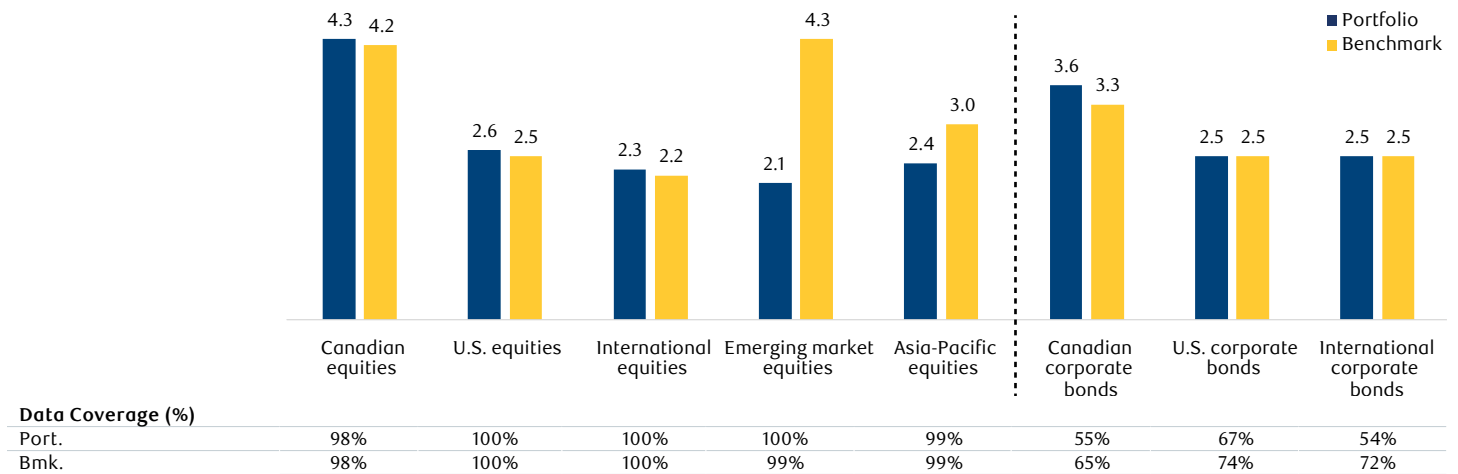
The Implied Temperature Rise (ITR) is a modelled, forward-looking metric that indicates what the global average temperature increase would be in 2100 if the global economy looked like that issuer or portfolio.⁸³ As this metric takes into consideration both the carbon emissions of issuers, and their expected reduction in emissions due to their published emissions reduction targets, it may provide an indication of the alignment of an issuer or portfolio to a particular temperature pathway. See [Appendix 4](#) for methodology details.

The goal of the Paris Agreement is to limit global warming to “well below 2°C” by 2100, and to aim to achieve 1.5°C, compared to pre-industrial levels.⁸⁴

No portfolio or benchmark currently has an ITR below 2°C (see Figure 13). This is largely to be expected as the latest data, according to the U.N., indicates that the world is currently on a pathway to reach a temperature rise between 2.4 to 2.6°C by the end of this century.⁸⁵ Most equity portfolios have an aggregated temperature alignment that’s similar to their respective benchmark. The notable exception to this is the emerging markets equity portfolio which has a lower temperature alignment, stemming from current and typical underweight exposure to the Energy and Materials sectors. For corporate fixed income, the U.S. and international corporate bond portfolios have ITR’s that are relatively in line with their respective benchmarks. Meanwhile, the higher ITR of the Canadian corporate bond portfolio is largely due to sector positioning, with the portfolio underweight in the Financials’ sector and overweight in the Utilities sector relative to the representative benchmark.

Figure 13: Implied Temperature Rise, by asset class and geography⁸⁶

As at December 31, 2022



45% (US\$101.7 billion) of equity and corporate fixed income investments are in issuers with an Implied Temperature Rise that is below 2°C.⁸⁷

Since aggregated portfolio-level ITR values may mask the distribution of issuers’ temperature alignment, we also assess the percentage of issuers with an ITR below 2°C. A temperature alignment of “below 2°C” is selected as this aligns with the goal of the Paris Agreement. Across equity portfolios, between 40% and 64% of AUM is invested in issuers with an ITR below 2°C. Across fixed income portfolios,

between 19% and 39% of AUM is invested in issuers with an ITR below 2°C. The lower value for fixed income portfolios is in large part due to the lower relative data coverage for this asset class. (See Figure 14).

⁸³ [Implied Temperature Rise Methodology](#), MSCI® ESG Research, September 2021

⁸⁴ [The Paris Agreement](#), United Nations Climate Change, 2015

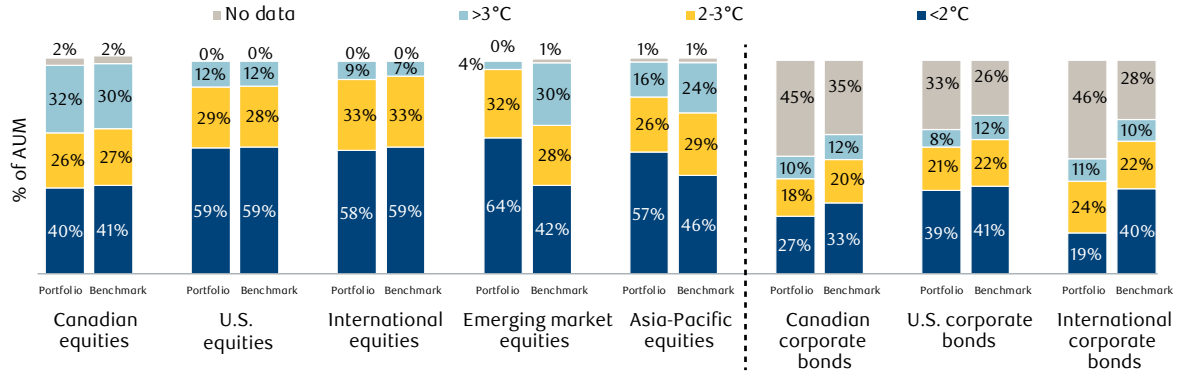
⁸⁵ [Climate change: No ‘credible pathway’ to 1.5C limit, UNEP warns](#), United Nations, October 27, 2022

⁸⁶ RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay key climate-related metrics, and [Appendix 2](#) for the scope of analysis and benchmarks..

⁸⁷ Ibid

Figure 14: Percent of AUM invested in issuers, by temperature range, by asset class and geography⁸⁸

As at December 31, 2022



Data Coverage (%)

	Port.	Bmk.	Canadian equities	U.S. equities	International equities	Emerging market equities	Asia-Pacific equities	Canadian corporate bonds	U.S. corporate bonds	International corporate bonds
Port.	98%	100%	100%	100%	100%	100%	99%	55%	67%	54%
Bmk.	98%	100%	100%	100%	100%	99%	99%	65%	74%	72%

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. In addition, we use several third-party datasets to evaluate climate opportunities, which includes the percentage of green revenue⁸⁹ earned by issuers, issuer investments in low-carbon patents, and the identification of issuers that provide climate solutions.⁹⁰

4% (US\$9.9 billion) is invested in issuers that provide climate solutions.⁹¹

9% (US\$19.6 billion) is invested in issuers with more than 10% green revenue. 27% (US\$60.2 billion) is invested in issuers with some green revenue (more than 0%).⁹²

Overall, our U.S. and Asia-Pacific equity portfolios have the highest overall exposure to green revenue (based on weighted average green revenue). For the Asia-Pacific equities portfolios, this is largely driven by exposure to the Information Technology and Industrials sectors. For our U.S. equity holdings, this is largely driven by companies within the Information Technology and Consumer Discretionary sectors. Across all portfolios, the weighted average green revenue exposure of equity and corporate fixed income portfolios is 2.6%.⁹³

⁸⁸ Ibid.

⁸⁹ 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](#), May 2021

⁹⁰ 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 in order to identify the type of risk or opportunity they are most likely to face in the transition. MSCI® Climate Change Metrics, November 2022.

⁹¹ RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. This analysis does not include BlueBay AUM. See [Appendix 1](#) for BlueBay key climate-related metrics, and [Appendix 2](#) for the scope of analysis.

⁹² Ibid.

⁹³ 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 the climate strategy of RBC,⁹⁴ which is inclusive of RBC GAM. RBC's operational emissions are reported in the RBC Climate Report 2022.⁹⁵

RBC has been carbon neutral⁹⁶ in its global operations since 2017, by reducing emissions and purchasing certified carbon offsets.⁹⁷ They buy and retire offsets annually to cover all reported scope 1, 2 and 3 (category 6 - business travel) emissions in that fiscal year. The carbon offsets they purchase are verified by third parties and fulfill the methodologies of the carbon offset registries⁹⁸ to demonstrate additionality and permanence. They conduct due diligence as part of their procurement process and take into account location, technology, vintage and additional community/environmental benefits and impacts.

RBC is committed to the goal of achieving net-zero in its operations.⁹⁹ To advance toward this ambition, RBC set two short-term goals in 2020 to achieve by 2025:¹⁰⁰ to reduce GHG emissions by 70% with a baseline year of 2018;¹⁰¹ and to increase its sourcing of electricity from renewable and non-emitting sources to 100%.¹⁰² See the RBC Climate Report 2022 for progress to date.

RBC reports multi-year data calculated in accordance with the Greenhouse Gas Protocol (GHG Protocol). Scope 1 and 2 emissions data for RBC buildings and premises that it leases or owns is sourced from their property management companies. For scope 3 emissions (category 6- travel), fuel purchased directly for travel, as well as travel booked through the third-party system and through travel agencies is aggregated and converted into emissions based on either fuel usage or distance conversion. Emissions factors and grid mix data are either sourced from publicly available government sources or from the International Energy Agency's annual emissions factors data set.

See [Appendix 5](#) for operational emissions for RBC GAM UK and BlueBay. These are provided separately for additional transparency, as these entities are within scope of the U.K. FCA ESG Sourcebook.

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

⁹⁴ See [RBC Climate Blueprint](#) and [RBC Climate Report 2022](#)

⁹⁵ Please note that the RBC Climate Report 2022 is for fiscal year 2022 (November 1, 2021 to October 31, 2022), whereas the RBC GAM Climate Report 2022 is for calendar year 2022 (January 1, 2022 to December 31, 2022).

⁹⁶ RBC is defining carbon neutral in its operations as counterbalancing emissions from its operations with purchased carbon offsets in a given reporting year.

⁹⁷ See [RBC Climate Report 2022](#)

⁹⁸ Carbon offset registries develop standardized protocols for project registration in order to issue carbon credits, track credits in the marketplace, and ensure that the environmental benefits associated with the carbon credits are not being allocated to multiple entities. Carbon registries have their own established standards, verification requirements and monitoring protocols for projects to ensure that carbon credits have been verified and meet requirements.

⁹⁹ RBC defines net-zero in its operations as the state where it has taken steps to minimize its emissions from its operations to the extent it is able to do so, and then for any remaining emissions from its operations, removing an equivalent amount of those emissions from the atmosphere

¹⁰⁰ See [RBC Climate Blueprint](#) and [RBC Climate Report 2022](#)

¹⁰¹ The target covers our global operations, Scope 1, 2 (market-based) and 3 (business travel) reported GHG emissions, and uses a baseline of 2018.

¹⁰² The performance towards RBC's goal to achieve 100% renewable and non-emitting electricity consumption is calculated based on grid mix data and the Renewable Energy Credits it either purchases or receives from its two renewable energy power purchase agreements.

In 2022, we continued to make progress in meeting these commitments, as seen by the following highlights:¹⁰³

- Investment teams receive a quarterly Climate Dashboard with data on carbon emissions, net-zero alignment, transition risks and opportunities, and climate scenario analysis.¹⁰⁴
- Provided climate-related metrics for 74% (US \$287.0 billion) of RBC GAM's total AUM, as at December 31, 2022.¹⁰⁵ This represents 93% of equity holdings and 73% of fixed income holdings.
- 35% (US\$94.0 billion) of equity and corporate fixed income investments are in issuers with verified or committed science-based targets (based on SBTi targets), and 73% (US\$197.6 billion) in issuers with any climate target (includes verified and committed SBTi targets, and other climate targets).¹⁰⁶
- 43% (US\$114.8 billion) of equity and corporate fixed income investments are in issuers with a temperature alignment of below 2°C.¹⁰⁷
- Conducted climate scenario analysis for disorderly and orderly transition scenarios, 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 third annual report aligned to 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. We also recognize the need to achieve a just and orderly transition to net-zero that promotes widely shared economic prosperity. 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 agreed to 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

The performance, goals, and reporting of operational GHG emissions is established as part of the climate strategy of RBC,¹⁰⁸ which is inclusive of RBC GAM. RBC's operational emissions are reported in the RBC Climate Report 2022.¹⁰⁹

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



Reduce GHG emissions by 70% by 2025¹¹⁰



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



Maintain carbon neutrality in global operations, with a decreasing reliance on offsets annually.¹¹¹

¹⁰³ See [Appendix 2](#) for scope of analysis.

¹⁰⁴ 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. In 2021 and 2022, the Climate Dashboards did not include sovereign fixed income, and only included a small number of BlueBay investment strategies.

¹⁰⁵ This includes BlueBay. RBC GAM analysis, based on MSCI® ESG Research, January 1, 2023. As at December 31, 2022.

¹⁰⁶ Ibid

¹⁰⁷ Ibid

¹⁰⁸ See [RBC Climate Blueprint](#) and [RBC Climate Report 2022](#)

¹⁰⁹ Please note that the RBC Climate Report 2022 is for fiscal year 2022 (November 1, 2021 to October 31, 2022), whereas the RBC GAM Climate Report 2022 is for calendar year 2022 (January 1, 2022 to December 31, 2022).

¹¹⁰ The target is inclusive of RBC's global operations, scope 1, 2 and 3 (business travel) emissions, and uses a baseline of 2018.

¹¹¹ RBC has been carbon neutral in its global operations since 2017 through purchasing certified offsets. RBC buys and retires offsets annually to cover all reported scope 1, 2 and 3 (business travel) emissions in that fiscal year. See [Section 4.2](#).



Appendix 1: BlueBay Asset Management LLP Supplement

The content below is intended to provide additional detail on the BlueBay approach to ESG, and climate-related risks and opportunities more broadly. Specifically, Appendix 1 aims to highlight areas where BlueBay’s approach may differ from RBC GAM.

For additional details on BlueBay’s responsible investment and stewardship activities, please refer to the [BlueBay ESG Investment Policy](#) and [UK Stewardship Code Report 2021](#).

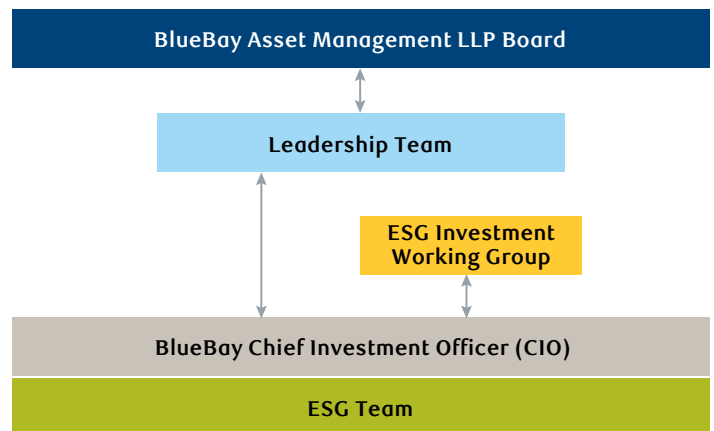
BlueBay Asset Management LLP (“BlueBay”, “we”, “our” when used in Appendix 1) is an active fixed income specialist, structured to deliver outcomes tailored to institutional clients’ needs. BlueBay is a wholly-owned subsidiary of RBC and part of the RBC GAM group of companies.

BlueBay’s ESG and responsible investment approach is rooted in our belief that ESG considerations can potentially impact an issuer’s long-term financial performance. Therefore, we seek to ensure that our investment management approach provides holistic oversight of investment risks – by integrating material ESG factors alongside conventional credit analysis. We believe this is not only prudent, but also in line with BlueBay’s fiduciary duty to clients. BlueBay has adopted a firm-wide ESG investment management approach across in-scope managed assets.¹¹² Our ESG investment management framework focuses on the identification and assessment of material ESG factors, supplemented by active engagement and proxy voting activities, where relevant. Please see the BlueBay UK Stewardship Code Report 2021 for additional details.

1. Governance

BlueBay has been a wholly-owned subsidiary of RBC since 2010. As such, BlueBay is subject to oversight on corporate governance matters through RBC’s Subsidiary Governance Office. BlueBay Asset Management LLP, domiciled in the United Kingdom, is regulated and authorized by the Financial Conduct Authority (FCA).

Figure 1: Overview of management oversight of ESG and climate change at BlueBay



¹¹² Certain investment strategies, asset classes, exposure and security types do not integrate ESG factors, including but not limited to money market, buy-and-maintain, passive, and certain third-party sub-advised strategies.

Formal oversight of BlueBay's ESG and responsible investment efforts, including climate-related risks and opportunities, happen at various levels. See Figure 1 for an overview of responsibilities related to ESG matters, including climate change.

- The BlueBay Board of Directors (BlueBay Board) has ultimate responsibility for ESG and responsible investment at BlueBay.
- Periodic updates of ESG and responsible investment practices and performance, including ESG integration and stewardship activities, are provided to the Leadership Team and the Board.
- Monthly meetings are held by the ESG Investment Working Group (IWG), which provides oversight of ESG integration and active stewardship activities across BlueBay investment desks. The ESG IWG is comprised of representatives from the BlueBay investment desks and the BlueBay ESG team. Membership in the ESG IWG is reviewed on an annual basis.
- The BlueBay Head of ESG Investment and the BlueBay CIO meet regularly to discuss strategy and operational ESG investment matters.
- The BlueBay ESG team is responsible for the BlueBay ESG and responsible investment strategy and develops internal tools and resources that promote awareness and understanding of ESG investment factors across BlueBay investment desks.
- The BlueBay investment desks are ultimately responsible for making investment decisions based on risk-reward analysis, informed by material ESG-related considerations, and in line with investment mandates.
- The BlueBay ESG integration process was reviewed in 2022, as part of the annual review conducted by RBC GAM. This process is applicable to investment teams that report into the RBC GAM CIO, which includes the BlueBay investment team.

At BlueBay, ESG performance metrics have been a formal component of the incentive structure since 2020 for the following roles or functions: BlueBay CEO; CIO and Head of Strategy; Investment function (e.g., portfolio managers, credit analysts, institutional portfolio managers); and client-facing roles. The nature of ESG-related objectives vary depending on the role to ensure they are relevant and appropriate. Broadly speaking, they are divided into those that demonstrate 1) understanding of ESG risks, including reputational risks, and 2) integration of ESG and specific outputs relevant to the role. Performance against these objectives is considered as

part of an individual's annual performance review, informing decisions about the discretionary element of remuneration.

We consider the effectiveness and appropriateness of our governance and oversight mechanisms with regards to ESG on an ongoing basis, to identify areas for improvement. The ESG IWG sets an annual ESG work program, which includes a focus on multiple areas. This includes a focus on governance-related measures to promote accountability and ownership of ESG and responsible investment efforts. While progress against the work program are addressed on a rolling basis at each meeting of the ESG IWG, there is a more strategic review that takes place every six months and on an annual basis to gauge progress and determine whether any adjustments need to be made.

2. Strategy

BlueBay is guided by its [ESG Investment Policy](#), which was first established in 2013 and last updated in May 2021. We incorporate material ESG factors and climate-related risks through an ESG integration approach, for applicable types of investments.¹¹³ As debt investors, our primary focus is on capital preservation, although we believe opportunities exist where ESG risks are not currently being priced or are priced incorrectly by the market. BlueBay utilizes an ESG evaluation framework (completed for in-scope strategies, specific issuer and security types and certain investment exposures), in order to identify and assess material ESG risks, including climate-related risks, and the extent to which these are considered material or relevant to the investment.

- **Corporate fixed income:** The materiality of climate-related factors will vary as it is typically a function of the business activities, geographical footprint, and size of the issuer. We focus on the management of, and measures in place, to minimize the environmental footprint of an issuer, and regulatory compliance related to environmental misconduct. We also consider whether the company has climate-related risk management processes or policies in place. This analysis may be in the form of issuer-specific carbon risks, sector/industry risks, or country/regional risk.
- **Sovereign fixed income:** Material factors will depend on the status of economic, social and political development, availability and dependence on natural resources, and potential regional issues. As such, our analysis includes a specific focus on vulnerability to climate change and the low-carbon transition, as well as policy responses.

¹¹³ See [UK Stewardship Code Report 2021](#) for details. Certain investment strategies or asset classes do not integrate ESG factors, including but not limited to money market, buy-and-maintain, passive and certain third-party sub-advised strategies.

In terms of portfolio-level analysis with regards to climate-related risks and opportunities, BlueBay measures and monitors the carbon footprint of some portfolios. This analysis is conducted using an external portfolio carbon footprint tool that calculates the Weighted Average Carbon Intensity (WACI) of fixed income strategies.¹¹⁴ For corporate constituents, the WACI is measured as the portfolio weighted average of companies' carbon intensity (tCO₂ eq./\$M sales), while for sovereign constituents it is measured as the portfolio weighted average of sovereigns' emissions intensity, based on nominal GDP (t CO₂eq./GDP).

3. Risk management

BlueBay's ESG and responsible investment approach is rooted in our belief that material ESG factors can potentially impact an issuer's long-term financial performance. We seek to ensure that our investment management approach provides holistic oversight of investment risks by integrating ESG factors alongside conventional credit analysis, where material. We believe this is not only prudent but also in line with BlueBay's fiduciary duty to clients.

As an active manager that is managing assets on behalf of clients with long-term liabilities, BlueBay seeks to invest along similar investment horizons. This means understanding and anticipating long-term structural market or asset-class developments and positioning our investments accordingly. Within this context, we believe ESG factors can potentially have a material impact on an issuer's long-term financial performance. ESG risk factors are reviewed and assessed at the following levels:

- **Issuer:** We look to understand BlueBay's ESG risk exposure at an individual issuer level as part of our fundamental credit analysis. What is considered investment-relevant or material in terms of risk exposure for each in-scope issuer varies and is linked to the nature of their business activities, geographical footprint and other factors such as size, which we consider as part of our analysis. This is primarily achieved through our ESG evaluation framework for issuers, which is applied across both corporate and sovereign issuers (for in-scope strategies, for specific issuer and security types and certain investment exposures) and provides a formalized framework for assessing ESG risks on an ongoing basis. This process is also used to identify material topics for engagement.

- **Sector / issues & themes:** We evaluate material ESG risks by industry and sectors, and the extent to which we see commonalities across them. Since 2015, BlueBay has operated cross-desk sector analyst networks, where credit and ESG analysts covering the same sector for the different investment desks share insights on market developments, exchange views and investment ideas. This mechanism has been beneficial for sharing the latest ESG industry or thematic developments and insights.
- **Portfolio:** At the fund level, we conduct ESG analysis across the portfolio to assess ESG-related investment risk exposure. BlueBay's portfolio managers utilize ESG data and insights where material, in order to assess ESG-related investment risk exposure across their funds. Internal ESG metrics are included in our in-house platforms. Our approach combines top-down and bottom-up ESG risk analysis, which seeks to identify and monitor material cross-sectoral or regional ESG risks. This may potentially lead to strategic issuer or sector reviews of asset allocations, where appropriate.
- **Firm:** We seek to assess BlueBay's ESG investment risk exposure at the firm level through analysis and monitoring of firm-wide ESG-related risk exposure. This involves the BlueBay ESG team working with the investment risk team. This may include the use of investment exposure data and ad-hoc ESG analysis, as deemed appropriate.

ESG risk analysis is undertaken on a regular basis as part of our fundamental credit research process, both pre-and post-investment. This analysis focuses on the identification of investment-material ESG risk factors to understand the extent to which they are being effectively managed, and where there is scope to better mitigate risks, or to flag areas for potential engagement with issuers. The outputs of the analysis feed into the investment decisions, portfolio construction, and positioning, as appropriate.

BlueBay's firm-level risk management model relies on three components, specifically "controls", "oversight" and "assurance" – often referred to as the "three lines of defense". As part of this model a Group Risk Register (Register) is maintained and shared with the BlueBay Board for formal approval on an annual basis. The BlueBay Board is also informed of any material risk issues, if appropriate. Risks are documented on the register under the categories of business risk, investment risk, group financial risks or operational risks, with a monthly dashboard used to track performance against each.

¹¹⁴From MSCI® ESG Research.

BlueBay's investment risk team monitors risk exposure according to BlueBay's investment risk management framework. Specifically, this includes market risk, counterparty risk, liquidity risk and ESG risk. The investment risk team monitors risk levels across these areas on a daily basis and interacts with the relevant teams as needed to ensure risk levels are appropriate, with the authority to request exposure reduction if risks are deemed excessive. This includes monitoring ESG risk exposure at the issuer level, as well as across portfolios and firm-wide.

In addition to the regular monitoring of risk levels by the investment risk team, BlueBay's Market Risk Committee (MRC) provides further risk oversight. This includes setting policy related to BlueBay's Investment risk management framework, establishing mandates and guidelines for BlueBay fund products, and providing ongoing review and oversight of investment risks, performance and financial risks assumed by BlueBay. The MRC meets weekly to discuss the investment risk exposure of BlueBay's portfolios, which may include ESG-related risks. Within the summary presented to the MRC, ESG factors are used as idiosyncratic risk indicators, leveraging qualitative data points from our proprietary ESG analysis and third-party data providers, as well as quantitative indicators, such as our internally developed proprietary ESG-adjusted spread risk measure.

Active Stewardship

BlueBay believes that providers of debt have a role to play in engaging with issuers on matters that have the potential to impact investment returns, including material ESG factors. However, the scale and effectiveness of engagement with fixed income issuers may be more limited compared to with equity issuers, as fixed income investors have more limited legal mechanisms to influence issuers. As part of the routine investment research process, the BlueBay investment desks meet issuers, particularly with primary issuances, and raise questions on areas of interest. Where engagement on ESG-related issues is deemed appropriate, it will be prioritized using a risk-based approach. This focuses on material ESG risks facing the issuer, their ESG score where appropriate, the size of our investments, and whether it is intended to be a long-term position.

In 2022, BlueBay held 484 engagements that included a focus on ESG-related factors. Examples of BlueBay participation in collaborative engagement initiatives related to climate change are in [Section 3.2](#) of this Report.

Given BlueBay's specialist focus on fixed income assets, the number of occasions where we engage in proxy voting is limited. It is most likely to occur with convertible and high yield bond investments, where an allocation may take on formal voting rights. In such cases, BlueBay seeks to ensure that we make appropriate use of our voting rights on matters of corporate governance and responsibility, applying the same process and policy for voting across all geographies and instruments. There may also be instances outside of the Annual General Meeting cycle (e.g., in the case of convertible bonds), where corporate issuers may seek BlueBay's support to authorize certain business decisions and a quorum of investors is needed.

Further detail on BlueBay engagement and proxy voting is available in the [ESG Investment Policy](#) and [UK Stewardship Code Report 2021](#).

4. Metrics and targets

The following key climate-related metrics apply to 90% (US\$60.8 billion) of BlueBay's assets under management, and covers both corporate and sovereign fixed income asset classes across geographies.¹¹⁵ The climate-related metrics used for corporate fixed income and sovereign fixed income, are presented separately below.

Assets that are not included in the portfolio analysis are: non-sovereign government bonds, cash and equivalents, ETFs or mutual funds, mortgages, asset-backed securities, private placements, loans, equities and derivatives. These assets are primarily excluded from this analysis due to limitations in data availability, inapplicability of methodologies, and/or materiality relative to the overall AUM.

In order to provide increased transparency and context, the data coverage percentage for each metric is provided. Consideration of the data coverage percentage should be taken alongside the value of all metrics. Where data coverage is low, this may result in values that are not representative of the entire portfolio.

For a description of climate-related metrics and methodology refer to [Appendix 3](#) and [Appendix 4](#).

¹¹⁵ See [Appendix 2](#) for scope of analysis.

Table 1: Key climate-related metrics for BlueBay AUM in scope of analysis¹¹⁶

CORPORATE BONDS			
AUM in scope of analysis	Climate metrics are calculated for 64% (US\$43.0 billion) of BlueBay AUM		
Data reporting period	January 1, 2022 to December 31, 2022		
Calculation date	All holdings and climate data is calculated as at December 31, 2022 ¹¹⁷		
Data coverage	Carbon emissions data coverage is available for 59% (US\$25.2 billion) of AUM included in the scope of analysis. ¹¹⁸ Of this, 44% is reported carbon emissions data, 14% is estimated emissions data, and 41% have no available data. Reported and estimated carbon emissions data is from MSCI®.		
KEY CLIMATE-RELATED METRICS			DATA COVERAGE (%)
Carbon emissions (Scope 1 and 2)	Financed emissions (Mt CO ₂ eq)	1.3 Mt CO ₂ eq.	59%
	WACI (by sales)	155 tCO ₂ eq./\$M sales	
	Carbon intensity	191 tCO ₂ eq./\$M sales	
	Emissions/\$M invested (carbon footprint)	31 tCO ₂ eq./\$M invested	
Investment in issuers with climate targets	% AUM invested in issuers with verified or committed SBTi targets ¹¹⁹	37% (US\$15.8 billion)	70%
	% of AUM invested in issuers with a carbon emissions reduction target (SBTi and other)	60% (US\$25.6 billion)	
Temperature alignment	Implied Temperature Rise	2.9 °C	57%
	% of AUM aligned with an Implied Temperature Rise of below 2°C	30% (US\$13.1 billion)	
Aggregated Climate Value at Risk (VaR) (policy risk + technology opportunity + physical risks and opportunities)	Aggregated Climate VaR (Net Zero by 2050)	-14.6 %	51%
	Aggregated Climate VaR (Divergent Net Zero)	-27.7 %	
	Aggregated Climate VaR (Below 2°C)	-11.9 %	
	Aggregated Climate VaR (Delayed Transition)	-22.2 %	
	Aggregated Climate VaR (NDC)	-10.7 %	
SOVEREIGN BONDS			
AUM in scope of analysis	Climate metrics are calculated for 26% (US\$17.7 billion) of BlueBay AUM.		
Data reporting period	January 1, 2022 to December 31, 2022		
Calculation date	All holdings and climate data is calculated as at December 31, 2022 ¹²⁰		
Data coverage	Carbon emissions data coverage ¹²¹ is available for 99% (US\$17.5 billion) of AUM included in the scope of analysis, and 1% has no data available.		
KEY CLIMATE-RELATED METRICS			DATA COVERAGE (%)
Carbon emissions	Financed emissions (by PPP-adjusted GDP)	3.9 Mt CO ₂ eq	99%
	Weighted average carbon intensity (by PPP-adjusted GDP)	222 tCO ₂ eq. (by PPP-adjusted GDP)	
Investment in issuers with climate targets¹²²	% of AUM invested in issuers with a net-zero target (includes those passed into law, in policy, pledged or in discussion)	96% (\$US17.0 billion)	100%
	% of AUM invested in issuers with a net-zero target (passed into law)	51% (\$US 9.0 billion)	

¹¹⁶ Values may not add up to totals due to rounding. See [Appendix 2](#) for the scope of analysis, [Appendix 3](#) for climate scenario analysis methodology, and [Appendix 4](#) for climate metrics and methodology.

¹¹⁷ MSCI® data is accessed January 1, 2023. MSCI ESG Research.

¹¹⁸ 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, 2022, MSCI®.

¹¹⁹ Issuers' climate targets are considered to be Paris-aligned (also called science-based) or net-zero aligned if they have been verified by the [Science-based Targets initiative \(SBTi\)](#) as meeting their related target-setting criteria. SBTi provides a publicly available database of companies that have verified science-based and net-zero targets, and of companies that have committed to set a target within 24 months.

¹²⁰ MSCI® data is accessed January 1, 2023. MSCI ESG Research.

¹²¹ Data coverage based on issuers with either reported or estimated sovereign carbon emissions, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®.

¹²² Based on [Net Zero Tracker](#). See [Appendix 4](#) for details.

Key climate metrics by asset class and geography¹²³

The following analysis aggregates investments into portfolios based on asset type and geography. Portfolios are then compared to representative benchmarks, as described below. See [Appendix 3](#) and [Appendix 4](#) for a description of climate metrics and methodologies.

Climate-related data coverage for corporate fixed income securities tends to be lower than for equities, across all regions. This is generally due to ESG and climate-related

data being reported by issuers at the parent level, and not for subsidiaries. As a result, reported data is often not available for bond issuances from subsidiary entities. Methodologies exist to apportion ESG data from parent entities to their subsidiaries, based on a rules-based approach. However, as the operations (and thus, emissions profiles) of subsidiaries can differ significantly from their parent entity, in this report BlueBay prefers not to allocate the reported emissions from the parent company to the bonds of a subsidiary.

Table 2: Scope of analysis for climate-related metrics, by asset class and geography^{124, 125}

Portfolio	AUM		Representative benchmark ¹²⁶
	USD (billion)	% data coverage ¹²⁷	
Developed market (DM) corporate bonds	\$36.7	61%	Bloomberg Global Aggregate Corporate Bond Index
Emerging market (EM) corporate bonds	\$6.4	45%	J.P. Morgan Corporate Emerging Markets Bond Index Diversified
Developed market (DM) sovereign bonds	\$12.6	100%	Bloomberg Global Treasury Total Return
Emerging market (EM) sovereign bonds	\$5.2	96%	JPMorgan Emerging Market Bond Index Global Diversified (EMBIGD) ¹²⁸
Total	\$60.8	70%	

Corporate fixed income

Carbon emissions

Carbon emissions analysis provides a view on the relative exposure of portfolios, sectors, and 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 a portfolio, sector, or issuer to global emissions, and by extension to climate change.

Carbon emission data is available for 59% of corporate bonds. Of this, 44% is reported emissions data, 14% is estimated, and 41% have no emissions data.¹²⁹

The WACI (by sales) of the DM corporate bond portfolio is significantly lower than the representative benchmark. This is generally due to exposure to less carbon-intensive companies within the Utilities sector. The WACI (by sales) for the EM corporate bond portfolio is higher than the DM corporate bond portfolio, which is to be expected given the manufacturing intensity, and higher carbon emissions intensity of electricity generation in many EM regions. The EM bond portfolio's higher WACI (by sales) relative to the benchmark is mainly driven by exposure to issuers with higher carbon intensities within the Utilities and Energy sectors. For both the DM and EM corporate bond portfolios, the Utilities and Energy sectors collectively account for 77% of the WACI (by sales). It is important to note that since WACI is a weighted average metric that is normalized, values may be affected by lower data coverage, which is due to the lack of carbon emissions data for securities in scope of analysis.¹³⁰ (See Figure 2).

¹²³ See [Appendix 2](#) for scope of analysis and benchmarks

¹²⁴ Values may not add up to totals due to rounding. Applies to BlueBay AUM, as described in [Appendix 2](#).

¹²⁵ 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 IMF definition classification (which can be found [here](#)). All other countries not included in this would fall into the emerging markets (EM) category.

¹²⁶ For comparative purposes.

¹²⁷ Data coverage is based on issuers with carbon emissions data, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®.

¹²⁸ 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.

¹²⁹ RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 4](#) for climate metrics and methodology. Reported and estimated carbon emissions data is from MSCI®.

¹³⁰ See [Appendix 4](#) for additional details.

Carbon emissions analysis provides a view on where emissions are produced, rather than where they are consumed, which impacts both sector and regional variations in portfolio carbon emissions. This dynamic plays out across sectors and industries given the interconnections between value chains. It also occurs across regions and countries, based on whether those economies are net-producers or net-consumers of carbon-intensive goods and services. Portfolio carbon emissions are therefore in large part reflective of each portfolio's sector distribution and the carbon intensity of those sectors. They are also largely reflective of whether a region is a net-producer or consumer of emissions.

Figure 2: Weighted Average Carbon Intensity (inclusive of scope 1 and 2 emissions)¹³¹

As at December 31, 2022

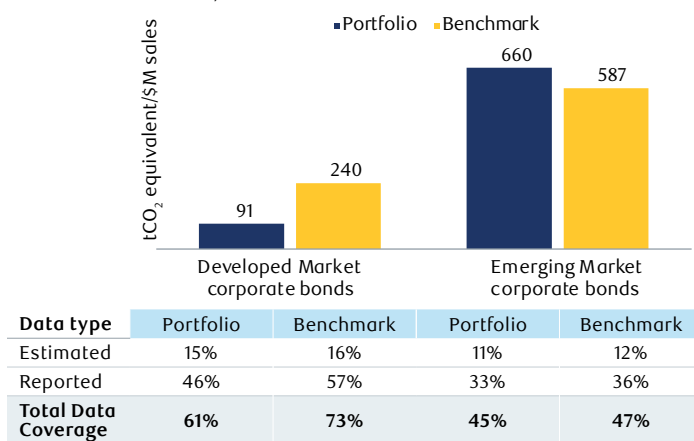


Table 3: Carbon emissions metrics, inclusive of scope 1 and 2 emissions¹³²

As at December 31, 2022

CORPORATE BONDS	DM corporate bonds		EM corporate bonds	
	Portfolio	Benchmark	Portfolio	Benchmark
Data Coverage (%)	61%	73%	45%	47%
AUM (US\$ billions)	\$36.7	-	\$6.4	-
Financed emissions (MtCO ₂ eq.)	0.76	-	0.57	-
Weighted average carbon intensity (tCO ₂ eq./\$M sales)	91.3	240.0	660.0	586.8
Carbon emissions/\$M invested (tCO ₂ eq./\$M)	20.6	29.5	89.1	95.6
Carbon intensity (tCO ₂ eq./sales)	124.9	144.0	656.8	594.3

¹³¹Values may not add up to totals due to rounding. RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks.

¹³²Values may not up to totals due to rounding. RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 4](#) for climate metrics and methodology.

¹³³[Foundation for Science-based Net-zero Target Setting in the Financial Sector](#)

¹³⁴RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for the scope of analysis and benchmarks. See [Appendix 4](#) for climate metrics and methodology.

¹³⁵Ibid

¹³⁶[Guidance for the oil and gas sector](#), SBTi, accessed January 18, 2023.

Investment in issuers with climate targets

While carbon emission analysis provides a view of potential exposure to climate-related risks, this does not consider the actions companies are taking, or are committed to taking in the future to reduce emissions. It is for this reason that we assess investments in issuers with climate targets to provide a forward-looking view of the relative level of commitment and expected trajectory of emissions for portfolio companies.¹³³

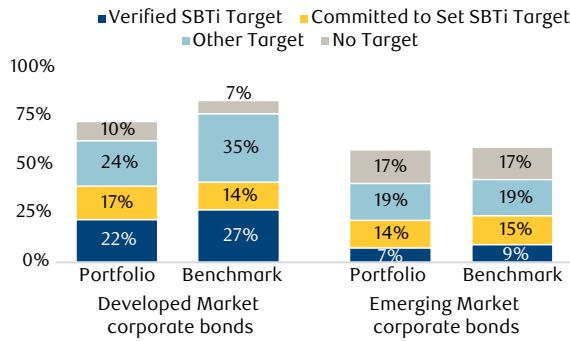
37% (US\$15.8 billion) of corporate bond investments are in issuers with verified or committed science-based targets (based on SBTi targets).¹³⁴

60% (US\$25.6 billion) of corporate bond investments are in issuers with a carbon emissions target (includes SBTi verified and committed targets, and other climate targets).¹³⁵

Carbon emissions reduction 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. Targets are considered to be Paris-aligned (also called science-based) or net-zero aligned if they have been verified by the Science-based Targets initiative (SBTi) as meeting their related target-setting criteria. SBTi provides a publicly available database of companies that have verified science-based and/or net-zero targets, and of companies that have committed to set a target within 24 months. However, not all issuers may choose to apply a voluntary standard such as SBTi, and SBTi is currently unable to accept commitments or validate targets for companies in certain industries, such as the oil and gas and fossil fuel sectors.¹³⁶ For this reason, we also track and monitor AUM invested in issuers with any carbon emissions reduction targets. (See Figure 3).

Figure 3: Percent of AUM invested in issuers with a climate target¹³⁷

As at December 31, 2022



Data Coverage

Portfolio	72%	58%
Benchmark	83%	59%

Temperature alignment

The Implied Temperature Rise (ITR) is a modelled, forward-looking metric that provides an indication of what temperature pathway an issuer or portfolio aligns with.¹³⁸ In other words, this metric indicates what the global average temperature increase would be in 2100 if the global economy looked like that issuer or portfolio. As this metric takes into consideration both the carbon emissions of issuers, and the expected reduction in emissions due to their published emissions reduction targets, it may provide an indication of the alignment of an issuer or portfolio to a particular temperature pathway.

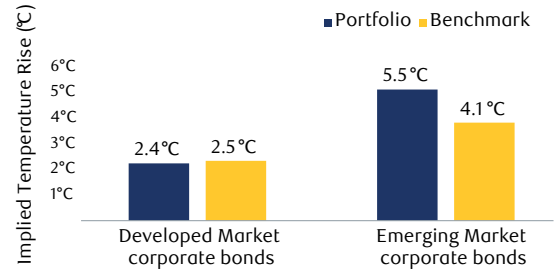
30% (US\$13.1 billion) of corporate fixed income investments are currently in issuers with a temperature alignment of below 2°C. This consists of 34% (US\$12.4 billion) of DM corporate bonds and 10% (US\$654 million) of EM corporate bonds.¹³⁹

No portfolio or benchmark currently has an aggregated temperature alignment that is below 2°C (See Figure 4). This is largely to be expected as the latest data, according to the U.N., indicates that the world is on track for a temperature rise between 2.4 to 2.6°C by the end of this century.¹⁴⁰ The higher ITR for the EM corporate bond portfolio is largely reflective of the higher carbon intensity issuers in the region, and the fact that EM issuers tend to have fewer and less ambitious carbon emissions reduction targets. It is important to note however,

that the ITR may be affected by lower data coverage. Since aggregated portfolio-level ITR values may mask the distribution of issuers' temperature alignment, it can be more insightful to assess the percentage of issuers with an ITR below 2°C, which is aligned to the goal of the Paris Agreement. (See Figure 5.)

Figure 4: Implied temperature rise¹⁴¹

As at December 31, 2022

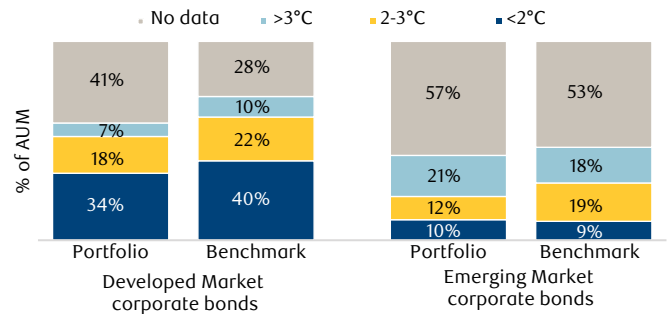


Data Coverage

Portfolio	59%	43%
Benchmark	72%	47%

Figure 5: Percent of AUM by temperature range¹⁴²

As at December 31, 2022



¹³⁷RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 4](#) for climate metrics and methodology.

¹³⁸[Implied Temperature Rise Methodology](#), MSCI® ESG Research, September 2021

¹³⁹RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for the scope of analysis and benchmarks. See [Appendix 4](#) for climate metrics and methodology.

¹⁴⁰[Climate change: No 'credible pathway' to 1.5C limit, UNEP warns](#), United Nations, October 27, 2022

¹⁴¹RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 4](#) for climate metrics and methodology.

¹⁴²ibid

Climate scenario analysis

Climate scenario analysis enables investors to assess the impact of potential future scenarios on the value of assets. Scenario analysis is not meant to be a forecast; rather, scenarios represent a range of plausible future pathways consistent with achieving specific climate temperature targets, which 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 modelled nature of outputs, and the range of assumptions required as inputs.

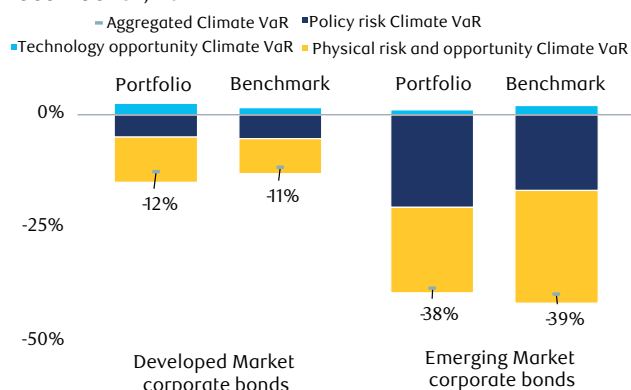
BlueBay’s climate scenario analysis leverages the transition scenarios recommended by the Network for Greening the Financial System (NGFS).¹⁴³ The NGFS scenarios provide alternative views on long-term temperature targets, net-zero emissions targets, energy supply and demand, climate policy, and technology availability. The scenarios also vary in terms of whether the transition occurs in an orderly or disorderly manner, with policy action beginning in 2025 for orderly transitions, and in 2030 for disorderly transitions. Disorderly transition scenarios tend to pose higher policy risk, largely due to delayed policy action and higher carbon prices. Climate scenarios are translated into a financial metric, Climate Value at Risk (VaR), which provides an indication of the potential change in valuation of a security or portfolio due to climate change, which is expressed as a percentage. See [Appendix 3](#) for details.

BlueBay measured the Climate VaR for orderly and disorderly transition scenarios, including a Net Zero by 2050 scenario.

For both DM and EM corporate bonds, disorderly transition scenarios were found to pose a higher financial risk. This is primarily due to the fact that policy action in disorderly scenarios is delayed until 2030, and due to the higher cost of policy action for carbon-intensive sectors. This is reflected in the higher Climate VaR for EM corporate bonds relative to DM corporate bonds. In order to provide an aggregated view of how both transition and physical risks and opportunities may affect valuations across portfolios, we include the Aggregated Climate VaR in Figure 6. This includes the Net Zero by 2050 scenario for policy risk and technology opportunities, and the RCP 8.5 (aggressive scenario) for physical risks and opportunities, as described in Appendix 3. Policy risk is a significant contributor to Climate VaR for EM corporate bonds. This is to be expected, as the model applies each scenario’s carbon price to projected carbon emissions for each issuer (e.g. the Net Zero by 2050 scenario assumes a carbon price of US\$672.71 2010/t CO₂ in 2050).

Figure 6: Aggregated Climate VaR for Net Zero by 2050 scenario¹⁴⁴

As at December 31, 2022



Data Coverage

Portfolio	53%	35%
Benchmark	66%	42%

BlueBay measured the Climate VaR for ten natural hazards, including coastal and fluvial flooding, extreme heat, tropical cyclones and wildfire.

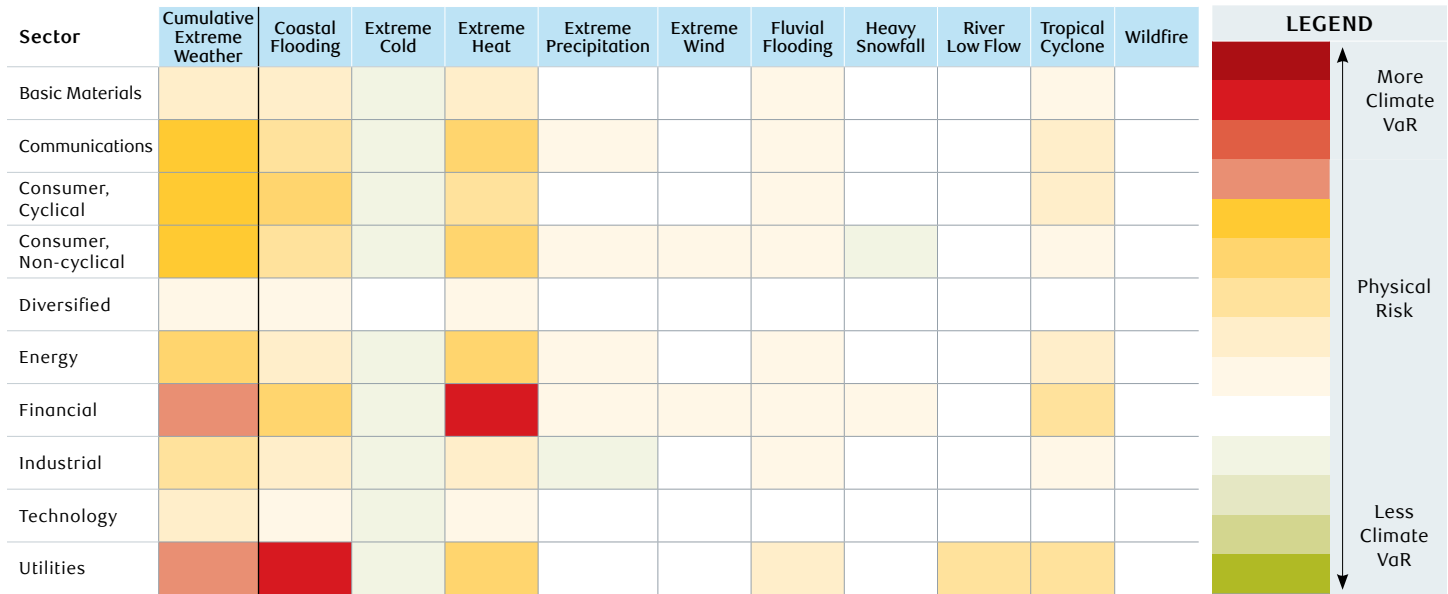
We evaluated physical Climate VaR under a high-emissions, “business as usual” scenario (RCP 8.5) with a temperature target in the 4°C range. Across both our DM and EM corporate bond portfolios, the Utilities, Financial, and Consumer Cyclical sectors are most affected by physical risks, with extreme heat and coastal flooding posing the greatest potential impact on valuations. The implications of extreme heat can be felt through adverse effects on a business’s operation – including reduced labour availability and productivity. Meanwhile, coastal flooding can result in severe asset damage and prolonged business interruptions. Additional factors that may impact Climate VaR due to physical impacts, but which are not currently included in the 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 disasters. (See Figure 7).

¹⁴³RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 3](#) for climate scenario analysis methodology. Based on NGFS Scenarios, June 2021

¹⁴⁴ibid

Figure 7: Climate VaR for physical risk scenario for RCP 8.5 (aggressive) scenario, by sector ¹⁴⁵

As at December 31, 2022



Sovereign fixed income

Methodologies and approaches for measuring carbon emissions for sovereign investments continue to evolve. Variations in methodologies are generally due to differing approaches for carbon emissions accounting, and different factors that can be used to apportion and allocate emissions to sovereign bonds. Efforts are underway to improve the standardization and methodologies for measuring emissions related to investments in sovereign bonds. For example, the Partnership for Carbon Accounting Financials (PCAF) released their Global GHG and Accounting Standard (PCAF Standard) in December 2022, which included a methodology for calculating financed emissions from sovereign debt.

BlueBay continues to assess and explore methodologies for measuring and reporting on climate-related metrics for sovereign bonds. While we acknowledge that gaps in data and methodology exist, we believe that it is important to continue to make progress in this area. For this reason, we calculate the carbon emissions of sovereign bond portfolios using several metrics, and have included an additional metric that measures investments in sovereign issuers that have set a self-declared net-zero emissions target. The latter metric takes into consideration the status of sovereign issuers' self-declared net-zero targets and identifies whether or not these have been passed into law. This approach is based on the expectation that a country that has passed its emissions reduction targets into law is more likely to take action to

meet this commitment, as compared to a country that has not. While this metric does not indicate 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 methodologies. It is for this reason that our disclosure focuses on reported data, such as investments in issuers with self-declared net-zero targets, and the status of these targets.

We do not include climate scenario analysis for sovereign bond investments in this report due to limitations in data and methodologies. Investment desks may however consider the impact of climate scenarios on a case-by-case basis as part of their investment decision-making process, for applicable types of investments. 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.

Carbon emissions

Sovereign bonds are an important asset class within fixed income, and one that may be exposed to climate-related risk. The carbon emissions footprint of sovereign bonds is an important starting point for conducting climate risk analysis.¹⁴⁶

¹⁴⁵RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 3](#) for climate scenario analysis methodology.

¹⁴⁶References to carbon emissions are inclusive of all greenhouse gas emissions (t CO₂ eq.), unless otherwise indicated.

A country's emissions depend on the size of the country, its population, its level of development, and the carbon-intensity of its economy. Country-level GHG emissions are generally reported in accordance with international accounting standards set by the United Nations Framework on Climate Change (UNFCCC). As sub-sovereign and municipal counterparties are not subject to these standards, emissions-related data for this asset class is very limited and therefore not included in this analysis. In addition, emissions data for supra-national bonds is also excluded from this analysis, as significant double-counting can occur when aggregating emissions from underlying countries.¹⁴⁷ We will continue to evaluate methodologies for addressing this issue in the future.

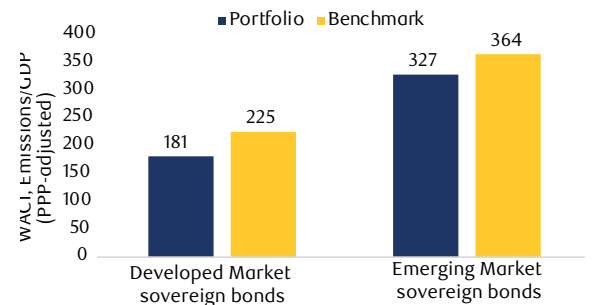
Several carbon emissions metrics for sovereign bonds are included below. In selecting metrics, we have focused on the methodologies recommended by PCAF.¹⁴⁸ PCAF identifies both a production- and consumption-based approach for calculating financed emissions from sovereign debt investments. Production emissions (also called territorial emissions) are emissions produced domestically, and include domestic consumption and exports. This is the approach used in annual national inventories, and is typically referenced by sovereigns in their Nationally Determined Contributions (NDCs). In contrast, consumption emissions reflect the demand side of sovereign emissions and account for consumption patterns and trade effects. This takes into account the emissions that a country is responsible for, but that may not be produced within their territorial boundaries. Using a consumption based metric seeks to address the issue of carbon leakage that may occur when production of goods and services shifts to countries with less stringent climate policies. As noted by PCAF, however, there are challenges in calculating consumption-based emissions metrics, and it remains difficult to access this data in a consistent and comparable way.

Sovereign carbon emissions analysis will generate different results depending on whether production- or consumption-based emissions are used. In our analysis we are using production-based emissions, as these are reported by countries as part of their NDCs, and therefore reliable and readily available. For sovereign bonds, emissions are generally attributed based on gross domestic product (GDP), total debt outstanding, or on a per capita basis. The PCAF Standard recommends using Purchase Power Parity (PPP)-

adjusted GDP when using production emissions as it allows for a comparison of the real size of economies and is less volatile than other measures, notably those based on market exchange rates.

The weighted average carbon intensity (WACI) by PPP-adjusted GDP provides an indication of how carbon efficient or intensive a sovereign issuer's economy is. The DM sovereign bond WACI is less than that of its benchmark. This is primarily due to the portfolio's overweight exposure to Danish sovereign bonds, as compared to the representative benchmark. The EM sovereign bond WACI is also lower than that of its benchmark, which is largely due to the portfolio having lower exposure to several high-carbon sovereign issuers relative to the representative benchmark.

Figure 8: Weighted average carbon intensity, by PPP-adjusted GDP¹⁴⁹
As at December 31, 2022



Data Coverage

Portfolio	100%	96%
Benchmark	100%	74%

SOVEREIGN FIXED INCOME ¹⁵⁰	DM sovereign bonds		EM sovereign bonds	
	Portfolio	Benchmark	Portfolio	Benchmark
Data Coverage	100%	100%	96%	74%
AUM (US\$ billions)	\$12.6	-	\$5.2	-
Financed emissions, by PPP-adjusted GDP (M tCO ₂ eq.)	2.3	-	1.6	-
Weighted average carbon intensity (by PPP-adjusted GDP)	180.6	224.6	327.3	363.8

¹⁴⁷ PCAF Global GHG Standard, December 2022.

¹⁴⁸ PCAF Global GHG Standard, December 2022.

¹⁴⁹ Values for PPP-adjusted GDP are from the [International Monetary Fund \(IMF\), World Economic Outlook Database, October 2022 edition](#). All carbon emissions data is from MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®. See [Appendix 2](#) for scope of analysis and benchmarks. See [Appendix 4](#) for climate metrics and methodology.

¹⁵⁰ As at December 31, 2022. RBC GAM analysis, MSCI ESG Climate Change Metrics, December 31, 2022, MSCI®, January 1, 2023. See [Appendix 2](#) for scope of analysis and benchmarks.

Investments in issuers with climate targets

The Paris Agreement aims to limit the rise of global temperature from pre-industrial levels to well below 2°C by 2100, and to pursue efforts to further limit it to 1.5°C.¹⁵¹ All countries that are party to the Paris Agreement are required to establish a Nationally Determined Contribution (NDC), which identify the country’s climate action plan to cut emissions and adapt to climate impacts. According to [Net Zero Tracker](#), 22 out of 197 countries that have ratified the Paris Agreement have established an economy-wide emissions reduction target that they have passed into law.¹⁵²

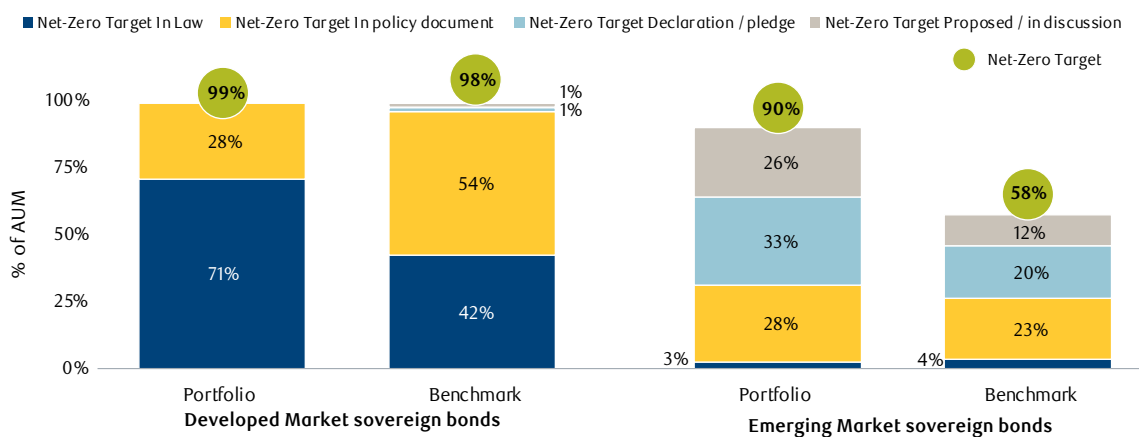
In the lead-up to the United Nations climate conference (COP26) in 2021, many countries updated their NDCs, and some included net-zero emissions targets as part of these. This included Canada, the United States, the European Union,

the United Kingdom, China, Japan, South Korea, and Mexico. It has been estimated however that even with current country-level climate targets, global emissions are still expected to rise in line with a temperature rise of 2.4-2.6°C by 2100 compared to pre-industrial levels.¹⁵³ This signifies that decarbonization efforts will need to accelerate in order to meet the ambition of the Paris Agreement, and to mitigate climate-related risks.

In both the DM and EM sovereign bond portfolios, over 90% of AUM is invested in issuers that have declared a net-zero target. In the DM sovereign bond portfolio, 71% of the net-zero targets have been passed into law, as compared to 3% for EM sovereign bonds, where the majority of targets are in policy documents or in declarations (61%). (See Figure 9).

Figure 9: Percent of AUM invested in issuers with climate targets¹⁵⁴

As at December 31, 2022



Data Coverage

Portfolio	100%	100%
Benchmark	100%	79%

¹⁵¹United Nations Climate Change, [The Paris Agreement](#)

¹⁵²Accessed January 19, 2023.

¹⁵³[Climate change: No 'credible pathway' to 1.5C limit. UNEP warns](#), United Nations, October 27, 2022

¹⁵⁴RBC GAM analysis, based on [Net Zero Tracker](#), December 31, 2022. See [Appendix 2](#) for scope of analysis and benchmarks.

Appendix 2: Scope of analysis for climate-related metrics

In this report, climate metrics are calculated for 74% (US\$287.0 billion) of total RBC GAM AUM as at December 31st, 2022. This represents 93% of RBC GAM's equity investments and 73% of fixed income investments.

Scope of analysis for climate-related metrics provided in [Section 2.3](#) and [Section 4.1](#)

Table 1: RBC GAM AUM included in the scope of analysis (does not include BlueBay AUM)

Portfolio	AUM		Representative benchmark
	USD (billions)	% data coverage ¹⁵⁵	
Canadian equities	\$51.8	98%	S&P/TSX Capped Composite Index
U.S. equities	\$57.6	100%	S&P 500 Index
International equities	\$18.2	100%	MSCI Europe, Australasia, Far east (EAFE) Index, ex-Asia-Pacific ¹⁵⁶
Emerging market equities	\$2.5	99%	MSCI Emerging Markets (EM) Index, ex Asia-Pacific
Asia-Pacific equities	\$24.6	99%	MSCI All-Country Asia-Pacific Index
Canadian corporate bonds	\$48.8	59%	FTSE Canada All Corporate Bond Index
U.S. corporate bonds	\$17.3	67%	ICE BofA U.S. Corporate Master Index
International corporate bonds	\$5.4	60%	Bloomberg Barclays Global Aggregate Corporate Index (BAGACC)
Total	\$226.2	87%	

Assets that are not included in the portfolio analysis are: government bonds, cash and equivalents, ETFs or mutual funds, 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.

Scope of analysis for climate-related metrics provided in [Appendix 1](#)

Table 2: BlueBay AUM included in the scope of analysis

Portfolio	AUM		Representative benchmark
	USD (billions)	% data coverage ¹⁵⁷	
BlueBay ¹⁵⁸			
Developed market (DM) corporate bonds	\$36.7	61%	Bloomberg Global Aggregate Corporate Bond Index
Emerging market (EM) corporate bonds	\$6.4	45%	J.P. Morgan Corporate Emerging Markets Bond Index Diversified
Developed market (DM) sovereign bonds	\$12.6	100%	Bloomberg Global Treasury Total Return
Emerging market (EM) sovereign bonds	\$5.2	96%	JPMorgan Emerging Market Bond Index Global Diversified (EMBIGD) ¹⁵⁹
BlueBay Total	\$60.8	70%	

Assets that are not included in the portfolio analysis are: non-sovereign government bonds, cash and equivalents, ETFs or mutual funds, mortgages, asset-backed securities, private placements, loans, equities 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.

¹⁵⁵Data 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, 2022, MSCI®.

¹⁵⁶The representative benchmarks were constructed from the MSCI EAFE Index and the MSCI EM Index, with a sub-set of countries excluded. This approach was taken to avoid overlap between the MSCI EAFE Index, MSCI EM Index and the MSCI All-Country Asia-Pacific Index. The subset of countries excluded from the MSCI EAFE Index are: Australia, Hong Kong, Japan, New Zealand, and Singapore. The subset of countries excluded from the MSCI EM Index are: China, Indonesia, India, South Korea, Malaysia, Philippines, Thailand, and Taiwan. To remain consistent, the same subset of countries were used across the International equities and Emerging market equities portfolios.

¹⁵⁷Data 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, 2022, MSCI®.

¹⁵⁸In 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 IMF definition classification (which can be found [here](#)). All other countries not included in this would fall into the emerging markets (EM) category.

¹⁵⁹For 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 3: Climate scenario analysis methodology

The following methodology applies to the metrics reported in [Section 2.3](#), [Section 4.1](#) and [Appendix 1](#).

In 2022, RBC GAM’s climate scenario analysis included the transition scenarios recommended by the Network for Greening the Financial System (NGFS). The NGFS scenarios 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, with policy action beginning in 2025 for orderly transitions, and in 2030 for disorderly transitions.

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.¹⁶⁰ We do not use the current policies scenario in our analysis. This scenario assumes all government policies (as of December 2019) are implemented, and as such the costs of those policies are assumed to be already priced into markets.

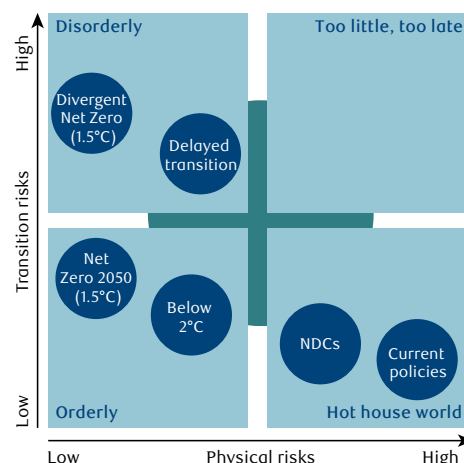


Figure 1: Summary of key variables for NGFS scenarios used in climate scenario analysis¹⁶¹

	1.5°C		2.0°C		3.0°C
	Net Zero 2050 Orderly	Divergent Net Zero Disorderly	Below 2°C Orderly	Delayed Transition Disorderly	Nationally Determined Contributions Hot House World
Socio-economic assumptions, based on SSP2	World population peak: 2070 World population in 2100 (million): 9,019 Real GDP growth 2020-2100 (CAGR): 2.0%				
Carbon price					
Carbon price in 2030, in US\$ 2010/tCO ₂	184.07	278.40	57.89	2.49	9.97
Carbon price in 2050, in US\$ 2010/tCO ₂	672.71	783.16	193.38	621.92	34.06
Electricity generation by fuel source					
2030 Fuel mix					
% renewables	72%	71%	58%	41%	46%
% nuclear	6%	6%	6%	6%	5%
% gas	17%	18%	22%	26%	25%
% coal	4%	5%	14%	28%	23%
2050 fuel mix					
% renewables	94%	93%	92%	94%	80%
% nuclear	3%	4%	4%	4%	3%
% gas	3%	3%	5%	3%	16%
% coal	0%	0%	0%	0%	1%
Low-carbon fuel sources in transport					
2050 low carbon fuel sources (%)	26.46%	45.70%	18.37%	25.72%	14.00%
Carbon sequestration (Mt CO₂/yr)					
Year uptake surpasses 5000 Mt/yr	2037	2045	2050	2050	2090
Carbon sequestration peak (Mt/yr)	8,779	7,645	7,498	5,926	5,342
GHG emissions					
Peak year	2020	2020	2020	2049	2025
90% reduction achieved by ¹⁶²	2045	2045	2055	2059	n/a
Zero emissions achieved by ¹⁶³	2055	2055	2100	2060	n/a
Annual change, 2020-2030 (CAGR)	-7.1%	-7.1%	-3.5%	+0.7%	+0.2%
Annual change, 2020-2050 (CAGR)	-11.7%	-10.6	-4.7%	-8.1%	-1.2%
Global warming temperature					
Temperature in 2100	1.66°C	1.63°C	1.90°C	1.84°C	2.63°C

¹⁶⁰ The Shared Socio-economic Pathways (SSPs) were developed to complement the Representative Concentration Pathways (RCPs) by varying socio-economic futures. The combination of SSP-based socioeconomic scenarios and RCP-based climate projections provide an integrative frame for climate impact and policy analysis. (O'Neill et al., 2017; Riahi, V(uuren, et al., 2017).

¹⁶¹ MSCI ESG Research, Introduction to Climate Scenarios, and NGFS scenarios portal, [2021 Scenarios](#)

¹⁶² Achieving net-zero CO₂ emissions by 2050 is often seen as synonymous with keeping warming below 1.5°C. The transition scenarios are developed to limit warming to 1.5°C above pre-industrial levels. However, this does not necessarily mean that CO₂ emissions must reach exactly net zero by 2050. In the NGFS Net Zero 2050 scenario, global net CO₂ emissions are not exactly at zero by 2050, but in fact 900 MTCO₂. Source: [NGFS Scenario Portal, Frequently Asked Questions](#)

¹⁶³ Achieving net-zero CO₂ emissions by 2050 is often seen as synonymous with keeping warming below 1.5°C. The transition scenarios are developed to limit warming to 1.5°C above pre-industrial levels. However, this does not necessarily mean that CO₂ emissions must reach exactly net zero by 2050. In the NGFS Net Zero 2050 scenario, global net CO₂ emissions are not exactly at zero by 2050, but in fact 900 MTCO₂. Source: [NGFS Scenario Portal, Frequently Asked Questions](#)

Climate Value at Risk

RBC GAM uses Climate Value at Risk (VaR) to calculate the potential change in financial value of AUM due to climate change, under different climate scenarios.¹⁶⁴ Climate VaR is a downside risk indicator that determines the potential maximum drawdown that an asset could experience under a specific climate scenario. Climate VaR is calculated by modelling the future costs and revenue for issuers due to policy risk, technology opportunities, and physical risks and opportunities under each scenario. Financial modelling is then used to derive valuation impacts over time, which can be assessed at an aggregate level, or based on transition or physical risks and opportunities, as summarized below.

The Aggregated Climate VaR consists of three component parts that provide a combined view of potential value at risk due to climate factors:

- Policy risk Climate VaR quantifies, at a security level, the potential cost of complying with government climate policies in order to achieve the GHG emission reductions required, for each climate scenario. The Policy risk Climate VaR varies by NGFS scenario.
- Technology opportunity Climate VaR quantifies, at a security level, the potential profit derived from low-carbon revenues and low-carbon technologies, for each climate scenario. The Technology opportunity Climate VaR varies by NGFS scenario.
- Physical risk and opportunity Climate VaR quantifies the impact, at a security level, of chronic and acute risks, for each scenario. These risks manifest in an increase (risk) or decrease (opportunity) in business interruptions or asset damages. The aggressive RCP 8.5 scenario is used when calculating the Aggregated Climate VaR. As methodologies and models develop, we will seek to align the climate scenario for physical risks and opportunities to the scenario used for transition risks and opportunities when providing an Aggregated Climate VaR.

Figure 2: Overview of climate scenarios and Climate VaR methodology.

AGGREGATED CLIMATE VAR	=	TRANSITION RISKS AND OPPORTUNITIES		+	PHYSICAL RISKS AND OPPORTUNITIES
Climate metric		Policy risk Climate VaR	Technology opportunity Climate VaR		Physical risk and opportunity Climate VaR
Climate impact driver		Policy	Technology		Acute events Chronic impacts
Modeled inputs		<ul style="list-style-type: none"> ▪ GHG emissions reduction requirements ▪ Costs of reduction requirements (based on carbon price) 	<ul style="list-style-type: none"> ▪ Advances in low-carbon technology (based on patents) ▪ Low-carbon revenue 		<ul style="list-style-type: none"> ▪ Business interruption and asset damage due to chronic and acute physical risks
Time horizon		To 2080	To 2080		To 2080
Climate scenarios		NGFS scenarios¹⁶⁵ Net Zero by 2050 Divergent Net Zero Below 2°C Delayed Transition Nationally Determined Contributions (NDCs)			IPCC scenario RCP 8.5 ¹⁶⁶ (~4.3°C) Aggressive (95 th percentile) scenario

¹⁶⁴Detailed methodology for calculating Climate VaR is available from MSCI®

¹⁶⁵The Network for Greening the Financial System (NGFS). The NGFS climate scenarios were developed in partnership with an academic consortium including the Potsdam Institute for Climate Impact Research (PIK), the International Institute for Applied Systems Analysis (IIASA), the Center for Global Sustainability at the University of Maryland (UMD), Climate Analytics (CA), the Swiss Federal Institute of Technology in Zurich (ETHZ) and the National Institute of Economic and Social Research (NIESR).

¹⁶⁶The Representative Concentration Pathways (RCPs) are a set of scenarios established by the IPCC. RCP 8.5 is generally viewed as a high emissions, business-as-usual scenario. Riahi, K., Rao, S., Krey, V. et al. RCP 8.5—A scenario of comparatively high greenhouse gas emissions. *Climatic Change* 109, 33 (2011).

Appendix 4: Climate metrics and methodologies

The following content applies to climate-related metrics reported in [Section 2.3](#), [Section 4.1](#) and [Appendix 1](#).

RBC GAM selects and calculates climate metrics by considering the methodologies recommended by the TCFD,¹⁶⁷ including: weighted average carbon intensity, total carbon emissions (also referred to as financed emissions), carbon footprint (also referred to as emissions per million dollars invested), carbon intensity, exposure to transition risks (based on Climate VaR for transition scenarios), exposure to physical risks (based on Climate VaR for physical scenarios). RBC GAM also considers climate-related metrics such as portfolio coverage (also referred to as binary target measurement) and portfolio temperature alignment (implied temperature rise) metrics referenced in guidance provided by the Science-based Targets Initiative (SBTi).¹⁶⁸

Table 1: Overview of key climate-related metrics (see [Section 2.3](#), [Section 4.1](#), and [Appendix 1](#))

Metric	Unit	Calculation	Methodology reference ¹⁶⁹	Data source ¹⁷⁰
EQUITY AND CORPORATE BONDS				
Carbon emissions				
Financed emissions (total carbon emissions)	Mt CO ₂ eq.	$\sum_i \frac{\text{current value of investment}_i}{\text{enterprise value including cash}_i} \times \text{Issuer emissions}_i$ Note: The same denominator is used for listed equities and corporate bonds to allow for aggregation across portfolios.	PCAF (2022) and TCFD (2022)	MSCI® ESG Climate Change Metrics
Weighted Average Carbon Intensity (by sales)	tCO ₂ eq./\$M sales	$\sum_i \left(\frac{\text{current value of investment}_i}{\text{current portfolio value}} * \frac{\text{issuer's Scope 1 and Scope 2 GHG emissions}_i}{\text{issuer's \$M sales}_i} \right)$	TCFD (2022)	MSCI® ESG Climate Change Metrics
Carbon intensity	Mt CO ₂ eq./sales	$\frac{\sum_i \left(\frac{\text{current value of investment}_i}{\text{issuer's enterprise value including cash}} * \text{issuer's Scope 1 and Scope 2 GHG emissions}_i \right)}{\sum_i \left(\frac{\text{current value of investment}_i}{\text{issuer's enterprise value including cash}_i} * \text{issuer's \$M sales}_i \right)}$	TCFD (2022)	MSCI® ESG Climate Change Metrics
Emissions/\$M invested (carbon footprint)	tCO ₂ eq./\$M invested	$\frac{\sum_i \left(\frac{\text{current value of investment}_i}{\text{enterprise value including cash}} * \text{issuer's Scope 1 and Scope 2 GHG emissions}_i \right)}{\text{current portfolio value (\$M)}}$	TCFD (2022)	MSCI® ESG Climate Change Metrics
Investments in issuers with climate targets				
% AUM with SBTi verified and/or committed targets	% (\$)	Percentage of AUM invested in issuers with a verified (validated) and/or committed SBTi target	SBTi (2022)	MSCI® ESG Climate Change Metrics and Science-based targets initiative (SBTi)
% AUM with any climate target	% (\$)	Percentage of AUM invested in issuers with any emissions reduction target (inclusive of SBTi verified, SBTi committed, and any other target)	RBC GAM	MSCI® ESG Climate Change Metrics
Temperature alignment				
Temperature alignment (Implied Temperature Rise)	°C	2°C base temperature + Relative portfolio-level over/undershoot of carbon budget × Global 2°C carbon budget × TCRE Factor ¹⁷¹	SBTi (2022) and TCFD (2021)	MSCI® ESG Climate Change Metrics
% AUM with implied temperature rise below 2°C	% (\$)	Percentage of AUM by Implied Temperature Rise range (less than 2°C, 2°C to 3°C, and, over 3°C)	SBTi (2022) and TCFD (2021)	MSCI® ESG Climate Change Metrics

¹⁶⁷ [Annex 1: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures](#), TCFD (pg. 52-53). October 2021.

¹⁶⁸ [Foundations for science-based net-zero target setting in the financial sector](#), SBTi (pg. 38-39). April 2022.

¹⁶⁹ In some cases, methodologies have been adapted based on applicability to investment type, data availability, and/or limitations and gaps described herein.

¹⁷⁰ MSCI® data and methodologies are described [here](#).

¹⁷¹ The [2020 Measuring Portfolio Alignment Report](#) from the TCFD recommends a Transient Climate Response to Cumulative Carbon Emissions (TCRE) factor of 0.000545°C warming per Gt CO₂, which is based on the Intergovernmental Panel on Climate Change Physical Science Basis report (2013). 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.

Metric	Unit	Calculation	Methodology reference ¹⁶⁹	Data source ¹⁷⁰
EQUITY AND CORPORATE BONDS				
Climate opportunities				
Green revenue exposure	% (\$)	Percentage of AUM invested in issuers with revenue (at stated threshold levels. For e.g. 10% revenue) from the following sources Alternative Energy + Energy Efficiency + Green Buildings + Pollution Prevention + Sustainable Water + Sustainable Agriculture.	RBC GAM	MSCI® ESG Climate Change Metrics
Climate Solutions	% (\$)	Percentage of AUM with issuers classified as providing Climate Solutions. as per MSCI® Low Carbon Transition methodology	RBC GAM	MSCI® ESG Climate Change Metrics
Climate scenario analysis				
Climate VaR	%	Aggregated Climate VaR = Policy risk Climate VaR + Technology opportunity Climate VaR + Physical risk and opportunity Climate VaR	NGFS Scenarios (2021) and TCFD (2020)	MSCI® ESG Climate Change Metrics
SOVEREIGN FIXED INCOME				
Carbon emissions				
Financed emissions (by GDP attribution)	MT CO ₂ eq.	$\sum \frac{\text{Outstanding amount}_s}{\text{PPP-adjusted GDP}_s} * \text{Sovereign Production Emissions}_s$ <i>(with s = sovereign borrower)</i>	PCAF (2022)	MSCI® ESG Climate Change Metrics and International Monetary Fund (IMF) as at October 2022
Weighted Average Carbon Intensity (by PPP-adjusted GDP)	tCO ₂ eq./\$M GDP	$\sum w_i * \left(\frac{\text{country Emissions (tCO}_2\text{e)}_c}{\text{PPP-adjusted GDP}} \right)$ <i>Where:</i> <i>w_i = The value of holding portfolio weight (%) of sovereign bond 'i'.</i> <i>Country Emissions (tCO₂e)_c = The sovereign GHG emissions (tCO₂e) of country 'c'.</i> <i>GDP (USD mn)_c = The PPP-adjusted GDP of country 'c' in USD millions.</i> <i>n = The number of sovereign bonds in the portfolio.</i>	S&P (2018) and PCAF (2022)	MSCI® ESG Climate Change Metrics and International Monetary Fund (IMF) as at October 2022
Investments in issuers with climate targets				
% of AUM with a net-zero target (in law, in policy, or pledged)	%	Percentage of AUM invested in sovereign issuers that have a self-declared net-zero target, by category	RBC GAM	Net Zero Tracker ¹⁷²

Normalizing portfolios

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 Value at Risk (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. For the purposes of this Report, the implications will be most apparent across fixed income portfolios and benchmarks where data coverage is low. We have chosen to publish data coverage values and normalize climate-related metrics, to provide transparency and as this is the approach increasingly recommended by regulators.¹⁷³

Carbon emissions

There are seven GHGs mandated under the Kyoto Protocol, which significantly contribute to climate change. Each of these gases has a different global warming potential (GWP) – the amount of heat they hold. Carbon dioxide (CO₂) is the most abundant GHG, which is why it is used as the unit of measure for GHG emissions analysis. All other GHGs are converted into carbon dioxide equivalents (CO₂ eq.) based on their GWP. In this report, references to carbon emissions, or the use of tons of CO₂ equivalent, is inclusive of all GHG emissions.

Data source, type and quality

Carbon emissions data is purchased from MSCI® ESG Research.¹⁷⁴ Carbon emissions are classified as scope 1, 2 or 3 as per the GHG Protocol.¹⁷⁵ This data is collected by MSCI® once per year from the most recently available sources,

¹⁷² Net Zero Tracker is a collaboration of the Energy & Climate Intelligence Unit (ECIU), the Data-Driven EnviroLab (DDL), New Climate Institute, and Oxford Net Zero. The methodology used for collection and categorization of targets is available [here](#).

¹⁷³ [Questions and answers \(Q&A\) on the SFDR Delegated Regulation](#) (Commission Delegated Regulation (EU) 2022/1288), European Securities and Markets Authority (ESMA), November 17, 2022

¹⁷⁴ Methodology details published in MSCI ESG Climate Change Metrics, November 28, 2022, MSCI® ESG Research

¹⁷⁵ [Greenhouse Gas Protocol](#)

including annual reports, corporate sustainability reports or websites. Carbon emissions data reported through CDP (formerly the Carbon Disclosure Project) and/or government databases is also used, when reported data is not available through direct corporate disclosure. When companies do not disclose emissions data, estimations are used and 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. In this Report, carbon emissions data is categorized as reported, estimated or not available, based on the above description.

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. Sovereign financial data for the calculation of financed emissions and intensity-based metrics are from the World Economic Outlook, published by the International Monetary Fund (IMF).¹⁷⁶ 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.¹⁷⁷

Calculation time period

All climate metrics are calculated as at December 31, 2022, with holdings data, financial data, emissions-related data and other climate-related data current as at this date, unless otherwise indicated. Discrepancies and lags in data may exist due to a temporal mismatch between when data is reported by issuers and when it is available by third-party vendors. As both issuers and vendors update most metrics on an annual basis, this may result in temporal discrepancies. For example:

- Carbon emissions data for calendar 2022 is not yet available, as at December 31, 2022 due to the reporting time lag for issuers. As carbon emissions data is generally reported by companies on an annual basis, and collected by the third-party vendor on a rolling annual basis, carbon emissions data may reflect emissions from previous years (e.g. 2021, 2020 or 2019).
- Financed emissions and carbon-intensity values for corporate equity and corporate fixed income may use financial values (e.g. sales) that reflect a time period earlier than December 31, 2022. Due to the rolling annual disclosure of carbon emissions data by issuers, it can be challenging to align the date of emissions data with

reported financial data. All carbon emissions intensity values for corporate equity and fixed income are sourced directly from MSCI® ESG Research and use the emissions and financial values provided by the vendor. As such, metrics may not be an exact reflection of financial values as at December 31, 2022.

- Financed emissions and carbon-intensity values for sovereign fixed income may use financial values and other metrics (e.g. PPP-adjusted GDP) that reflect a time period that is earlier than December 31, 2022 and/or that does not align with the time period of the carbon emissions data. This is due to differing reporting time periods, similar to those described above.

Data coverage

For climate metrics disclosed in this report (in [Section 2.3](#), [Section 4.1](#) and [Appendix 1](#)), the climate-related data coverage for each metric is provided. Data coverage is the percentage of the portfolio for which there is climate data. For carbon emissions data, the breakdown of the percentage of reported versus estimated data is also provided for greater transparency. Variations in data coverage by metric may be due to the coverage universe for that metric available from third-party vendors or other data sources. We have chosen to publish data coverage values and normalize climate-related metrics, to provide transparency and as this is the approach increasingly recommended by regulators.¹⁷⁸

Climate-related data coverage for corporate fixed income securities tends to be lower than for equities, across all regions. This is generally due to ESG and climate-related data being reported by issuers at the parent level, and not for subsidiaries. As a result, reported data is often not available for bond issuances from subsidiary entities. Methodologies exist to apportion ESG data from parent entities to their subsidiaries, based on a rules-based approach. However, as the operations (and thus, emissions profiles) of subsidiaries can differ significantly from their parent entity, in this report we prefer not to allocate the reported emissions from the parent company to the bonds of a subsidiary. Subsidiary mapping is however used for metrics related to whether issuers have climate targets.

Double counting of emissions

Double counting arises when emissions are aggregated across sectors or a portfolio, and refers to counting the same emissions more than once. This occurs due to the fact that one company's scope 1 and 2 emissions are another company's scope 3 emissions. For example, the scope 3 emissions for 'use of products' from an auto manufacturer

¹⁷⁶ [World Economic Outlook](#), October 2022.

¹⁷⁷ [PCAF](#) (2022)

¹⁷⁸ [Questions and answers \(Q&A\) on the SFDR Delegated Regulation](#) (Commission Delegated Regulation (EU) 2022/1288), European Securities and Markets Authority (ESMA), November 17, 2022.

(e.g. burning of gasoline) are the scope 1 emissions for a delivery company that uses the vehicles from the manufacturer. The GHG Protocol provides guidance on reducing double-counting for company-level reporting,¹⁷⁹ which indicates that while assessing a company's total scope 1, 2 and 3 emissions may be informative, for investors any analysis of scope 3 emissions that involves more than one issuer at the same time raises issues of double counting. Double counting of scope 3 emissions can occur for multiple reasons within a portfolio, but generally occurs due to: overlapping emissions scopes, overlapping value chains, overlapping asset classes, matters of organizational boundaries and corporate actions.¹⁸⁰

As there continue to be challenges in the quality and consistency of scope 3 emissions estimation methodologies, and concerns regarding double-counting of emissions when aggregating emissions at a portfolio level, the portfolio carbon emissions disclosures in this report focus exclusively on scope 1 and 2 emissions.

Investment in issuers with climate targets

RBC GAM identifies and assesses the percentage of AUM that is invested in issuers that have themselves set carbon emissions targets as a way of identifying assets that are currently covered by emissions reduction targets. This 'portfolio coverage' approach is referenced by SBTi in their Financial Sector Science-based Targets Guidance (Versions 1.1, August 2022).

For this report, RBC GAM considers targets to be science-based (also called Paris-aligned) or net-zero aligned if they have been verified by SBTi as meeting the related target-setting criteria. SBTi provides a publicly available database of companies that have verified science-based and/or net-zero targets, and of companies that have committed to set a target within 24 months. However, not all issuers may choose to apply a voluntary standard such as SBTi, and SBTi is currently unable to accept commitments or validate targets for companies in certain industries, such as the oil and gas and fossil fuel sectors.¹⁸¹ For this reason, we also track and monitor AUM invested in issuers with any carbon emissions reduction targets. Issuer-level climate targets data is collected by MSCI® for all the companies in the MSCI ACWI IMI Index. This includes 32 different target and commitments

data points that are collected from publicly available disclosures, and includes target type (absolute or intensity-based), target scopes (Scope 1, 2 and 3) and categories (for scope 3), percent change in emissions targeted, baseline year of target and emissions value, target year and emissions value, the percentage of issuer's total emissions that are covered by the target. This data may include multiple targets set by issuers (e.g. short-, medium-, and long-term targets), as well as historical targets that have already been met.

Temperature alignment

The calculation of temperature alignment is based on the calculation of an issuer- or portfolio-level Implied Temperature Rise (ITR). ITR is a modelled, forward-looking metric that provides an indication of what temperature pathway an issuer or portfolio aligns with.¹⁸² This metric indicates what the global average temperature increase would be in 2100 if the global economy looked like that issuer or portfolio. ITR is generated by calculating a total carbon budget for the portfolio,¹⁸³ determining the portfolio's relative overshoot or undershoot of its carbon budget,¹⁸⁴ and translating that into a representative global temperature, in degrees Celsius.¹⁸⁵ This methodology takes into consideration guidance on portfolio alignment.¹⁸⁶ As a reference, individual issuers' ITR values, as provided by MSCI®, are available publicly [here](#).

It is worth noting that the ITR analysis is inclusive of scope 1, 2 and 3 emissions. All scope 3 emissions are estimated, based on MSCI® ESG Research methodology, which uses an industry segment-specific intensity model. Concerns regarding double counting exist for modeled metrics, such as ITR, as they do when calculating carbon emission metrics. For this model, in order to address the issue of double counting, the relative over/undershoot of each issuer and portfolio is computed by summing the over/undershoots and budgets for all three scopes of emissions. By calculating a relative metric (i.e. all scopes are in the nominator and the denominator), this seeks to reduce the impact of double counting. As a modeled metric that by its nature is based on assumptions and estimates, we consider this an indicative measure of the temperature alignment, versus an absolute or definitive value.

¹⁷⁹ Ranganathan, J. et al. "Chapter 4: Setting Operational Boundaries" in *The Greenhouse Gas Protocol. A Corporate Accounting and Reporting Standard*. World Resources Institute and World Business Council, March 2004

¹⁸⁰ Overcoming double counting in Scope 3 emissions, MSCI®, March 2021.

¹⁸¹ [Guidance for the oil and gas sector](#), SBTi, accessed January 18, 2023.

¹⁸² [Implied Temperature Rise Methodology](#), MSCI ESG Research, September 2021

¹⁸³ The [IPCC Special Report on 1.5 °C](#) provides the remaining global carbon budget for different temperature rises and probabilities, Table 2.2. This includes Scope 1, 2 and 3 emissions.

¹⁸⁴ The future carbon emissions of all underlying issuers within the portfolio are estimated based on their current emissions and taking into account existing carbon emissions reduction targets.

¹⁸⁵ The relative carbon overshoot or undershoot is then translated into a representative global temperature increase in degrees Celsius, using the science-based Transient Climate Response to Cumulative Emissions (TCRE) approach.

¹⁸⁶ [Implied temperature rise and forward looking metrics](#), Consultation, TCFD, October 2020, and [Measuring Portfolio Alignment: Enhancement, Convergence and Adoption](#), Glasgow Financial Alliance for Net Zero (GFANZ), August 2022.

Appendix 5: Operational emissions – RBC GAM UK and BlueBay

The performance, goals, and reporting of operational GHG emissions is established as part of the climate strategy of RBC,¹⁸⁷ which is inclusive of RBC GAM. RBC’s operational emissions are reported in the [RBC Climate Report 2022](#).¹⁸⁸

RBC GAM UK

Approach and methodology

RBC GAM UK reports on the following scopes of emissions from their operations:

- *Scope 1 (Direct)* – Fuels: Heating fuels, such as natural gas used to heat their branches, major properties, data centers and water. They also include the fuels directly purchased for travel for company-owned modes of transport.
- *Scope 2 (Indirect)* – Electricity & District Energy: Purchased electricity, cooling and steam are used in their branches, major properties and data centers and the associated emissions depend on what source is used to produce electricity in each of the jurisdictions where they operate.
- *Scope 3 (Indirect)* – Business Travel (Category 6): Operating a global business, requires travel by car, rail and air travel, for business-related travel.

Data sources and consideration

Scope 1 and 2 emissions data for RBC buildings and premises that we lease or own is sourced from its property management companies. Fuel purchased directly for travel, as well as travel booked through the third-party system and through travel agencies is aggregated and converted into emissions based on either fuel usage or distance conversion. Emissions factors used are either sourced from publicly available government sources or from the International Energy Agency’s annual emissions factors data set.

Energy usage is calculated based on meter readings where possible but in the case of common areas in buildings (e.g. reception, lift spaces) it is apportioned based on the percentage of floor space leased by the entity, as determined by the landlord. Usage is calculated for all RBC tenants as a whole. To allocate to RBC GAM UK, the rent allocation model has been used, which is based on floor space and headcount.

Data reporting period

The following operational emissions are for the fiscal year (November 1, 2021 to October 31, 2022). Year-on-year, business travel (scope 3) emissions increased relative to our 2021 performance, as the prior year reductions were influenced by travel restrictions during the pandemic.

Table 1: RBC GAM UK – Operational emissions inclusive of scope 1, scope 2 and scope 3 (business travel)

	2022	2021
Energy consumption used to calculate emissions (MWh):		
Gas	55.16	55.16
Electricity	137.00	126.39
Total energy consumption (MWh)	192.16	181.55
Scope 1		
Emissions from combustion of gas, tCO ₂ e	10.37	11.18
Scope 2		
Emissions from purchased electricity, tCO ₂ e	26.97	27.27
Scope 3		
Business travel, tCO ₂ e	239.63	0.57
Total gross tCO₂e based on the above	276.97	39.02
GHG emissions intensity from energy use (tCO ₂ eq/m ²) (Scope 1 & 2)	0.04	0.04

¹⁸⁷ See [RBC Climate Blueprint](#) and [RBC Climate Report 2022](#)

¹⁸⁸ Please note that the RBC Climate Report 2022 is for fiscal year 2022 (November 1, 2021 to October 31, 2022), whereas the RBC GAM Climate Report 2022 is for calendar year 2022 (January 1, 2022 to December 31, 2022).

BlueBay Asset Management LLP

Approach and methodology

BlueBay reports on the following scopes of emissions from their operations:

- *Scope 1 (Direct)* – Fuels: Heating fuels, such as natural gas used to heat their branches, major properties, data centers and water. They also include the fuels directly purchased for travel for company-owned modes of transport.
- *Scope 2 (Indirect)* – Electricity & District Energy: Purchased electricity for properties the associated emissions depend on what source is used to produce electricity in each of the jurisdictions where they operate. Where possible BlueBay uses renewable or carbon free electricity tariffs.
- *Scope 3 (Indirect)* – Business Travel (Category 6): Operating a global business, requires travel by car, rail and air travel, for business-related travel.

Data Sources and Consideration

Scope 1 and 2 emissions data for BlueBay buildings and premises – for buildings where BlueBay leases space – is sourced from its property management companies and utility providers. Fuel purchased directly for travel, as well as travel booked through the third-party system and through travel agencies is aggregated and converted into emissions based on distance conversion. Emissions factors used are either sourced from publicly available government sources or from public data sets.

Energy usage is calculated based on meter readings where possible but in the case of common areas in buildings (e.g. reception, lift spaces) it is apportioned based on the percentage of floor space leased by the entity, as determined by the landlord.

Data reporting period

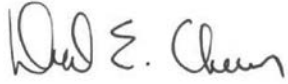
The following operational emissions are for the fiscal year (November 1, 2021 to October 31, 2022). Year-on-year, business travel (scope 3) emissions increased relative to our 2021 performance, as the prior year reductions were influenced by travel restrictions during the pandemic.

Table 2: BlueBay – Operational emissions inclusive of Scope 1, Scope 2 and Scope 3 (business travel)

	2022	2021
Scope 1 Emissions from consumption of gas, tCO ₂ e	\$0	0%
Scope 2 Emissions from purchased electricity, tCO ₂ e	118.02	236.45
Scope 3 Business Travel, tCO ₂ e	831.16	14.28
Total gross tCO₂e based on the above	949.18	250.73

Appendix 6: Statement confirming disclosure complies with the ESG Sourcebook

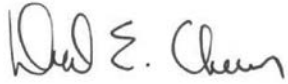
I, Daniel E. Chornous, Global Chief Investment Officer, hereby confirm on behalf of RBC Global Asset Management (U.K.) Limited that the disclosures in this RBC GAM Climate Report 2022 comply with the requirements under Chapter 2 of the FCA Environmental, Social and Governance sourcebook.



Daniel E. Chornous, CFA

Chief Investment Officer, RBC Global Asset Management

I, Daniel E. Chornous, Global Chief Investment Officer, hereby confirm on behalf of BlueBay Asset Management LLP that the disclosures in this RBC GAM Climate Report 2022 comply with the requirements under Chapter 2 of the FCA Environmental, Social and Governance sourcebook. Specific reference is made to Appendix 1 as well as footnotes throughout the report which set out where the approach of BlueBay Asset Management LLP to ESG, and climate-related risks and opportunities deviates from RBC GAM.



Daniel E. Chornous, CFA

Chief Investment Officer, RBC Global Asset Management

RBC Global Asset Management

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