2019

Invesco Climate Change Report

In line with the Task Force on Climate-related Financial Disclosures (TCFD)

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Invesco

This inaugural report describes our approach to assessing and managing climate risks and opportunities across our investment process and business operations. We see our TCFD reporting as a journey – one that starts with this report.

* Invesco is not affiliated with Vivid Economics.

Introduction

Our corporate PURPOSE drives everything we do.

Many clients are increasingly placing climate issues at the centre of their investment decisions. They want to protect their savings from climate-related risks. They want to invest in resilient and sustainable businesses.

As investors across equity, fixed income, real estate and multi-asset solutions, we aim to identify how the impact of climate-related risks and opportunities directly affects our portfolios and individual assets. Considering climate risk is part of our overall investment process. Furthermore, we are committed to continuous improvement in environmental management within our own operations.

In March 2019, we signed the 'Statement of Support' for the Task Force on Climate-relate Financial Disclosures (TCFD). Our aim was twofold: to leverage it for our engagement activities, and to implement our own climate change risk management and reporting process. The TCFD framework
aligns with our belief: climate change is a strategic business issue that can impact long-term financial performance. This belief guides our approach as a corporate, making the TCFD a valuable frame of reference for engaging with investee corporates on issues relating to their own climate strategy.

This inaugural report describes our approach to assessing and managing climate risks across our investment process and business operations. We see our TCFD reporting as a journey – one that starts with this first Invesco Climate Change Report, defining March 2019–March 2020 as our base year and setting out our ambitions for the future.

Yours sincerely,

Martin L. Flanagan
President and CEO, Invesco

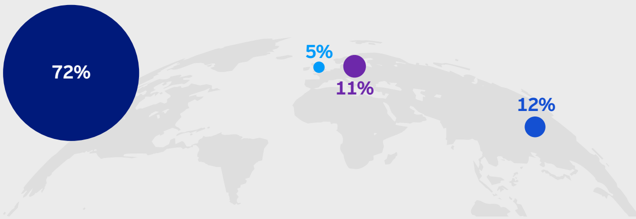
Invesco is an independent investment management firm. As of 31 March 2020, we managed US$1.05 trillion on behalf of clients worldwide.

We offer strategies across the full spectrum of asset classes tailored to the needs of institutional and retail investors. As well as equities, bonds and real assets, we have multi-asset strategies and liability-driven investments. Most of our assets are in equities, followed by bonds and alternatives (mostly real estate). This Invesco Climate Change Report, focused on our corporate strategy and all asset classes, provides a more in-depth analysis of climate-related impact on equities, corporate bonds and real estate.

Figure 1
We are diversified as a firm

By client domicile (US$ bn)

Americas	756.8
EMEA excl. UK	122.1
Asia	120.6
UK	53.9



By channel (US$ bn)

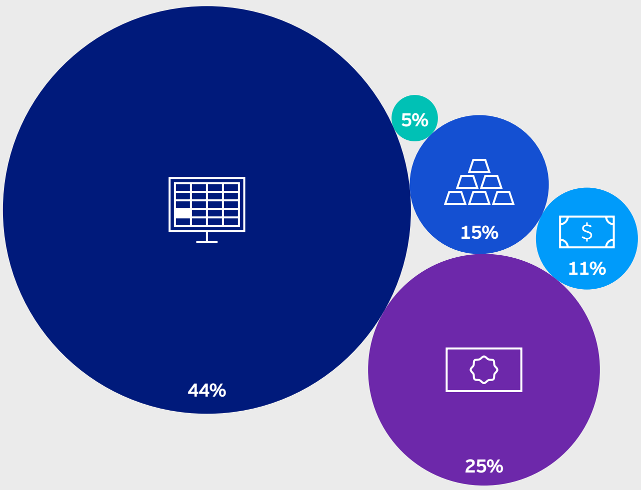
Retail	702.5
Institutional	350.9

Source: Invesco, as of 31 March 2020.

Managing more than US$1 trillion of diverse assets for its clients around the globe, Invesco is analysing the impact of climate change on its holdings and operations.

By asset class (US$ bn)

Equity	459.4
Fixed Income	259.8
Alternatives	162.2
Money Market	117.5
Balanced	54.5



The report structure has been guided by the four pillars of the TCFD recommendation: Governance, Strategy, Risk Management, and Metrics and Targets. Each section explores what is currently being done, our next steps, and future plans.

Where possible, we also present a separate commentary for operational, investment and regulatory climate-related issues in the respective area. Within the Strategy and Metrics and Targets pillars in particular, the discussion is framed around the four key areas of Invesco's overall strategy:

- Seeking to achieve strong investment performance
- Being instrumental to our clients' success
- Harnessing the power of our global structure
- Perpetuating a high-performance organisation

Figure 2
The four pillars of TCFD and our interpretation

Corporate

Governance
Pages 12-15

- Board oversight
- Management role

How we OVERSEE climate risk

Strategy
Pages 16-25

- Identification of risk and opportunities
- Impact
- Resilience

How climate IMPACTS our business and how we are ADDRESSING the change

Investment

Risk Management
Pages 40-43

- Risk identification
- Risk management
- Overall integration

How we are MANAGING climate change

Metrics and Targets
Pages 46-49

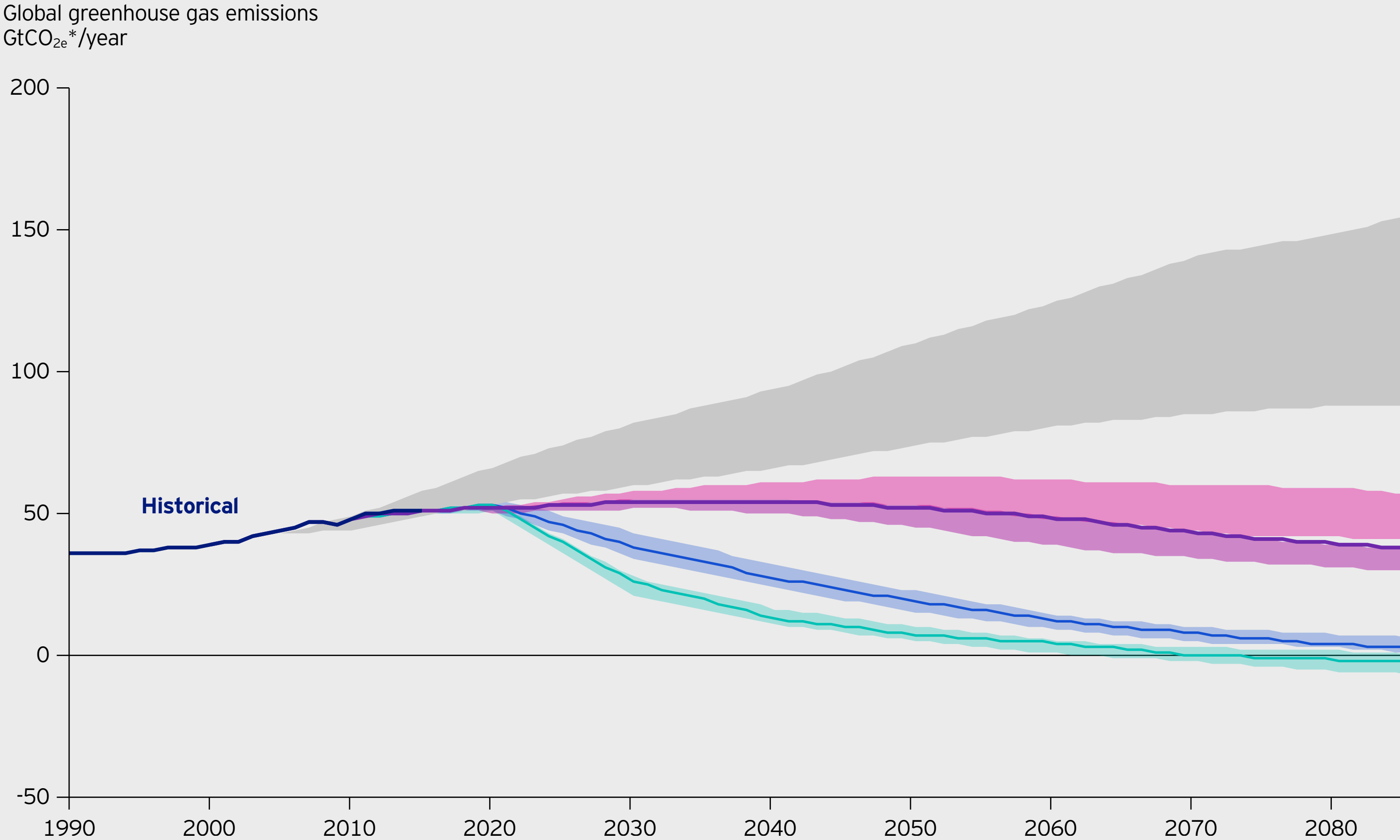
- Risk metrics
- Emissions
- Relevant targets

How climate actions are MEASURED and what the TARGETS are

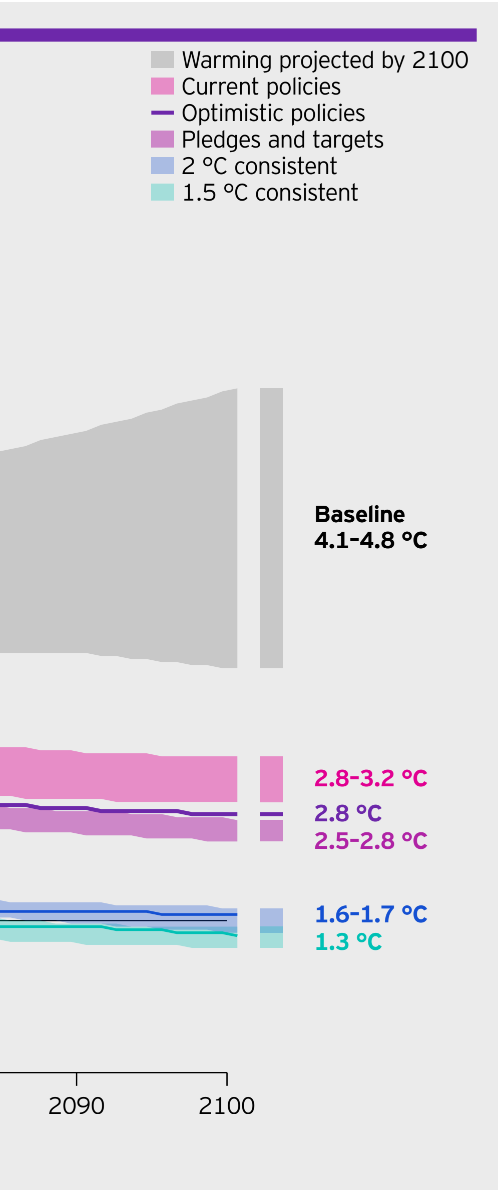
Source: Invesco. For illustrative purposes only.

Climate change background: physical and transition risks and opportunities

Figure 3
2100 warming projections
Emissions and expected warming based on pledges and current policies – December 2019 update



Source: Climate Analytics and NewClimate Institute, as of 31 December 2019. * Gigatons of equivalent carbon dioxide.



We are already seeing the consequences of 1 °C of global warming over pre-industrial levels, including more extreme weather, rising sea levels and diminishing Arctic sea ice. According to the Intergovernmental Panel on Climate Change, an effective reduction in the impact of climate change on ecosystems, health and well-being could be achieved by limiting global warming to 1.5 °C rather than 2 °C.[1]

The Paris Agreement is the first truly global effort to reduce emissions. To date, 160 countries have made voluntary pledges to reduce emissions by 2030, including China, the US[2] and the European Union (on behalf of the UK and other EU nations). The main aim of the agreement is to hold the increase in global average temperature well below 2 °C while pursuing efforts to limit warming to 1.5 °C. Taken together, current pledges would lead to lower global emissions than previously forecast, but further action will be required to keep total warming below 1.5 °C.

1 'Limiting global warming to 1.5 °C compared with 2 °C would reduce challenging impacts on ecosystems, human health and well-being, making it easier to achieve the United Nations Sustainable Development Goals,' Priyardarshi Shukla, Co-Chair of IPCC Working Group III.

2 On 1 June 2017, President of the United States, Donald Trump, announced that the US would cease all participation in the 2015 Paris Agreement. In accordance with Article 28 of the Paris Agreement, a country cannot give notice of withdrawal from the agreement before three years of its start date in the relevant country, which was 4 November 2016 in the case of the United States. On 4 November 2019, the administration gave a formal notice of intention to withdraw, which takes 12 months to take effect. So, the earliest possible effective withdrawal date by the United States cannot be before 4 November 2020, four years after the Agreement came into effect in the United States and one day after the 2020 US presidential election. Until the withdrawal takes effect, the United States is obligated to abide by its commitments under the Agreement, such as the requirement to continue reporting its emissions to the United Nations.

Much more needs to be done

As climate policy action to date is not sufficient to meet the targets of the Paris Agreement, there is no clarity on the timing and scope of any transition to a low-carbon economy. Not knowing when these changes to climate policy will take place, let alone what they will look like, creates significant uncertainty. In view of this, the development of a corporate understanding of the effects of climate change on business, strategy and financial performance is highly challenging.

The uncertainty has only worsened with the advent of the COVID-19 pandemic. While climate change is not slowing down, financial decisions are being made in response to the pandemic; decisions that will have a lasting impact on the global economy.

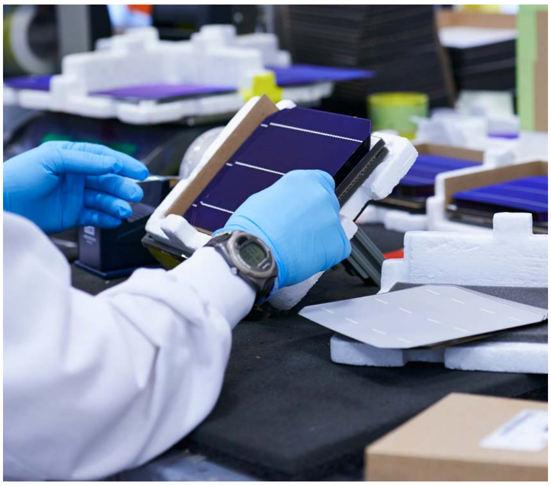
As Christiana Figueres[3] has said: '...the COVID-19 pandemic has collided with the climate change emergency. The pandemic-induced financial decisions made over the next 12 months will shape the global economy for the next decade. We must integrate the solutions to both crises into a coherent response. After immediate health, safety and social protection measures, inclusive recovery programmes must propel the global economy towards sustainable growth and increased resilience'.[4]

Such solutions are urgently needed, with the financial risks and opportunities associated with climate change becoming increasingly apparent. As policies to avoid dangerous climate change become more and more stringent each year, the associated transition risks in financial markets also increase. Policy and technology shifts have already begun to affect the competitiveness of emissions-intensive companies and their low-carbon alternatives alike. Meanwhile, we are seeing the physical consequences of climate change with ever-increasing frequency and ferocity. As global warming continues, the risks only multiply.

The TCFD has put in place a framework for reporting on these important financial risks and opportunities of climate change, calling for the integration of climate-related risks and opportunities into asset management and investment practices. This reflects not only a commitment to the global cooperation needed to meet international climate targets, but also the strategic necessity of minimising risks to ensure that portfolios align with changing market conditions.

3 Christina Figueres is a world authority on global climate change and was the Executive Secretary of the UNFCCC (United Nations Framework Convention on Climate Change) 2010–2016. https://christianafigueres.com/#/

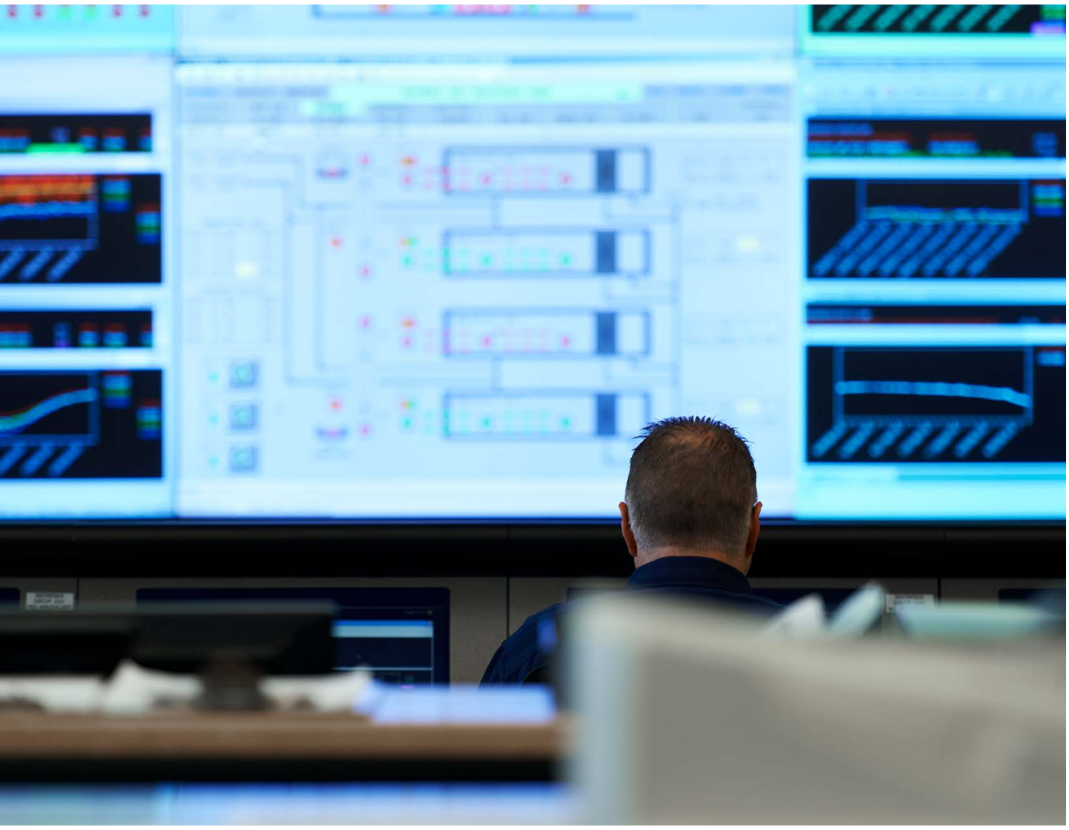
4 Source: Financial Times, 'Can we tackle both climate change and Covid-19 recovery?', Christina Figueres and Benjamin Zycher, as of 6 May 2020.



Investors are part of the solution to climate change through supporting and influencing companies that are adapting, transitioning and allocating capital towards future-proofing our planet.

Cathrine De Coninck-Lopez
Global Head of ESG

Transformation of the economy to mitigate climate change brings its own set of risks.



The Task Force divides climate-related risks into two major categories: risks related to the physical impacts of climate change and risks related to the transition to a lower-carbon economy. The TCFD also defines climate transition opportunities. The definitions are as follows:

Physical Risk

Physical risks resulting from climate change can be event-driven (acute) or longer-term (chronic) shifts in climate patterns. Physical risks include changes in precipitation and water availability, in temperature, in the location and/or frequency of extreme weather, in fire behaviour, and in sea levels and chemistry. Physical risks may have financial implications for organisations, such as direct damage to assets and indirect impacts from supply chain disruption. An organisation's financial performance may also be affected by issues relating to the availability, sourcing and quality of water, by food security, and by extreme temperature changes that affect premises, operations, supply chain, transport requirements and employee safety.

Transition Risk

Transitioning to a lower-carbon economy involves mitigation and adaption in response to climate change. This may entail extensive policy, legal, technology and market adjustments. Depending on the nature, speed and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organisations.

For example, the major initial change needed in most economies is a shift away from the use of fossil fuels, towards the use of energy sources with lower emission levels. This shift has direct downstream implications for commodity volumes, prices and logistics. However, it also has implications for energy prices, and for areas of opportunity such as renewable energy, electric mobility, hydrogen, carbon capture and storage, efficiency and various other factors. Transition impacts go well beyond just energy, affecting many sectors and also including legal risks and risks to the social licence to operate.

Climate Opportunities

Efforts to mitigate and adapt to climate change also produce opportunities for organisations, for example through resource efficiency and cost savings, the adoption of low-emission energy sources, the development of new products and services, access to new markets, and building resilience along the supply chain. Climate-related opportunities will vary depending on the region, market and industry in which an organisation operates.

Source: TCFD https://www.fsb-tcfd.org/

Governance

Invesco's approach to climate change is integrated into our broader governance structure covering environmental, social and governance responsibility at investment level and corporate responsibility at operational level (ESG).

At investment level, the importance we place on ESG has led us to launch structural governance oversight, comprising a Corporate Responsibility Committee (CRC), the Corporate Responsibility Committee Working Group and ESG Regional Working Groups. These groups are responsible for monitoring climate-related issues and opportunities and acting upon them.

Figure 4
Governance and coordination

Corporate Responsibility Committee (CRC) *Biannually*	**CRC Working Group (WG)** *Monthly*
Define corporate strategic vision for ESG and CR Having established a vision, the full CRC responsibility for implementing and monitoring the vision is passed on to the CRC Working Group. The CRC Working Group reports to the full CRC on these matters every six months.	**Identify, track, assess and establish or decide policy matters pertaining to ESG or CSR** The WG's remit includes identifying and assessing actual or apparent inconsistent positions taken by different teams within Invesco and reconciling such differences by either (1) determining a consistent global policy position or (2) determining that such differences are appropriate in the circumstances.

Source: Invesco.

Regional Working Groups
Define regional ESG requirements and implement activity accordingly.

Governance

Our **Corporate Responsibility Committee (CRC)** is composed of members of the executive leadership team. The committee drives the strategy, oversight and governance of our internal programmes, which will include progress against climate change, demonstrating Invesco's broad executive leadership commitment to responsible investment.

The CRC provides direction to Invesco's investment and corporate stewardship leaders on core ESG and CSR topics, participation in industry advocacy and policy efforts, and charitable and community organisations to enhance our impact in sustainable global efforts. **Local and Global Management teams**, including regional managing directors, report to the Global Corporate Responsibility Committee on matters related to ESG and CSR.

The **Global Investment Council (GIC)**, made up of CIOs and MDs from Invesco's global investment centres and asset classes, is co-chaired by Invesco's CEO, Marty Flanagan, and Head of Investment SMD, Greg McGrevey. The GIC provides oversight to our specialised investment teams and offers a balance of global expertise, support and connectivity. In this way, it helps provide better outcomes for clients with greater consistency over the long term. The GIC ESG Sub-Committee focuses on ESG investment issues, including climate change.

It may be cheaper or more cost-effective to take action now than to wait and find we have to pay much more later.

Doug Sharp
Head of Invesco EMEA

Environmental Management System (EMS) Governance

To ensure the effective management and continuous improvement of Invesco's EMS, we assigned operational EMS responsibilities to Corporate Properties, supported by local facilities teams and subcontracted services.

Invesco operational senior management conduct **annual environmental reviews** in each location, reporting to the **Global Environmental Management team**, which in turn feeds into the Corporate Social Responsibility (CSR) committee and Board of Directors. The Director of Corporate Properties has KPIs in place that reflect our environmental business goals, and these metrics are tracked. The Health, Safety and Environmental (HSE) Manager is tasked with supporting the development of low-carbon policies for business activity, delivering reduction targets, coordinating the monitoring and reporting of climate change activities and engaging with our vendors on the management of climate change. Success in these areas is fostered by both monetary incentives and corporate recognition.

Our **Environmental Management System (EMS)** provides a framework for managing our environmental impact both globally and at individual office locations. The EMS guides Invesco's Global HSE Manager's work. The Global HSE Manager's responsibilities include:

- Oversight for health, safety and environmental issues (including all initiatives aimed at reducing the company's climate impact)
- Management of our day-to-day environmental impact
- Management of our environmental data on matters such as energy use, greenhouse gas emissions, water consumption and waste production
- Internal and external environmental reporting

Figure 5
Environmental Management System (EMS) Governance

CRC/Environmental Committee	Global Environmental Management Team	Local Environmental Management Team	Green Teams
Top management	Global Corporate Properties Director	Local Management	Employee Representatives
	Global Operations Director, Facilities	Local Environment Management Representative	
	Global Health, Safety and Environment Manager	Global Health, Safety and Environment Manager	

Source: Invesco.

Strategy

At Invesco, we are focused on four key long-term strategic objectives that are designed to sharpen our focus on client needs, further strengthen our business over time and help ensure our long-term success.

- **Seeking to achieve strong investment performance** across distinct investment capabilities with clearly articulated investment philosophies and processes, aligned with client needs.
- **Being instrumental to our client's success** by delivering our distinctive investment capabilities worldwide to meet their needs.
- **Harnessing the power of our global platform** by continuously improving execution effectiveness to enhance quality and productivity, and allocating our resources to the opportunities that will best benefit clients and our business.
- **Perpetuating a high-performance organisation** by driving greater transparency, accountability, diversity of thought, fact-based decision making and execution at all levels.

We consider that climate risks and opportunities may significantly impact our delivery of these four strategic objectives. Climate change is therefore addressed within our ESG strategy and in particular through the work we are doing in integration, engagement, advocacy and investment solutions.

We at Invesco Quantitative Strategies (IQS) observe an increasing focus on more customised requirements and positive implementations looking at ESG investments.

Manuela von Ditfurth
Senior Portfolio Manager at IQS

Seeking to achieve strong investment performance
There is mounting evidence that climate change risks and opportunities could have a material impact on our ability to deliver strong, long-term investment performance for our clients. For example, the Sustainability Accounting Standards Board (SASB) has assessed that climate change is a material factor in 72 out of 79 industries, equating to 93% of the US equity market. Furthermore, the not-for-profit charity CDP[5] found that 215 of the world's largest companies collectively reported that just under US$1 trillion in assets were at risk from climate-related impacts, while climate-related opportunities were estimated at up to US$2 trillion.

Assessing and managing climate risks and opportunities as part of our investment process is therefore essential to achieve strong, long-term investment performance. We will seek to deliver this through our ESG integration approach, which recognises the distinct investment capabilities and investment philosophies across our business, as well as through our proxy voting and engagement.

Being instrumental to our clients' success
The demand for ESG and climate-related products and solutions is growing rapidly around the world. Many of our clients have made commitments to climate change, for example through the Net-Zero Asset Owner Alliance. If we are to continue meeting our clients' needs, it is vital that our product and investment capabilities reflect this evolution. We are achieving this in several ways, including developing our ESG and climate-related solutions in partnership with clients, developing thought leadership and educational materials and developing our ESG and climate reporting.

Harnessing the power of our global platform
Climate change can impact the way any company operates, and we are not immune. Addressing climate risks across our operations, for example through lowering emissions for our buildings, can also ensure that we reduce costs. This, in turn, will enable us to allocate resources to opportunities that will benefit our clients and our business.

Perpetuating a high-performance organisation
A clearly defined culture and purpose are increasingly important when it comes to attracting the best talent to join a company. Younger people entering the job market are increasingly looking to work for companies with a strong social purpose. Studies show that 40% of employees under the age of 40 would place sustainability above remuneration in choosing where to work.[6] By placing climate change at the heart of our approach to investments, our dealings with clients and our way of operating, we believe that we can offer an attractive and purposeful working environment.

5 Source: www.cdp.net. As of 31 March 2020.
6 Source: McKinsey Insights report. As of 31 March 2019.

4.1 ESG integration

Teams incorporating ESG into their investment process consider climate change as one aspect of the evaluation of ideas, company dialogue and portfolio monitoring. Assessment of climate change aspects is incorporated by such teams into the wider investment process as part of a holistic consideration of the investment risk and opportunity. Just how they consider climate change risks and opportunities will vary according to the strategy, sector and asset class, but the core components of our ESG philosophy[7] are as follows:

Materiality
The financial risks and opportunities related to climate change will not be felt evenly by all companies and countries. This is why it is important that our investment teams consider circumstances in which climate change is most likely to be material to their investments.

ESG potential
Our approach seeks to encourage companies that are on the path of decarbonisation. This is achieved by taking into account ESG potential or momentum; our assessment methodologies reward improvement over time.

Engagement
Engagement and dialogue with investee companies is fundamental, allowing our investment teams to better understand companies' approaches to climate change. Further details are set out in section 4.2 of this report.

By referencing carbon-neutral metrics and increasing our climate change engagement with clients and investee companies, we have demonstrated our ability to provide investors with compelling investment solutions – solutions that can potentially deliver both a reduction in carbon emissions and exceptional investment performance.

7 For more information on our wider ESG integration approach please refer to our 2019 Stewardship report.

The importance of environmental, social and governance factors to investors continues to grow, and this is reflected in their increasing integration within Invesco's investment processes.

Case studies in integration

In **Invesco Real Estate (IRE)**, our strategy is to evaluate our current assets and new acquisitions by completing a future scenario analysis using the RCP 8.5 IPCC worst-case scenario.[8] We are in the process of creating thresholds to identify risk mitigation strategies across the portfolio for all hazards, namely: heat stress, wildfires, floods, hurricanes, sea level rise, and water stress. If certain assets exceed the threshold, we will work with third-party consultants to carry out an on-site assessment and identify risk mitigation strategies. If site assessment identifies material vulnerabilities at the asset, we will implement those strategies. We are also in the process of creating a strategy to manage and mitigate risk across the portfolio.

During the acquisition process, Invesco Real Estate Asset Investment Group works with third-party consultants to identify **transition and physical climate risks and opportunities**, which are then factored into the investment strategies. In terms of transition risk, the team reviews costs associated with building regulations, communicating budgeting needs to mitigate transition risks, such as regulatory policies, and works with local groups on potential regulatory changes. IRE monitors all benchmarking and audit ordinances to ensure assets fulfil annual compliance requirements. An ESG acquisition assessment is completed within the due diligence process.

For **physical risk**, they work with a third-party vendor to utilise future scenario analysis to identify physical risk within climate-related categories: heat stress, wildfires, floods, hurricanes, sea level rise, and water stress.

IRE is in the process of reviewing asset-specific characteristics that impact risk level, in conjunction with suitable mitigation plans. At portfolio level, the team uses the third-party vendor's tool to determine the portfolio score for each category, weighted by asset value. These are reflected in asset and portfolio risk dashboards produced by IRE's research team. These scores are in a development phase and are being used largely for information purposes at present. We envisage incorporating them into more formal portfolio risk analytics and strategies over time.

As the initial review suggested that the material risk of IRE's portfolios was already lower than the benchmarks provided, we are currently developing benchmarks more sensitive to the nature of real estate portfolios.

8 Representative Concentration Pathways for 8.5 W/m^2, defined by the IPCC Intergovernmental Panel on Climate Change.

4.2
Engagement

Our inclusive engagement with corporates and issuers, as opposed to investment exclusion, not only aims to ensure that investors can combine high sustainability performance with compelling investment return potential, but also tries to send a strong signal to companies: every one of us has a strong role to play in the transition to a climate-neutral economy. We seek to take advantage of Invesco's scale and long-term investment approach. This helps us capture the attention of management and use our influence to encourage more proactively sustainable behaviour from the firms and entities in which we invest. We have been actively engaging with many companies on the topic of climate change for several years now, and progress is being made.

Invesco recognises that working together on these systemic risks is paramount to success. We joined **Climate Action 100+** in January 2020 and have taken the 'lead investor role', guiding the conversation with one oil and gas company while being active participants in a number of other companies' engagement. Climate Action 100+ is an investor initiative launched to ensure the world's largest corporate greenhouse gas emitters take action and make strategic changes to counter climate change. By engaging with companies, including the 100 that account for two-thirds of annual global industrial emissions, the initiative aims to curb emissions, improve governance and strengthen climate-related financial disclosures.

Invesco has now set up a centralised process to collaborate internally on ESG-focused engagements, with the ESG research team doing in-depth research on certain issuers before engaging. Many of these ESG-focused engagements have covered climate change as a key topic. These meetings are frequently held with senior management or with members of the board, where we leverage our long-term investment approach and large holding size to engage with companies.

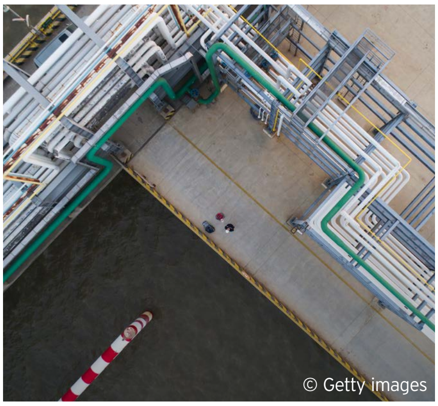
Invesco has a decentralised approach to proxy voting and engagement. This empowers our investment teams to engage with company management on the issues that matter. We are now in the process of building a tool and process to support fund managers in the voting decision-making.

Case study
We are an investor in a **major Chinese oil company**. The company is exposed to risks stemming from its carbon liabilities. In a low-carbon scenario, the Canadian subsidiary increases the company's regulatory and financial vulnerability to such issues.

The company has implemented a low-carbon strategy and strives to promote clean energy and improve energy efficiency. It promotes energy conservation and emission reduction both by investing in special funds and by deploying technological advances. With a clear, comprehensive organisational structure, it has also managed to implement systematic energy conservation.

The company had, however, fallen behind its peers in terms of **not having a clear reduction target or deadline for its greenhouse gas (GHG) risk management programme**. These concerns were repeatedly raised during several group calls and meetings. Finally, during a press conference in June 2019, the parent company announced its Green Development Action Plan, a direct result of our engagement activities. This included a target of reducing carbon emissions in 2020, bringing them back to 2015 levels. An overall Group target was also announced: to become a global leader by 2050, as measured by key low-carbon emissions indicators.

Through industry-wide initiatives and individual company interactions, we engage with companies on sustainability.



Case study

Among the highest conviction investments for one portfolio is an **Australian energy company**. This Australian energy company faced two climate-related shareholder resolutions in their 2020 annual general meeting (AGM). The first called for a disclosure of scope 1, 2 and 3 emissions reduction targets and an explanation of how planned investments in fossil fuel assets are consistent with the goals of the Paris Agreement.

The second resolution called for the company to create and disclose a report into its lobbying activities, both direct and indirect. These resolutions were initially identified by the ESG team during a weekly review process for upcoming climate-related shareholder proposals tabled at Climate Action 100+ companies. Both investment teams holding this company separately reached out to the ESG team seeking to collaborate.

Invesco actions

Members of Invesco's ESG and investment teams met with the company's chairman and head of investor relations prior to the AGM. The company objected to the resolutions, explaining that it is already taking steps to reduce its internal carbon emissions, that as a major producer of liquefied natural gas (LNG) it is contributing to the low-carbon transition by displacing coal, and that the board already reviews any incompatibility between the company's public advocacy positions and those of industry associations the company belongs to. We did not find the arguments persuasive. Unlike peers, the company had not yet set scope 3 emissions reduction targets and had limited plans for investment in low-carbon energy. Due to the high exposure oil and gas companies have to the physical and transition risks of climate change, it was felt that shareholders would strongly benefit from the additional disclosure and target setting outlined in the proposals, particularly in view of the fact that some industry associations the company belongs to may lobby for policies incompatible with the Paris Agreement. In addition, neither proposal was unreasonably prescriptive on management. Accordingly, all Invesco shareholders voted in support.

Result

The resolution on setting scope 1, 2 and 3 emissions was adopted with 50.1% of shareholder votes. This result was unprecedented for an Australian energy company, illustrating an increasing desire on the part of investors for energy companies to reduce their scope 3 emissions, not just scope 1 and 2. In addition, while gas will play an important role as a transition fuel, this vote suggests that shareholders are yet to be convinced that increasing LNG production is consistent with the goals of the Paris Agreement. The resolution on lobbying disclosure fell short of a majority, nevertheless attracting 42% shareholder support.

Outcomes

In response to demand for greater lobbying disclosure, the company intends to start publicly disclosing any misalignment between its own policy views and those of the industry associations it holds membership of. Although falling short of the resolution, this is a positive step in response to investor demands. The proposal on emission reduction targets was not binding and it remains to be seen how the company's management will respond. However, Invesco will continue to monitor the situation closely and will factor the company's response into our future voting and investment decisions.

The company understood our request for greater transparency over its human capital management and has agreed in principle to improve disclosure of these metrics in its 2020 reports. In addition, we believe that the company recognises the importance of having a credible decarbonisation roadmap alongside ambitious targets and is now making a concerted effort to produce a more detailed strategy.

4.3
Advocacy

Invesco recognises the importance of participating in collaborative investor engagement alongside our own one-to-one company engagements. These initiatives have helped us to shape our dialogue with investee companies and the topics covered have provided the basis of a reference framework for our climate risk assessment. We see this as an important step to demonstrate and formalise our commitment to more strongly engage with companies on the matter of climate change.

Invesco is a member of the **Institutional Investors Group on Climate Change (IIGCC)**. The IIGCC is a European body facilitating investor collaboration on climate change, effectively serving as a conduit for investors to advocate a prosperous, low-carbon future. The organisation is part of a global network of organisations that serve as the secretariats for Climate Action 100+. It helps to define public policies, investment practices and corporate behaviours that can address the long-term risks and opportunities associated with climate change.

Invesco is also a member of the **World Economic Forum Coalition for Climate Resilient Investment (CCRI)**. The CCRI is a working group which aims to transform investment by integrating climate risks into decision-making, driving a shift towards a more climate-resilient economy for all countries. Invesco is a leading real estate investor, and participation in the CCRI facilitates better integration of climate change assessments into existing investments, as well as helping to direct future investments into climate-change-resilient infrastructure.

Invesco also took active part in the **Climate Financial Risk Forum (CFRF)** chaired by the FCA and PRA, which resulted in the publication of a Climate Risk Guide for financial practitioners. Our leadership role in the forum helped us to stay ahead of regulation and be part of shaping the solution that is developed for the industry.

Through membership of international organisations, we are proactively engaged in furthering the cause of sustainability and responsible compliance within potential and actual investments.

ESG and sustainable finance are topics of increasing relevance to the regulation of our industry and also our clients. Invesco therefore seeks to be actively involved in ongoing policy and regulatory developments. This includes active engagement with policymakers as well as formal comment letters and responses to consultations.

EMEA (in particular the EU as a subset) has been the most proactive global region by far in terms of sustainable finance regulation. Invesco has been actively engaged in the development of the EU's Taxonomy for environmentally sustainable investments. We have engaged with the European Commission, Members of the European Parliament, national finance ministries, and national regulators, calling for a balanced and pragmatic Taxonomy that is attractive to investors and could ultimately find application outside the EU. We have also produced thought leadership and client materials on the Taxonomy. In addition, we have contributed to the European Commission's work on an EU Green Bond Standard and the EU Climate Benchmarks, as well as the evolution of the UK FCA's thinking on green finance.

Within the broader scope of ESG regulation in EMEA, Invesco has also actively participated in discussions regarding the Sustainable Finance Action Plan, including the new Sustainable Disclosure Regulation and the integration of sustainability risks into financial regulation. We are also involved in the work of various trade associations on these issues as well.

In the Asia-Pacific area, we primarily seek to engage in the debate through collaborative groups. Invesco is a member of AIGCC (Asia Investor Group on Climate Change) as part of the Climate Action 100+ initiative. We have also joined the newly established Japan TCFD Consortium. On broader ESG-related issues, Invesco has shared and discussed its thought leadership with the Asset Management Association of China (AMAC).

Similarly, in the US, Invesco is a member of various trade bodies, such as ICI, through which we provide support and engage on ESG regulatory issues.

Governments around the world are introducing net-zero targets and increasing their climate ambition in line with the Paris Agreement.

Elizabeth Gillam
Head of European Government Relationship and Public Policy

4.4
Investment solutions

During 2019 and the first quarter of 2020, Invesco has developed more product solutions focused on ESG and climate change specifically. These solutions include ETFs and self-indexing products, as well as bespoke discretionary solutions focused on decarbonised portfolios in line with our solutions-based client approach.

We plan to increase ESG and climate product offerings and to work both in partnership with our clients to decarbonise portfolios, and with our industry partners to define climate-focused product solutions.

Case study
In 2019, Invesco created a bespoke low-carbon solution for a pension fund. The fund wanted to reduce the overall carbon emissions of an existing multi-factor strategy to significantly below benchmark levels. The Quantitative Strategies (IQS) team, in collaboration with the Global ESG team, designed a low-carbon portfolio that incorporated the desired carbon reduction targets, while keeping minimal distance to the UK capitalisation-weighted market benchmark. While the UK benchmark maintains large exposure to high-carbon companies and fossil fuel companies, the task of keeping risk and return characteristics of the conventional strategy, while reducing carbon exposure, was not trivial. Working with the client, the team decided to focus on an initial implementation phase on the active management of scope 1 and scope 2 emissions, thereby assuring reliable data and high coverage for the investable universe. Furthermore, they agreed on the usage of intensity data, i.e. emissions in tons per revenue in million US$, to make figures comparable across different markets.

The research process resulted in a decarbonised portfolio, reducing carbon intensities by at least 30% compared to the benchmark weighted for market capitalisation. At the same time, this allows for the active multi-factor investment process to be tuned to generate above-benchmark returns in a thoroughly risk-controlled framework. The final portfolio demonstrates similar factor characteristics to those seen with the starting portfolio, and hence similar risk and return expectations. At the same time, it reduces carbon emissions to below benchmark levels in a stable, predictable and strictly risk-controlled way.

Figure 6
Significant reduction of scope 1, 2 and 3 with the Carbon-Managed Strategy

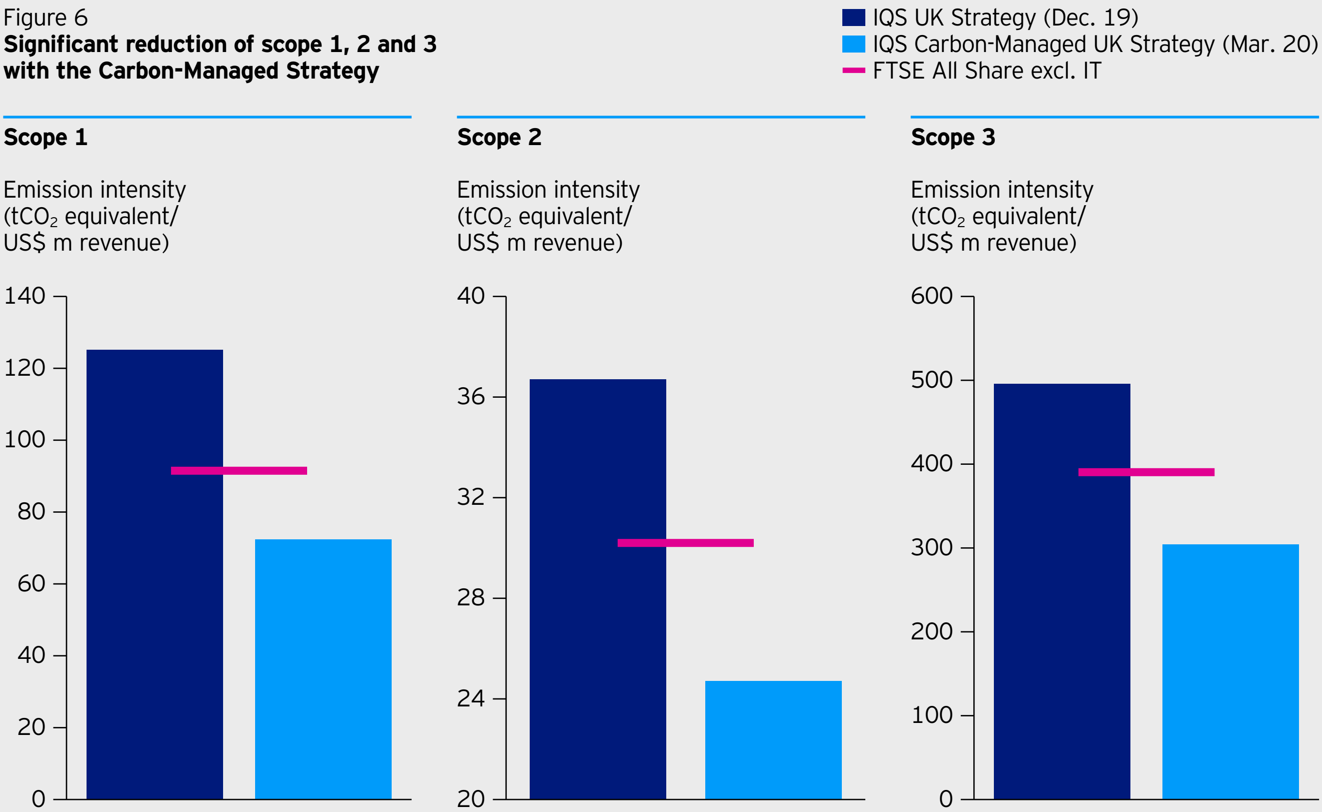


Figure 6 source: Invesco IQS. Figures 7 and 8 source: Vivid Economics.

In addition to analysing factor exposures and portfolio risk, which were comparable to the conventional multi-factor strategy, the investment team also assessed the CO_2 intensities. These are now actively managed, and the team conducted a scenario analysis comparing the former and the new portfolios in the course of preparing this Invesco Climate Change Report. They investigated whether the introduction of the management of carbon intensities for scope 1 & 2 emissions also resulted in a lower risk that may arise from climate change.

While the improvement of the carbon footprint of the portfolio is given by the strategy design, the IQS team, working together with Vivid Economics, has also conducted an analysis considering the temperature alignment of the portfolios. The results are very encouraging: while coming from a temperature aligned with an almost 4 °C scenario, the new strategy significantly reduced the temperature outcome to a below 2 °C scenario.

This improvement is also visible in the scenario analysis conducted by Vivid Economics. The carbon-managed portfolio significantly reduces the negative impact of the 1.5 °C scenario compared to the former strategy, while keeping the risk characteristics of the UK benchmark.

This demonstrates the Invesco Quantitative Strategies team's efforts to incorporate climate variables into portfolio construction and develop bespoke strategies with their clients.

Client materials and reporting
Many of our clients are also on the journey towards greater consideration of climate change risks and opportunities within their investments. Helping them navigate this journey is therefore a significant opportunity to build a long-lasting partnership.

Providing relevant climate change and ESG information for our products is the starting point to help ensure our clients have access to climate change information. We are in the process of developing ESG fact sheets that include climate-related metrics (scope 1, 2 and 3 emissions, carbon intensity). While currently only available for certain portfolios, our aim is to build a scalable system to enable us to roll out climate change and ESG reporting across our entire product range.

In addition, we aim to provide opportunities to share knowledge and expertise through the provision of thought leadership collateral and by hosting seminars and roundtables.

Figure 7
Rebalanced portfolio now aligned with below 2°S*

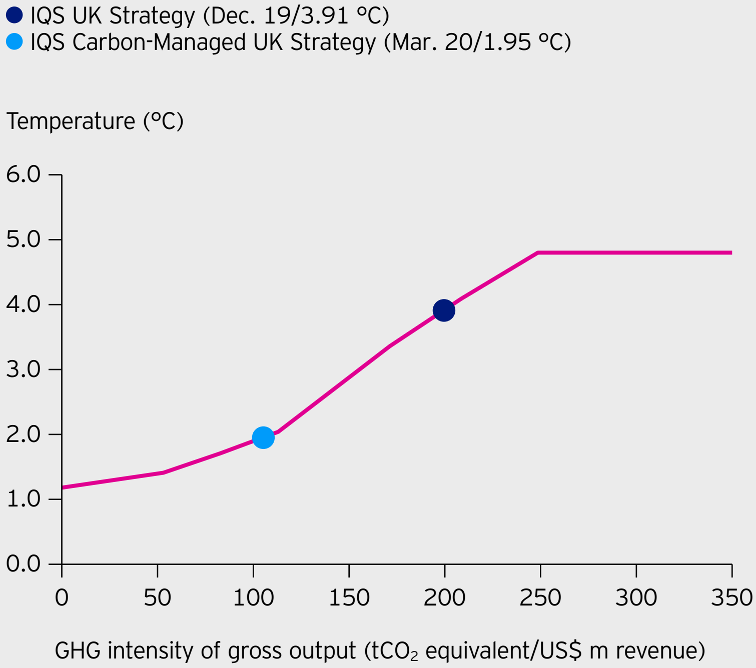
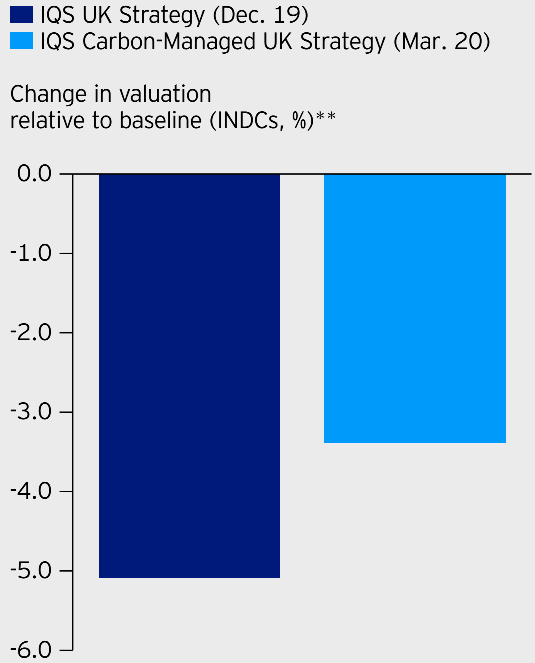


Figure 8
Significantly reduced financial exposure to a 1.5°S scenario – well below the benchmark



Note: Different data sources underlying figures 7 and 8 in this section result in a variation in the strategy scope 1 emissions intensity.
* 2 °C scenario. ** Source: Vivid Economics' transition and physical risk quantification.

Emissions intensity, temperature alignment and scenario analysis

Invesco is working with Vivid Economics to conduct emissions intensity, temperature alignment and climate scenario analysis for a significant part of our listed equities and corporate fixed-income holdings. We are focusing this analysis on the most relevant portfolios by regional composition and size.

In this chapter, we focus on results from the analysis of our universe of listed global equities (GIVZ Equity) and global corporate bonds (GIVZ Bond) investments as of 31 December 2019. GIVZ Equity represents a basket of Invesco's total equity holdings as of December 2019 rather than a specific portfolio. Similarly, GIVZ Bond is a proxy of corporate bond holdings, representing 20% of Invesco's total corporate bond holdings as of December 2019. Throughout, we use the MSCI ACWI[9] as a global benchmark to provide context for results.

[9] Analysis was conducted on the MSCI ACWI Index, referred to as 'MSCI ACWI' throughout this section.

5.1
Emissions intensity and temperature alignment

To enhance our understanding of the contribution of our investments to global carbon emissions, we sought to establish the current emissions intensity and temperature alignment of our investments.

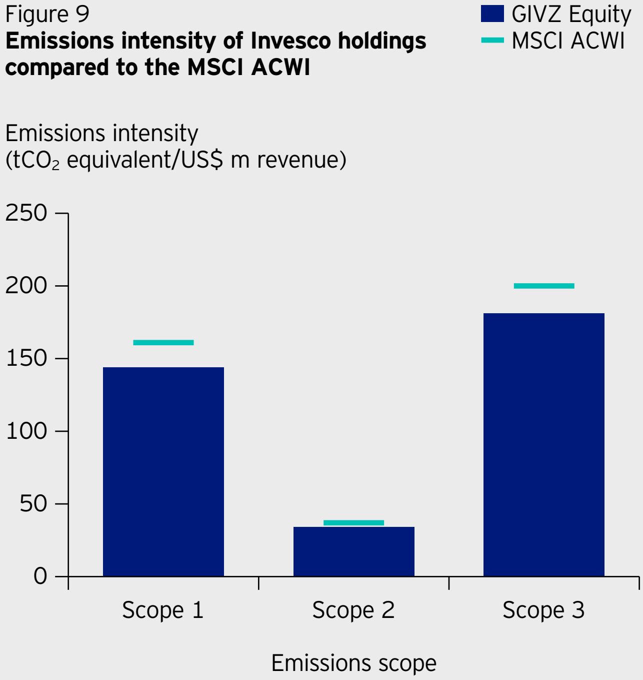
Vivid Economics assessed the scope 1, 2 and 3 emissions intensities of GIVZ Equity in terms of tons of CO_2 emitted per millions US$ of revenue generated by the issuer. These intensities are intended to reflect the proportion of a company's emissions Invesco 'owns' through its equity or debt holdings.

Our GIVZ Equity basket exhibits slightly lower emission intensity than the MSCI ACWI[10] benchmark for all three scopes. A significant proportion of our holdings' overall emissions intensity is contributed by companies in a small number of high-emitting sectors, including Energy, Materials and Utilities. While these sectors together represent around 10% of our holdings in terms of value, their contribution to the overall emissions intensity is higher across all three scopes. For GIVZ Equity, companies in the Utilities, Materials and Energy sectors contribute more than 75% of the scope 1 emissions intensity, and around 25% of the scope 2 and 3 emissions intensities. Examining the emissions intensities on a sector level allows us to identify and engage with those corporates that contribute most to the overall result.

Scope 1 emissions intensities can also provide a picture of the temperature pathway with which our investments are currently aligned. As one firm's scope 2 and 3 emissions are another firm's scope 1, this analysis uses only scope 1 emissions in this step to avoid the double counting of emissions. The global economy's emissions intensity varies across temperature pathways, allowing us to map our holdings' current intensities to the temperature pathway with which they are most consistent.

Our equity holdings are currently estimated to be aligned with warming of 2.8 °C. This places them significantly above the Paris Agreement's target of well below 2 °C warming, but is in tune with the MCSI ACWI alignment of 3.1 °C.

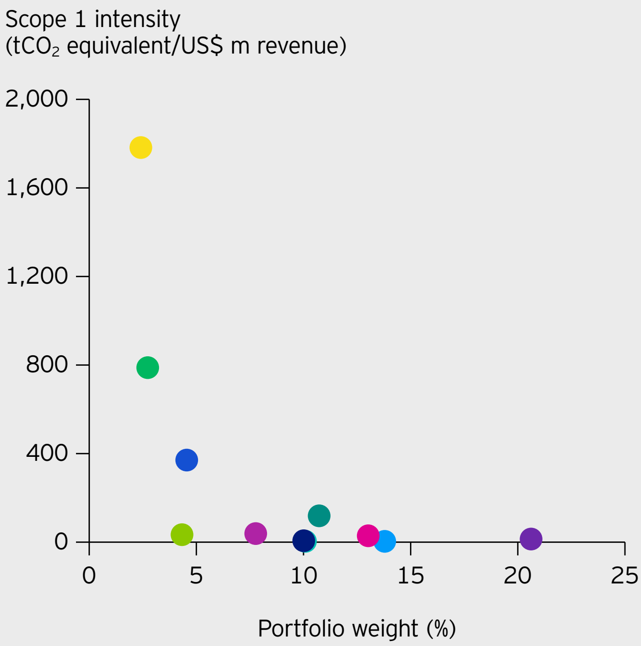
Figure 9
Emissions intensity of Invesco holdings compared to the MSCI ACWI



Source: Vivid Economics, as of 31 December 2019.

Figure 11
GIVZ Equity

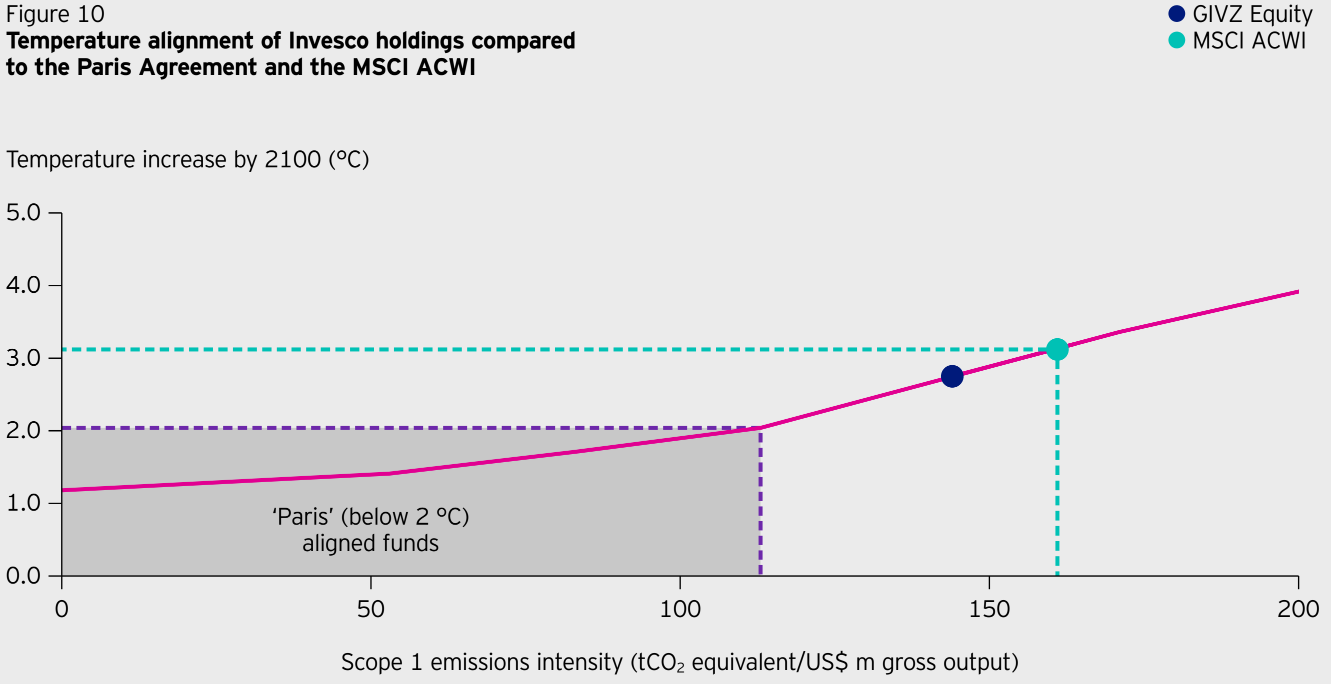
Scope 1 by sector

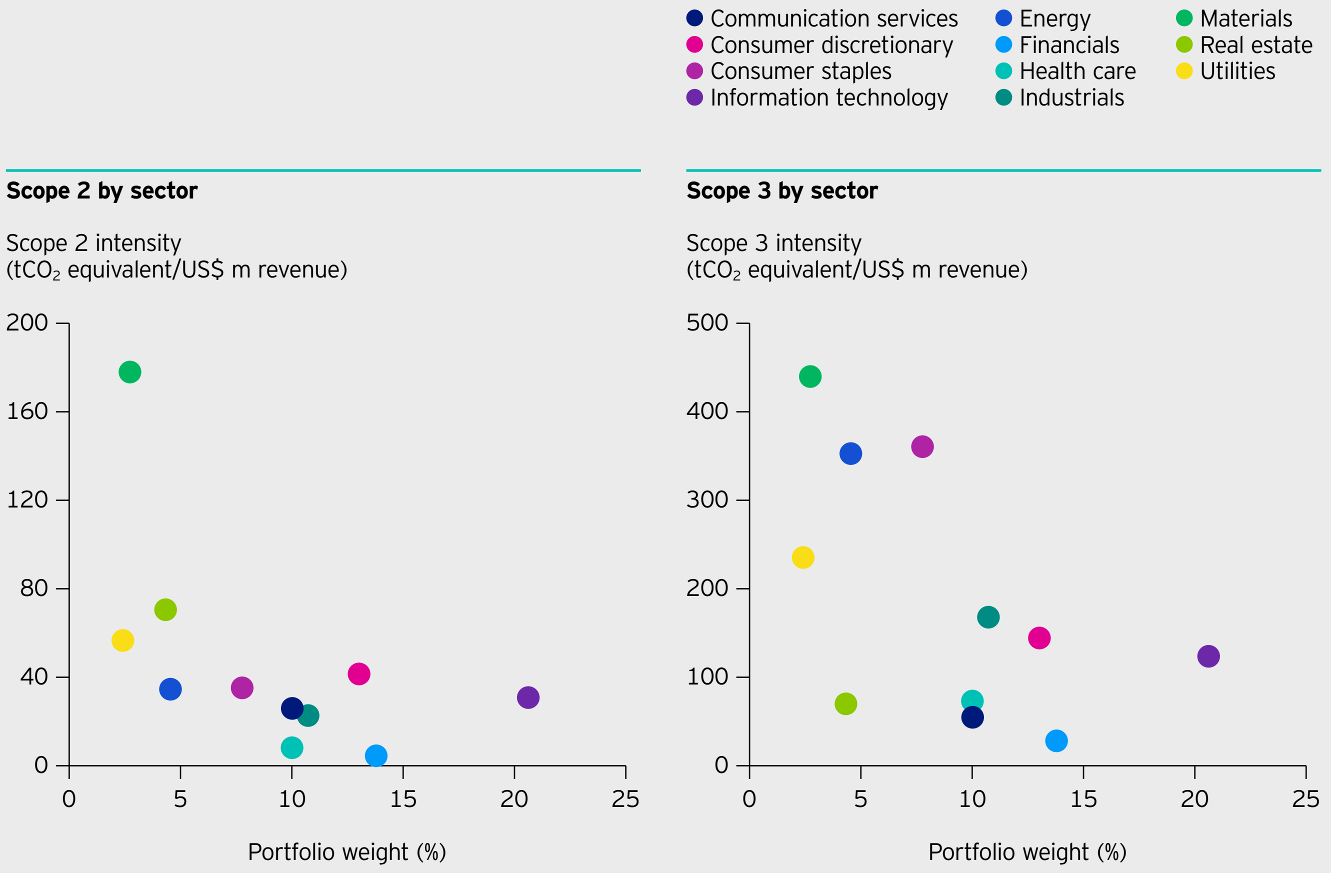


Source: Vivid Economics, as of 31 December 2019.

10 Analysis was conducted on the MSCI ACWI Index, referred to as 'MSCI ACWI' throughout this section.

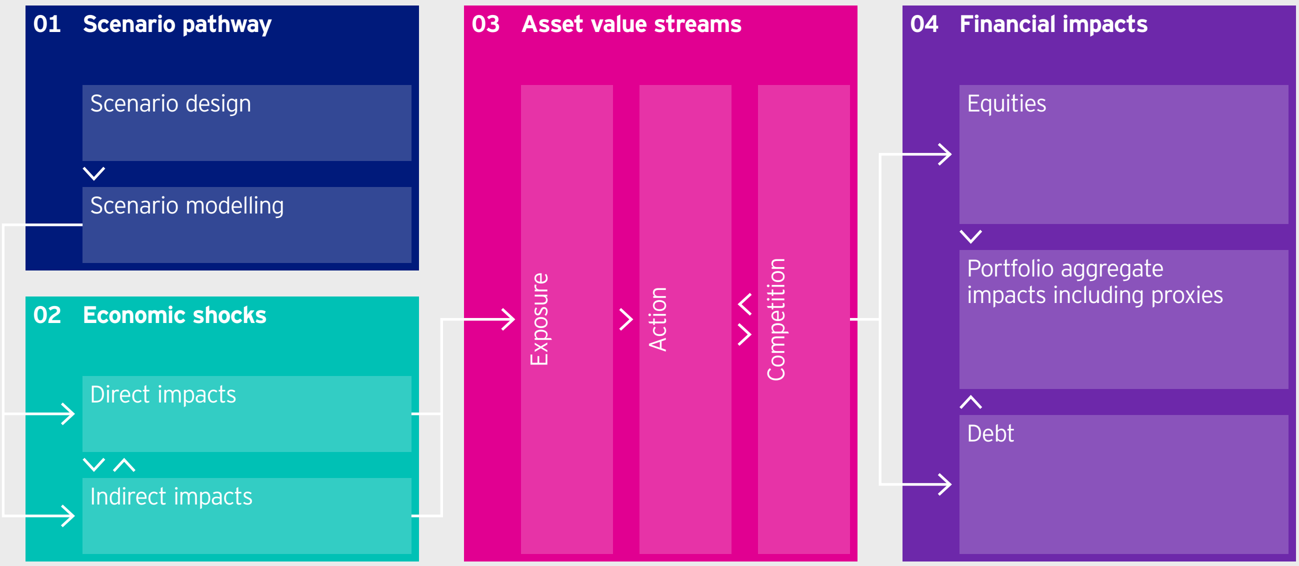
Figure 10
Temperature alignment of Invesco holdings compared to the Paris Agreement and the MSCI ACWI





5.2
Scenario analysis

Figure 12
The climate risk toolkit methodology



Source: Vivid Economics.

In addition to our emissions intensity and temperature alignment assessments, Invesco explored the use of scenario analysis through a pilot project with Vivid Economics. As recommended by the TCFD, the scenario pilot incorporates separate analysis for each of transition (policy-driven) and physical (climate-driven) climate change risks.

This report sets out the findings from our pilot project for the GIVZ Equity and Bond holdings.

Vivid Economics conducted scenario-based analysis for Invesco using its Climate Risk Toolkit, analysing the impact of a high policy stringency scenario (1.5 °C) and a scenario with no further climate action (4 °C) on a variety of portfolios. Impacts are expressed relative to a baseline (3 °C) scenario which sees countries implement their Nationally Determined Contributions (NDCs) to the Paris Agreement. The approach consists of four key modelling components, outlined below and illustrated in Figure 12.

01 Scenario pathway
For this analysis, Vivid's toolkit incorporates publicly available scenarios from the IAMC 1.5 °C Scenario Explorer hosted by IIASA, which informed the IPCC's Special Report on 1.5 °C. A high transition risk 1.5 °C scenario and a high physical risk 4 °C scenario are used.[11]

02 Economic shocks
The economic shock modelling component translates outputs from climate scenarios into real economic shocks, the impact of which can then be quantified in the asset modelling component. Shocks are divided into two types: direct and indirect. Direct shocks are those that inflict immediate costs on companies, such as carbon pricing and acute physical impacts. Simultaneously, indirect shocks affect companies through secondary channels, such as changes in demand for a company's products.

03 Asset value streams
The asset value streams component quantifies the effect of identified shocks on company earnings on an annual basis. It does so by first examining financial asset exposure to shocks, for example through the markets in which companies are currently active and the location of their assets. The next step is then to model company actions in response to shocks, such as implementation of abatement opportunities. Finally, competition dynamics such as firm exit or costs passed through to consumers are modelled by considering relative exposure and action across the market.

04 Financial impacts
This final modelling component consolidates annual earnings impacts from the asset-level modelling into net present value impacts by security, using a discounted cash flow set-up to generate value impairment for equities. Impacts can also be mapped to default risk and price changes for debt instruments. Individual security impacts are aggregated at a portfolio level to give overall valuation impacts. Financial impacts can be broken down separately into transition and physical channels, allowing Invesco to understand the exposure of portfolios to specific channels such as demand contraction in fossil fuel industries or acute physical risks under each scenario.

[11] The scenario explorer can be accessed at https://data.ene.iiasa.ac.at/iamc-1.5c-explorer/#/login?redirect=%2Fworkspaces. The toolkit uses the ADVANCE-REMIND scenarios.

In this report, we are presenting the results of the 1.5 °C scenario analysis only. We think that this scenario offers the best means of evaluating the changes needed to align portfolios to the Paris Agreement. In fact, a 4 °C scenario[12] assumes there will be no intervention to combat global temperature increase, meaning that emissions-intensive and fossil fuel sectors gain considerable value, as they are no longer subject to the risks of climate action and the resulting limits on their activities. This result, however, reinforces an ecological disaster that threatens the existence of humanity and much other life on the planet.

The results of the modelling take into account the macroeconomic costs of changes to restrict future climate change to 'only' +1.5 °C, and the model assumes those measures are not taken in the +4 °C scenario. To mitigate these long-term risks, climate transition risk must take place in the short term, and there is a cost to it.

Inaction may present possible gains. These gains can be outweighed, however, by mitigating portfolio risks from a 1.5 °C scenario to avoid potential losses. We can't afford not to exceed +1.5 °C; the cost that this involves is one that must be borne for the sake of our future. Our role as active managers is to engage with our current holdings as well as search out and find new investments in issuers that are investing in technologies and other adaptations to both limit the temperature increase and create value for our investors. This would be a long-term climate strategy that would be true to our company values and be worth pursuing for the benefit of our clients and our shareholders at large.

The 1.5 °C scenario analysis pilot project reveals the following findings, which we explore further throughout this section:

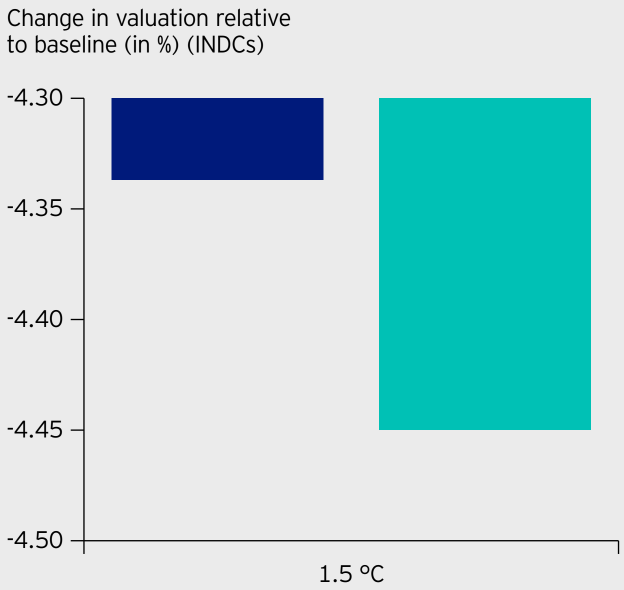
1. Aggregate valuation impacts are negative in the 1.5 °C scenario.
2. Transition risk impacts outweigh physical risk impacts.
3. As with emissions intensity, the majority of transition risk impacts are driven by a small number of sectors.
4. Impacts from chronic physical risk are more significant than those from acute physical risk.
5. On average, equity valuations are worse affected than debt valuations. This is also driven by the duration and maturity of the underlying bond portfolio.

Finding 1

Aggregate valuation impacts are negative in the 1.5 °C and positive in the 4 °C scenario

Analysis of the 1.5 °C versus a 3 °C baseline scenario reveals that the GIVZ Equity portfolio is exposed to climate risk. Under the 1.5 °C scenario, this could reduce investment value by 4%. This lines up with results for the MSCI ACWI.

Figure 13
Change in valuation relative to baseline for GIVZ Equity and the MSCI ACWI



Source: Vivid Economics, as of 31 December 2019.

[12] A 4 °C scenario is relative to the baseline Invesco chose for this analysis. The 3 °C baseline scenario sees countries implement the ambitions set out in their Nationally Determined Contributions to the Paris Agreement, while the 4 °C scenario sees no further policy action than what is already in place today. This means that emissions-intensive and fossil fuel sectors gain considerable value, as they are no longer subject to the short-term risks of climate action under the baseline, freeing them from the resulting limits on their activities. On the other hand, the additional ecological damage of moving from 3 °C to 4 °C will only become significant in the long run (beyond 2040). Given the current composition of our GIVZ Equity holdings and the MSCI ACWI, the gains from reducing transition risks outweigh the losses from potential physical risks due to climate change under a 4 °C scenario. These financial valuations are also heavily impacted by discounting, which weights earlier impacts (in the next 10 years) much more than later impact (in more than 20 years). As physical risks manifest later in time, discounting at a standard equity rate of 7.75% as in this analysis presents transition risks as more significant to investors. That is not to say that physical risks will not be more detrimental from a societal perspective in the long term.

5.2
Scenario analysis

Finding 2
Transition risk impacts outweigh physical risk impacts in both scenarios
Transition risk impacts outweigh physical risk impacts in the 1.5 °C scenario for our GIVZ Equity holdings. Physical risk has limited significance in the 'transition' scenario of 1.5 °C.

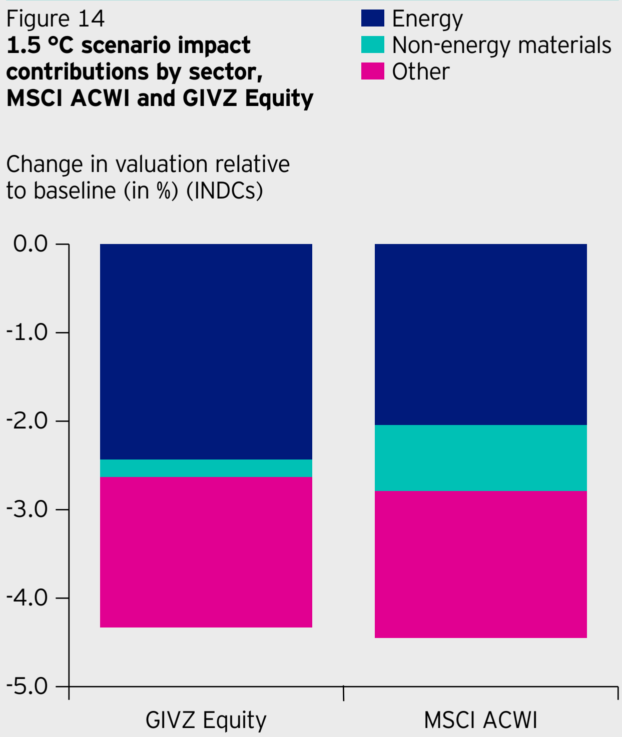
The physical risks from climate change are long-term risks, anticipated to increase significantly over the period to 2100 and beyond. This means a significant proportion of these risks cannot be reflected in equity valuations today when using standard financial discounting, which places more weight on earlier years. In addition, physical risks will be concentrated in developing countries, which tend to contribute less to the value of global equity portfolios than developed countries.

To mitigate long-term physical risks, climate policy and resultant transition must take place in the short term. This will be critical to maintaining stable economic growth and asset values in the long term.

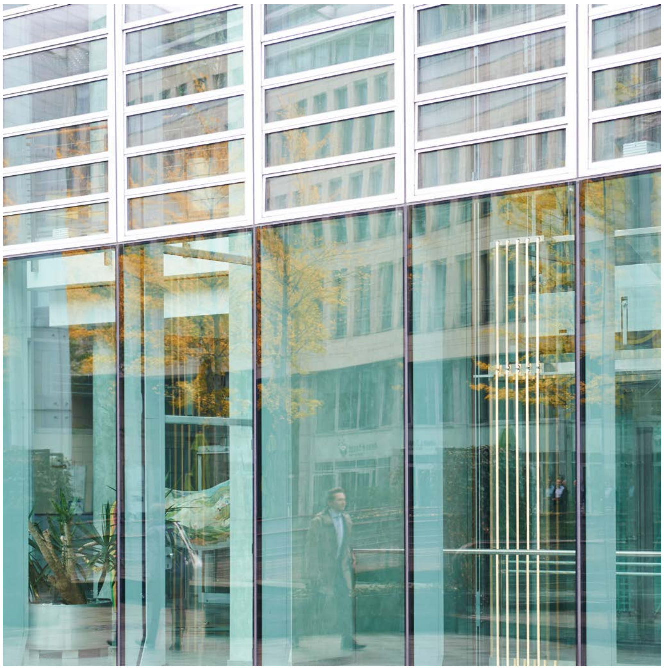
Invesco recognises these underlying mechanisms and emphasises that we see opportunity in mitigating our portfolio risks from a 1.5 °C scenario, with the avoidance of possible losses in the longer run outweighing any possible gains from inaction.

Finding 3
The majority of transition risk impacts are driven by a small number of sectors
The majority of transition risk impact for both our GIVZ Equity holdings and the MSCI ACWI is driven by companies in the Energy and Materials sectors. The chart below shows the sector contributions to overall impact under the 1.5 °C scenario for GIVZ Equity holdings and MSCI ACWI.

Figure 14
1.5 °C scenario impact contributions by sector, MSCI ACWI and GIVZ Equity



Source: Vivid Economics, as of 31 December 2019.



Finding 4

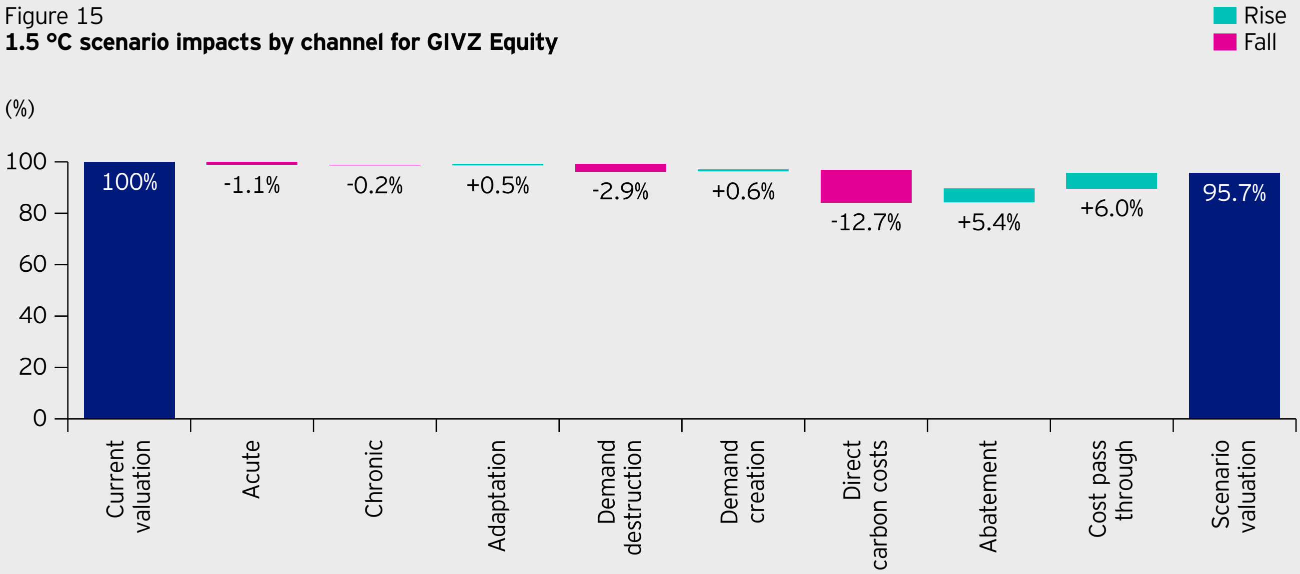
Impacts from chronic physical risk are more significant than from acute physical risk

Broadly speaking, there are two types of physical risk: acute and chronic. Acute physical risks arise from changes in the weather (day-to-day expression of the climate), while chronic physical risks are due to changes in the climate (long-term trends in temperature). Acute physical risks can be mitigated through adaptation, for example by building flood barriers.

For our GIVZ Equity holdings as a whole, acute physical risks are more important than chronic risks. This is because of the GIVZ Equity sector composition: acute climate change impacts are more significant in capital-intensive sectors such as real estate, while chronic physical impacts from labour productivity, land availability and land productivity are more important across a broad range of sectors, although particularly noticeable in sectors with high dependence on labour and land.

Figure 15

1.5 °C scenario impacts by channel for GIVZ Equity



Source: Vivid Economics, as of 31 December 2019. Notes: Demand destruction refers to impacts from the fall in demand for fossil fuels. Demand creation refers to impacts from the increase in demand for low-carbon products, such as renewable energy equipment and electric vehicles. Direct carbon costs describe the impacts from carbon pricing of emissions. Abatement describes the impact from companies abating emissions and avoiding carbon costs. Cost pass through shows the impact from passing costs through to consumers and competitive dynamics (such as gaining market share from more emissions-intensive competitors).

Invesco has examined the potential impact of climate change in detail, analysing both transition risks – driven by policy – and physical risks of climate change itself.

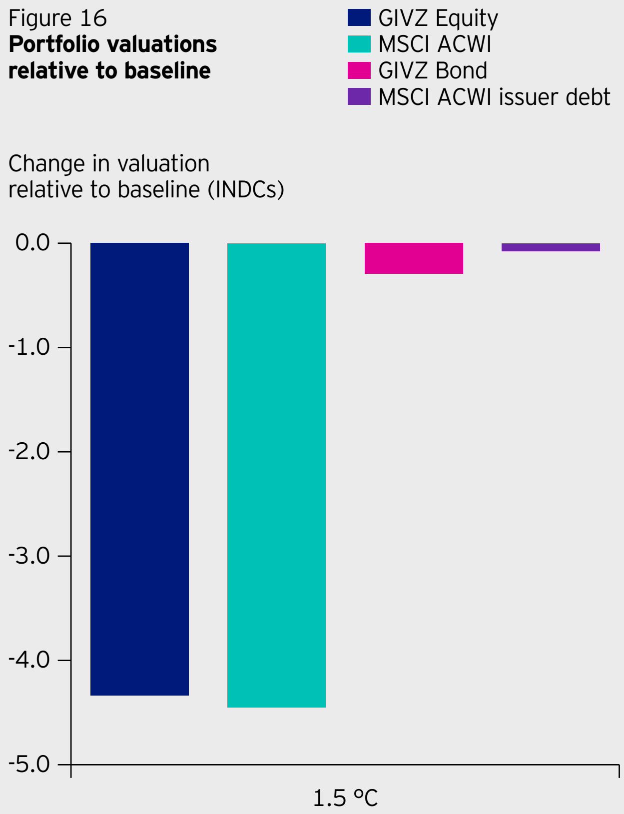
5.2
Scenario analysis

Finding 5

On average, equity valuations are worse affected than debt valuations

Under the 1.5 °C scenario, Invesco's GIVZ Equity holdings experience greater negative impact than our GIVZ Bond holdings. To benchmark, we compare these findings to the debt issued by MSCI ACWI listed companies. These similarly experience very low impact from the 1.5 °C scenario compared to the MSCI ACWI equities. Debt impacts are lower because most corporate debt is short term and very secure. The median maturity of debt issued by companies in the MSCI ACWI, for example, is 2025. As the most significant impacts from the 1.5 °C scenario are felt beyond 2025, this means impacts on corporate debt values are likely to be small. However, such impacts on debt valuations could increase if new debt holdings (with new issuances) do not adapt over time to reduce exposure to transition and physical risk.

Figure 16
Portfolio valuations relative to baseline

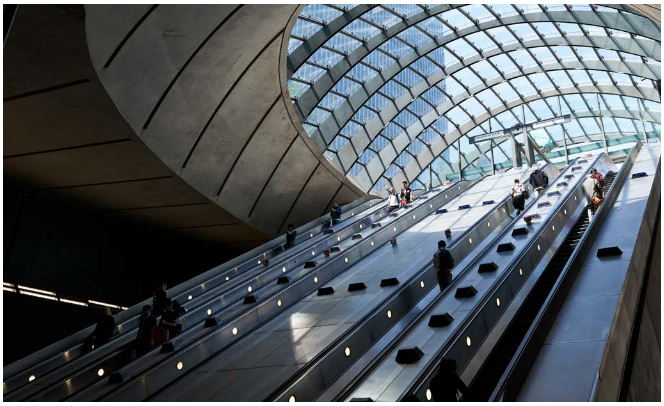


Source: Vivid Economics, as of 31 December 2019.

Our scenario analysis exercise offered evidence and clear directions to address climate change risks and opportunities for our clients and their investments.

Maria Lombardo
Head of ESG Climate Strategies EMEA

5.3
Next steps



The scenario analysis pilot project informs Invesco's thinking as we seek to develop a more comprehensive climate strategy going forward. This work will help our investment and risk teams to build forward-looking climate analytical tools, which we hope to be able to include as part of our goal to integrate ESG, particularly climate concerns, in all our investment products and solutions by 2023.

This effort forms the first step of Invesco's broader, three-step plan of engagement with the TCFD recommendation regarding scenario analysis:

1. **Identify overall risk from climate change across Invesco portfolios using a suitable scenario analysis approach**
   Based on the analysis from Vivid Economics, Invesco is developing a view of the overall risk of climate change to key portfolio holdings. This forms a useful first step as it allows Invesco to put the overall risk into context and prioritise where to focus further efforts.
2. **Isolate sources of risk within individual portfolios by examining individual security results**
   In order to gain insights into the sources of risk for individual portfolios, Invesco will then aim to drill down to the security level. This will include isolating the assets most exposed to physical and transition risk, as well as more granular categories, such as the risks from demand destruction. Invesco plans to conduct security level analysis of climate change risk over the coming year.
3. **Action remaining sources of risk where appropriate**
   Following the analysis of security level risks over the next year, Invesco will determine the appropriate actions to take on high sources of risk within portfolio holdings. This may include engagement with issuers of relevant securities, or reduction of exposure to segments associated with high levels of climate risk.

Climate change at operational level

Invesco operations and properties are predominantly exposed to global regulation and the physical and transitional risks generated by climate change. These risks could lead to increased costs or disrupted operations and/or supply for our organisation. We are aware that such risks, if not safeguarded, may have the potential to generate a substantial financial impact on our business operations, revenue and/or expenditure.

As a result of climate change, there is potential for an increase in precipitation and extreme weather events, such as flooding and other weather-related changes that could lead to an increased risk of damage to Invesco's buildings/property and persons. This poses a financial risk associated with the repair of assets and temporary relocation costs, with an increased need for flood mitigation and protection measures, plus disruption to service, health and safety and insurance premium issues.

As part of our commitment to reducing our impact on the environment through our operations, we implemented our Global Corporate Carbon Emissions and Environmental Policy, which outlines our global environmental commitments and objectives, including our energy and carbon emissions reduction goals. These environmental commitments and objectives are highlighted below.

6.0
Climate change at operational level

Figure 17
Global carbon emission and environmental objectives

Objectives	2019 status
Retain Global ISO 14001:2015 certification	Global ISO 14001:2015 certification retained
Reduce corporate carbon dioxide footprint for air and rail travel by a minimum of 10% through the implementation of carbon offsetting by 2020 (baseline 2017)	Air and rail emissions decreased by 2% when comparing 2019 against 2017
Reduce corporate properties' carbon dioxide emissions at a local property level by 3% by 2020 through waste, water and energy reduction initiatives (baseline 2017)	In 2018, and again in 2019, Invesco exceeded this target for scope 1 and scope 2 emissions

Source: Invesco.

Environmental commitments for our operations

- Protecting the environment and preventing pollution
- Complying with all applicable regulatory obligations
- Implementing waste management and minimisation practices through the hierarchy approach; reduce, reuse and recycle; energy recovery and disposal
- Reducing emissions arising from energy and transport use
- Pursuing ISO 14001 and LEED (Leadership in Energy and Environmental Design) certification, where possible

The company has established an **Environmental and Carbon Reduction Strategy** (which is linked to an emissions reduction target) to support our corporate environmental health and safety and property team.

The company already successfully reduced its corporate CO_2 footprint pertaining to air and rail travel by 10% through the implementation of carbon offsetting in 2019, ahead of its 2020 target. At the time of writing we are witnessing the impact of the COVID-19 pandemic, with consequent reduction of travelling and increases in working from home. It is possible that as a lesson learned from the COVID-19 pandemic we may see reduction in travel and use of office space that would have a positive impact on our emissions.

We have also disclosed to the Carbon Disclosure Project (CDP) since 2016, receiving a B- score in 2019.

The transition to a low-carbon economy will require innovative forms of investments. This creates opportunities for us to develop and bring to market additional products and services across the business landscape. We have identified opportunities in the adoption of voltage optimisation technology that has successfully created a beneficial operating environment for electrical equipment and enabled certain loads to use less electricity. This has had the effect of improving the operation of our electrical equipment, reducing replacement costs and maintenance requirements, and helping to lower our consumption and carbon emissions.

Our own operations impact the environment and are also subject to both transition and physical risk. Efforts to mitigate the impact and risks are ongoing, having already yielded success.

Employee engagement
Across the global organization there are several **initiatives and benefits to incentivise employees** to curb carbon emissions. In relation to transport, the company offers:

- Reduced-fare public travel passes
- A cycle-to-work scheme
- A car share scheme (paying a monetary reward to all staff who participate)
- A walk-to-work scheme that offers a daily cash reward to staff living more than one mile away and walking to work
- A cash reward for staff giving up their car park spaces

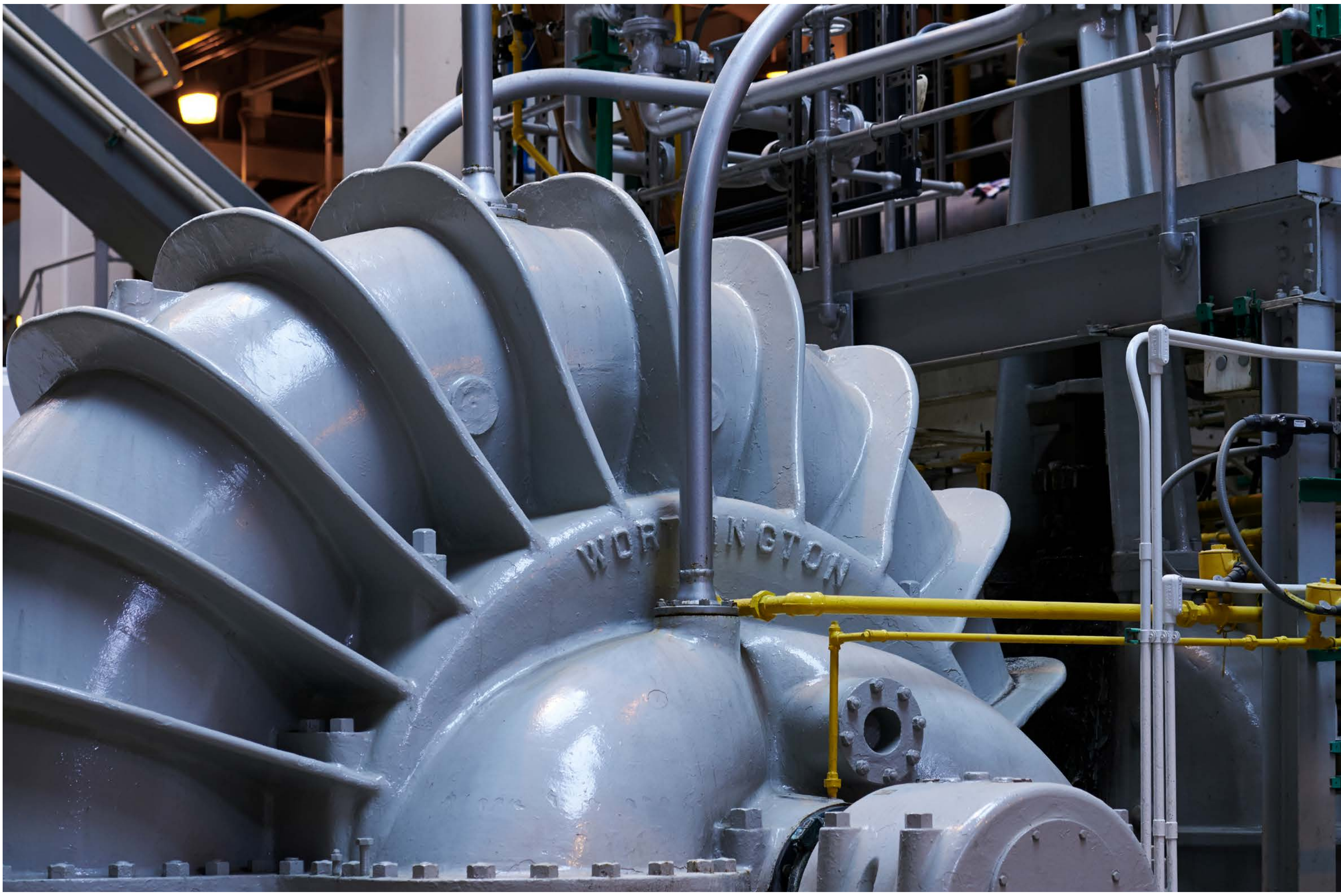
The offices in Canada, for example, are involved in the Clean Air Commute programme, which includes participation in a 'Segway Clinic'.

Global staff engagement and recognition through established green teams in regional locations. Teams collaborate to organise initiatives and awareness campaigns that counteract climate change and support the global environmental and carbon-reduction objectives. Employees are encouraged to take part in community and world initiatives and events. Earth Hour, World Environment Day, World Food Day, recycling days, sustainable energy days, street cleans and tree planting are just a few examples here. In India, employees took part in an environment initiative, planting 800 saplings.

Staff are recognised for their contributions in regular global communications, and information is made available via the intranet page.

Training
Training is an essential part of our commitment to ESG integration. It is necessary in this evolving landscape for responsible investment, enabling teams to better grasp the relationship between responsible investment and climate change. Our Global ESG team conducts meetings with Invesco's investment professionals to provide training and background information on climate change issues, frameworks, industry information, expertise, research, analysis and developments regarding Invesco's responsible investment activities. Each meeting is tailored to the individual investment team or centre, based upon region, asset class and existing ESG capability.

Risk management

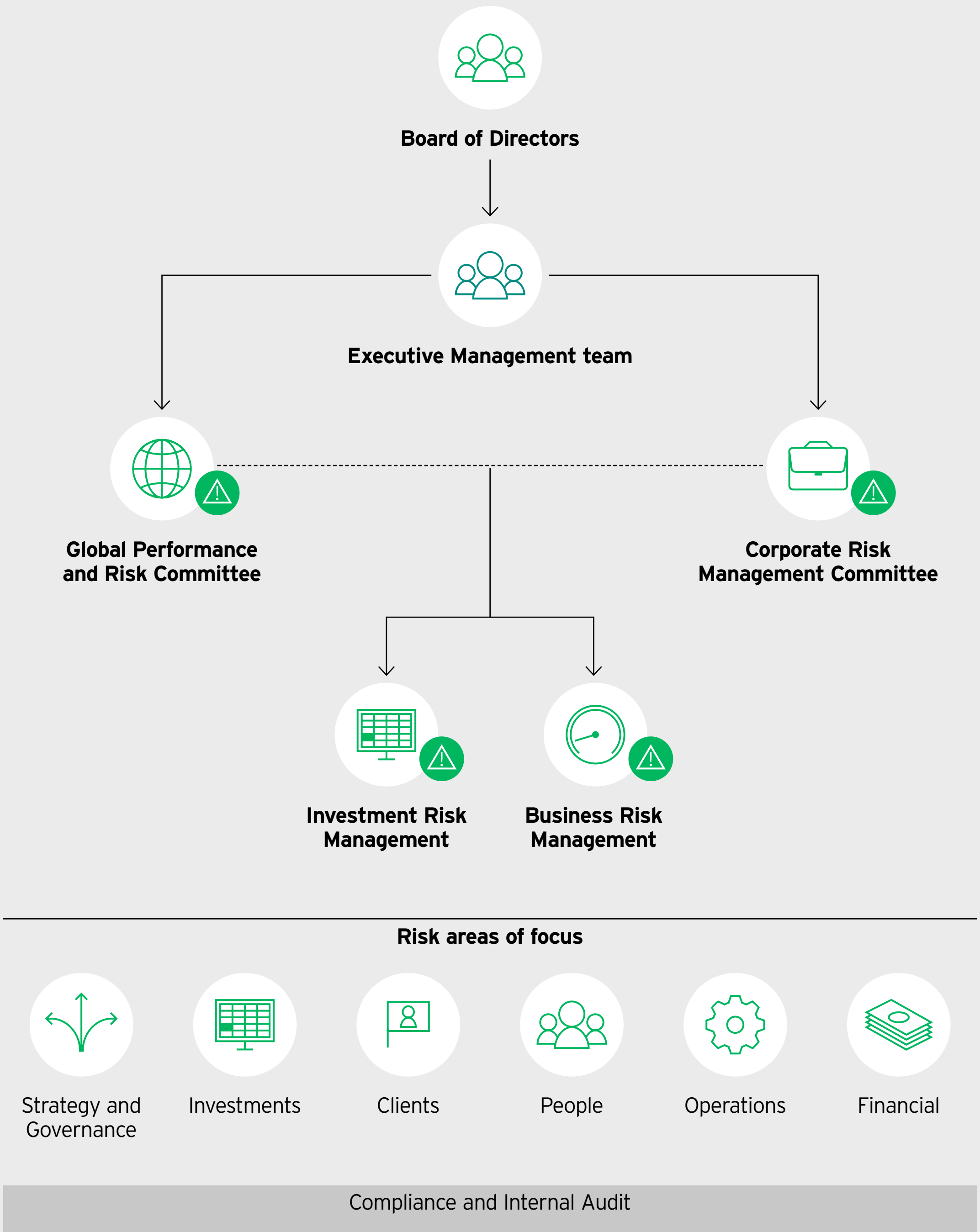


As set out in the strategy section, the primary vectors through which climate risks are likely to impact our business are through existing risk factors, in particular investment risk and changing client preferences, as well as operational risk, regulatory risk and reputational risk.

The risk framework structures our investment and business risk management, with particular focus on key risk areas of strategy and governance, investments, clients, people, operations and financial. Invesco's Executive Management team, with oversight of Invesco's Board of Directors, has principal responsibility for Invesco's risk management processes, including those set forth in the risk management framework, and for understanding the overall risk profile of the company.

Ultimately, our risk management framework ensures that we are maintaining the integrity of our company, Invesco's financial statements, our compliance with law and ethics and our relationships with stakeholders, including our clients and other business partners.

Figure 18
Our risk management framework



Source: Invesco.

7.1
Investment risk

For those investment teams that perform an analysis of climate change risks in their portfolios, we aim to develop a risk management model that builds on our existing 'three lines of defence' model.

Access to climate- and carbon-related data is essential to the process. All investment centres have access to data either directly or through the ESG data team.

Our Global ESG team also screens the full Invesco holdings to identify companies that are high-risk on Sustainalytics carbon analysis. This is a screening tool to ensure we focus our climate-related engagement efforts, which will continue to be scaled up in 2020.

Our **fund managers and analysts** provide the first line: assessment of climate-related issues for their respective asset classes. These managers and analysts draw on available data as an input to their proprietary ESG rating methodologies to augment other ESG metrics already being used by investors.

External scorings may also be used by those investment teams that analyse climate change risk. These scorings are sourced from various data providers. For climate change, the main providers are Customer Data Platform (CDP), Institutional Shareholder Service (ISS), Sustainalytics, Morgan Stanley International (MSCI) index, and the Climate Bond Initiative. CDP also offers research to go along with the climate change research available from sell-side brokers. The outcome of the assessment will generally lead to dedicated engagement with the company or issuer.

Alongside ongoing monitoring of climate risk metrics as part of the investment strategy, some investment teams are also integrating ESG and climate risks into their formalised CIO oversight processes.

The second line of defence is the **independent risk oversight**. We are currently working to define a framework for a more formalised role for the risk and compliance functions to provide monitoring and oversight of climate change and ESG risks.

The third and final line of defence is **internal audit** of the overall ESG practice, not specifically climate change. To provide independent assurance, our Global ESG team was evaluated by Invesco's Internal Audit department in 2019. This function provides the entire organisation with objective advisory and investigative services designed to add value and improve operations. While partnering closely with business leaders, our Internal Audit department focuses on the most critical risks and issues facing our organisation and delivers strategic, innovative and data-driven results. This disciplined approach is designed to evaluate and improve the effectiveness of risk management, control and governance processes. Internal Audit provided counsel and guidance to Invesco's Global ESG team and improved the integrity, consistency and quality of our team's practices.

Case study: Henley ESG oversight process
Up first is the **ESG Review**, a semi-annual process consisting of a meeting with the fund managers and analysts to go through the ESG aspect of portfolios. This ensures a circular process, including discussions of carbon emissions and intensity at the portfolio level, and of high-emitting issuers.

Second comes the '**CIO challenge**', a formal review meeting held at least once per year between the CIO and each fund manager. Prior to the meeting, the Investment Oversight team prepares a detailed review of a portfolio managed by the fund manager. This review includes a full breakdown of the ESG performance, using our data provider's Sustainalytics and ISS data, including carbon intensity and trends. The ESG team develops specific comments and questions, which the CIO uses to discuss and analyse the fund manager's level of ESG integration.

> Being instrumental to our clients' success means paying attention to emerging trends and new or evolving risks coming along with them. Climate change is one trend we watch closely as it impacts our business broadly.

Suzanne Christensen
Invesco Chief Risk Officer

Case study: Real estate investment

Win-win for a building, the landlord and the tenants

Ronda de San Pedro 5, Barcelona – Tenant engagement for better use and building efficiency

Addressing the topic of GHG emissions in real estate investments is a multi-stakeholder issue. Probably only 10% of issues can be addressed within a landlord's direct control. After construction, a building is like a stationary asset: it is emitting CO_2 because humans are using it. At Invesco, the Real Estate team opted for a new, game-changing tenancy approach, focused on achieving efficiency targets beyond traditional contract covenants.

Ronda de San Pedro 5, in Barcelona, Spain, is an early-20th-century office and retail building. 51% of the space is currently let to an Educational Institution (IES). We entered the building in Cube 2020, a competition launched five years ago in France to reward energy savings and carbon emission reductions. Our intention was to engage IES in this energy-saving plan. The IES tenants reacted favourably to our approach, and as they got onboard more stakeholders became involved, including the students, the on-site staff and even the property manager.

We partnered with a sustainability consultant to help design an action plan, funding the project fees through the potential savings to be achieved, aligning all parties. Multiple reviews were conducted, including a thermographic report and an energy audit, in order to find out the weaknesses and prioritise those measures which would have the greatest impact. We then reassessed the air conditioning temperature, changed lights in common areas to LED, and installed sensors to monitor consumptions remotely.

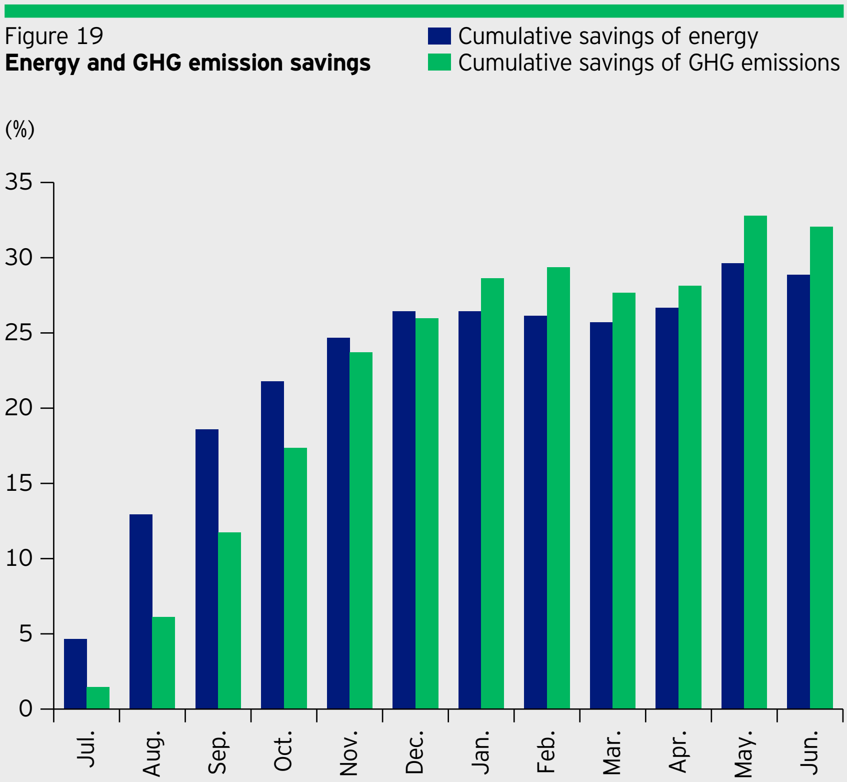
During the first year, the building operators, tenants and students worked together to decrease consumption by adopting better behaviour and making better use of the building. We achieved savings of 29% in consumption, accompanied by a 30% decrease in carbon emissions. Moreover, the contract with the electric company was renegotiated and the electric power subscription accordingly adjusted to the new level of consumption, lowering the cost. As an added bonus, we were honoured with a Gold Cube award.

We believe that there is room for still further improvement. Energy-saving measures and further international certifications are keys here. Our tenants' business has also expanded and is now occupying more areas of the building. This is a great example of how landlords and tenants can align their interests towards sustainability in the real estate industry. Launching the CUBE 2020 initiative in Ronda de San Pedro allowed us to enhance tenants' experience, change the way that tenants, employees and site staff use the building, and make a positive contribution to the environment.

Figure 20 shows the energy savings month-by-month and the percentage reduction of GHG emissions. Average savings generated by the measures amounted to 30%.

Figure 19

Energy and GHG emission savings



Source: Invesco and Cube, as of 31 March 2020.

7.1
Investment risk

Case study: Real estate investment
Savings go sky-high
Williams Tower – Houston TX US

Part of the US Core Strategy, Williams Tower is a 130,000 m, 12,000 m^2 area of public green space. The building first received its 'LEED for Existing Buildings Gold' certification in 2009. It has also achieved ENERGY STAR certification from the US EPA 13 years in a row, earning its highest score of 88 in 2018. Since Invesco took over ownership in 2013, Williams Tower has implemented several energy-efficiency projects and a commitment to a demand response programme that reduces peak energy load in the summer months. Since 2013, the building's total greenhouse gas emissions have been reduced by 23% and annual energy costs have been reduced by approximately US$415,000.

7.2
Operational risk

We assess GHG emissions data and manage environmental initiatives aimed at reducing our impact from an operational perspective.

Our **Environmental Management System (EMS)** provides a suitable framework to manage our environmental risks and opportunities. For the management of physical risks and information security, our EMS includes emergency preparedness plans based on the specifics of each certified office location. Any site-specific risks are determined through risk assessment and detailed on aspects and impacts registers, ensuring appropriate provisions are in place.

We also operate a reporting **framework for the collection, analysis and reporting of our GHG emissions data**. The analysis of this data helps us to spot trends in our consumption and emissions and to take corrective actions: this helps us to manage risks and identifies opportunities for improvements.

Additionally, we have **energy audits**, which are completed by contracted, competent external consultants to ensure all aspects of the mandatory requirements are met, significantly reducing transitional risks to the business arising from non-compliance and helping to highlight any opportunities for energy efficiency.

In an ever-evolving regulatory landscape for third-party vendors, it is critical that Invesco can effectively manage and mitigate vendor relationships, including risks to operations, information security and to our reputation. Invesco has a **standard programme for Vendor Relationship Management (VRM)**. This assists Invesco in managing risk and optimising third-party relationships. Invesco utilises Process Unity's Vendor Cloud platform to manage Invesco's vendor requests and carry out due diligence of vendors, as necessary. During the selection of operations, critical third-party consideration is given to the location of the vendor's facilities and the impact of a changing climate in the short and long term. Ongoing monitoring is in place to determine if third parties are appropriately mitigating regional changes that may impact business continuity.

Through our EMS, certified to the **ISO14001 standard**,[13] we monitor existing, new and forthcoming legislation to evaluate its potential impact on the business. The Corporate Properties department monitors changes to legislation, escalating developments where appropriate. Policies are produced and cascaded, and guidance is given on how to mitigate risk. Current regulations, such as **ESOS – Energy Savings Opportunity Scheme**[14] and the **CRC Energy Efficiency Scheme**[15], are taken into account within Invesco's climate-related risk assessments.

The risks and opportunities mentioned related to compliance with such schemes as ESOS have led to a greater awareness of our energy use and our GHG emissions. Now that we have an EMS in place, and a system to measure and report our GHG emissions, we can implement some of the recommendations from our ESOS surveys and manage and monitor their progress. We have focused efforts **on reducing our carbon emissions by retaining the Carbon Trust Standard certification**,[16] which requires a minimum 3% reduction in carbon emissions.

7.3 Regulatory risk

There is increasing regulatory scrutiny of ESG issues around the globe, with a particular focus on climate change and environmental issues. As set out in the recent IOSCO report, the two primary themes concern transparency on the part of investee companies and financial intermediaries, and address concerns about greenwashing.

Regulatory scrutiny has been most pronounced in EMEA in relation to the EU's Sustainable Finance Action Plan. This includes proposals to enhance transparency to investors on ESG issues (Sustainable Disclosures Regulation) and specifically on green investments (EU Taxonomy), as well as to create new Climate Transition Benchmarks. All three initiatives will have an impact on Invesco, both directly as a regulated firm but also indirectly through the evolving needs of our clients. Elsewhere in EMEA, we have seen moves to further green finance with a particular focus on the TCFD (in the UK) as well as voluntary frameworks to promote sustainable finance, for example in Abu Dhabi.

Regulatory activity in other parts of the globe is also developing, albeit at a slower pace than in EMEA. In Asia-Pacific, there has been significant focus on corporate governance issues, for example the introduction of the Japanese Stewardship Code, as well as on the implementation of the TCFD. A new Cross-Agency Steering Committee on Green and Sustainable Finance has been formed in Hong Kong, which may lead to regulatory changes in the future. While ESG initiatives are primarily industry- driven in the US, we note that the SEC recently consulted on whether ESG funds should be subject to the Names Rule.

We are actively monitoring the development of these trends and seeking to engage with regulators and policy-makers on these issues where appropriate.

13 Global: ISO 14001: Invesco has certified 14 offices across the global portfolio. ISO 14001 sets out the criteria for an environmental management system. It maps out a framework that the organisation follows to set up an effective environmental management system. ISO 14001 provides assurance to company management and employees as well as external stakeholders that environmental impact is being measured, monitored and continuously improved.

14 ESOS is a mandatory energy assessment scheme for organisations in the UK that meet the qualification criteria. Invesco qualifies for ESOS and must carry out ESOS assessments every four years. These assessments are audits of the energy used by their buildings, industrial processes and transport to identify cost-effective energy-saving measures. Organisations must notify the Environment Agency by a set deadline that they have complied with their ESOS obligations. Invesco has met all requirements. This poses a risk to the company, as non-compliance can lead to a significant fine.

15 The CRC Energy Efficiency Scheme, a UK government scheme designed to improve energy efficiency and cut carbon dioxide (CO_2) emissions in private and public sector organisations. The Environment Agency administers the scheme for the UK and regulates the scheme. In each compliance year, an organisation that has registered for CRC needs to do the following: collate information about its energy supplies; submit a report about its energy supplies; buy and surrender allowances equal to the CO_2 emissions it generated; tell the Environment Agency about changes to its organisation that could affect its registration (designated changes); and keep records about its energy supplies and organisation in an evidence pack.

16 In the UK, the Carbon Trust Standard is a voluntary certification and mark of excellence that enables Invesco to demonstrate success in cutting our carbon footprint and gain a competitive advantage, having achieved the quadruple standard for waste, water, carbon and zero waste to landfill. The minimum reduction required to achieve certification is 3% and Invesco continues to demonstrate achievement year on year.

Metrics and targets

We believe in the transparency of data, and in taking measures to further the climate-resilient management of our business and fulfil our fiduciary duty. Currently, we have the best metrics for our own operations. We plan to define more detailed metrics and targets as part of the development of our climate strategy. The following ESG targets are currently defined for our investments, with priority given to the topic of climate change in the analysis.

Figure 20
Investment level targets

	ESG integration and engagement	Scenario analysis	Client reporting
Target for 2023	ESG integration in 100% of our AUM in the next three years; targeted Climate Engagement through focus list and 'CA100+' program	Define criteria for selection of relevant portfolios covered by scenario analysis by 2023	Inclusion of climate-related metrics into client reporting by 2023
Target	Majority of our current AUM integrates ESG at some level; CA100+ targeted Climate Engagement with 7 companies	Global Equities and Global Corporate Bond Scenario Analysis and selected funds pilot scenario analysis	Majority of client reporting has carbon metrics

Source: Invesco.

Energy consumption and greenhouse gas emissions
Given the nature of our business, our environmental impacts principally derive from two main sources: energy usage in our offices and employee travel. We use the World Resources Institute Greenhouse Gas Protocol to calculate our energy and greenhouse gas emissions data, adopting the operational and scope 2 location-based approach that considers headcount and a portion of our leased workspaces. In 2019, our calculations covered 15 of our offices in Canada, Germany, India, Ireland, the UK and the US, which makes up 83% of Invesco's total headcount.

Energy consumption
To aid our environmental objectives, we monitor our energy consumption, including the electricity and natural gas we utilise in our operations. Our energy usage performance is shown on the next page.

Breakdown of emissions
Furthermore, thanks to the energy-efficiency measures we implemented across our offices in 2019, we reduced our scope 1 and 2 emissions by 22% against our 2017 baseline. The majority of reductions in 2019 were attributable to efforts at the Henley office in the United Kingdom, including adjustments to automatic lighting, heating and cooling settings. Some of our other energy-efficiency initiatives included isolating all lighting controls on one floor in our Toronto office to keep lights off unless needed, as well as the removal of energy-intensive desk lamps in 90% of the workspaces in our Frankfurt office.

Business travel
At Invesco, air travel makes up 99% of our business travel emissions, with rail making up the other 1%. While we experienced an increase in business travel emissions between 2018 and 2019, we saw a 2% reduction in our scope 3 emissions overall compared to our 2017 baseline.[17]

[17] Air and rail travel increased from 2018 to 2019 due to restrictions placed on travel in 2018.

Figure 21
Energy usage

Energy type	Unit	2017	2018	2019
Electricity (grid)	Kilowatt hour (kWh)	34,134,837	28,641,981	28,350,802
Natural gas	Kilowatt hour (kWh)	2,611,093	3,639,933	3,108,094
Total		**36,745,930**	**32,281,914**	**31,458,896**

Note that these metrics do not include Oppenheimer offices. These are not 14001-certified facilities and they did not have the resources in place at the time of reporting to provide the necessary data for the calculations.

Figure 22
Invesco's scope 1 and 2 greenhouse gas emissions

Emission type	Unit	2017	2018	2019
Scope 1	Tons of carbon dioxide equivalent (tCO_e)	499	699	597
Scope 2	Tons of carbon dioxide equivalent (tCO_e)	14,286	11,780	10,916
Total		**14,785**	**12,479**	**11,512**

Note that these metrics do not include Oppenheimer offices. These are not ISO 14001-certified facilities and they did not have the resources in place at the time of reporting to provide the necessary data for the calculations.

Figure 23
Invesco's scope 3 greenhouse gas emissions – business travel

Business travel GHG emissions by source	Unit	2017	2018	2019
Air	Tons of carbon dioxide equivalent (tCO_e)	21,326	17,101	20,782
Rail	Tons of carbon dioxide equivalent (tCO_{2e})	143	138	162
Total		**21,469**	**17,239**	**20,994**

Carbon offset projects' alignment with sustainable development goals (SDGs)
In 2019, we offset a portion of our 2018 corporate air and rail travel that was booked via American Express. Through these offsets, we invested in a landfill energy conversion project at Spartanburg Landfill Gas in South Carolina, US, and a conservation project at Rimba Raya Biodiversity Reserve in Indonesia. We plan on offsetting our 2019 business travel greenhouse gas (GHG) emissions, too, and are currently working on finding the right programme.

Spartanburg Landfill Gas

SDG 7 - Affordable and clean energy
Methane, also known as 'marsh gas', has a pungent and unpleasant smell. By capturing the gas, air quality around the facility is improved.

SDG 8 - Decent work and economic growth
Innovatively, this project has three uses for the gas, to ensure it is used to the optimum.

SDG 9 - Industry, innovation and infrastructure
The project employed local people in the construction, maintenance and operation of the plant.

SDG 15 - Life on land
95,000 tons of CO_{2e} are reduced each year, from the destruction of the methane and generation of energy which displaces grid electricity or gas use.

Rimba Raya Biodiversity Reserve

SDG 3 - Good health and well-being
The project has funded the distribution of fuel-efficient, smokeless cookstoves which dramatically reduce indoor pollution and prevent respiratory diseases.

SDG 4 - Quality education
The project includes a laptop distribution for children programme, as well as providing training in project management and environmental conservation.

SDG 5 - Gender equality
Community development programmes focus on the rights and welfare of women and children as the primary vehicle for the eradication of chronic poverty.

SDG 6 - Clean water and sanitation
The project is tackling lethal waterborne diseases by distributing clean water filters to local communities.

SDG 8 - Decent work and economic growth
REDD+ revenues are being used to fund employment opportunities and micro-finance programmes that diversify unsustainable income streams. Numerous jobs have been created.

SDG 13 - Climate action
Won CCB Triple Gold in the Community, Climate and Biodiversity categories. The project is scheduled to reduce over 130 million tons of CO_2 over its 30-year lifespan.

SDG 14 - Life below water
Nearly 100% of the project's 64,500 hectares is a wetlands reserve, conservation of which protects some 64 billion litres of water flow per month and maintains a vital fish nursery area for the Seruyan river basin.

SDG 15 - Life on land
Protects the rainforest carbon sink from conversion to palm oil estates. It is a haven for more than 350 species of birds and 120 mammals, including the endangered Bornean orangutan.

Looking ahead
We are continuing to align our current carbon dioxide emissions reduction initiatives with the Carbon Trust Standard. This voluntary certification scheme and mark of excellence enables organisations to demonstrate success in cutting their carbon footprint. We are currently pursuing the Carbon Trust Standard recertification process for our offices in the UK.

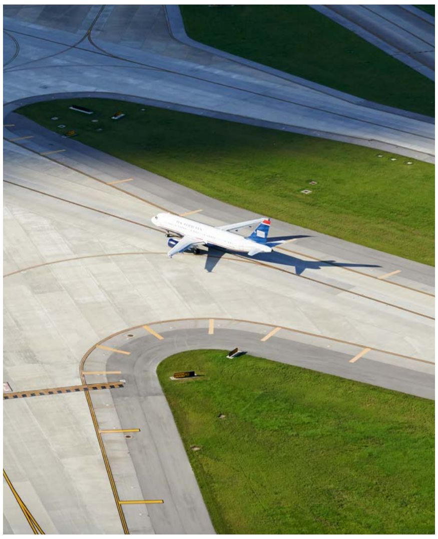


Figure 24
Environmental indicators[18, 19, 20]

	Trend 2018-2019	2017	2018	2019	Global Reporting Initiative
Organisation					
Number of LEED certifications	=	-	5	5	-
Employees working from ISO 14001-registered locations	▲	-	80%	83%	-
Greenhouse gas emissions and energy					
Total energy consumed (MWh)[21]	▼	36,746	32,282	31,459	302-1
Scope 1 - direct emissions (tCO_{2e})[22, 23]	▼	499	699	597	305-1
Scope 2 - electricity indirect emissions, location-based[24] (tCO_{2e})[19]	▼	14,286	11,780	10,916	305-2
Change from 2017 baseline, scope 1 and 2	▼	-	*-16%*	*-22%*	*305-6*
Scope 3 - waste, water and business travel (tCO_{2e})[19, 20]	▲	22,102	17,696	21,629	305-3
Change from 2017 baseline, scope 3[25]	▼	-	*-20%*	*-2%*	*305-7*
Emissions intensity (tCO_{2e}/employee)[26]	▼	6.39	5.14	5.36	305-4
Waste					
Waste to landfill (tons)	▲	545	253	269	306-2
Change from 2017 baseline	▼	-	*-54%*	*-51%*	*305-5*
Waste to combustion (tons)	▲	81	51	52	306-2
Waste to unknown disposal (tons)	▲	18.2	14.4	17.5	306-2
Composted (tons)	▼	203	24	23.1	306-2
Closed-loop recycling (tons)	▲	253	240	257	306-2
Open-loop recycling (tons)	▲	168	114	286	306-2
Water					
Water withdrawn (m^3)	▲	56,655	75,347	83,644	303-3
Change from 2017 baseline	▲	-	*33%*	*48%*	*305-5*
Water recycled (m^3)	▲	-	1	2.4	-
Water discharged (m^3)	▼	56,144	27,787	24,396	303-4

18 GHG emissions and other environmental information reported in this table represent data for entities under operational control of Invesco. The definition of operational control is consistent with that used by the GHG Protocol: a company has operational control over an operation if the former or one of its subsidiaries has the full authority to introduce and implement its operating polices at the operation.

19 Energy metrics do not include Oppenheimer offices. These are not ISO 14001-certified facilities and they did not have the resources in place at the time of reporting to provide the necessary data for the calculations.

20 2017 and 2018 quantitative environmental information was updated to incorporate the same facilities as 2019 and is therefore not the same as disclosed in our 2018 CSR report.

21 MWh stands for megawatt hours.

22 tCO_{2e} stands for metric tons of carbon dioxide (CO_2) equivalent.

23 Environmental metrics have been calculated for the facilities that are ISO 14001-certified, which represent approximately 83% of Invesco facilities.

24 According to the GHG Protocol Scope 2 Guidance, a location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data). A market-based method reflects emissions from electricity that companies have purposefully chosen (or forcibly used due to lack of choice). It derives emission factors from contractual instruments, which include any period of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims.

25 This category only includes emissions associated with waste generation, water consumption and business travel (air and rail). For more information, please reference the Environmental Stewardship section.

26 Only employees at ISO 14001-certified facilities are included in this calculation, so the denominator only includes 83% of employees.

Investment risks

The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

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