



Railways Pension Schemes Combined TCFD Report 2023



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Chair's message to members

Dear Member,

This is the third round of detailed reporting on how the railways pension schemes are managing the financial risks and opportunities relating to climate change.

We know that climate change remains an important issue to you. Therefore, with this report, we aim to provide an accessible update on how we are tackling the challenges presented by climate change, as well as meeting our regulatory requirements aligned to the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD).

The Railways Pension Trustee Company Limited (RPTCL), the corporate Trustee of the railways pension schemes, remains focused on our mission to pay pensions securely, affordably, and sustainably. We are supported in managing climate risks and opportunities by our wholly-owned subsidiary, Railway Pension Investments Limited (Railpen). Railpen's purpose is 'to secure our members' future', and through its governance and operating arrangements, we ensure alignment with the Trustee's mission, giving us both a clear line of sight of our shared objectives.

Both the physical impacts of climate change as well as the actions taken to mitigate those impacts, are financially material for pension schemes. This is why we must try to understand the risks and opportunities climate presents to our schemes, and adapt the way

we manage the schemes accordingly. Importantly, the analysis in this report demonstrates that the best climate outcome for the schemes would be where the world meets the goals of the Paris Agreement in an orderly and just fashion. This has benefits for our members – both financially and societally – and is why we continue to dedicate time and effort to this topic.

We are very aware that this report is produced when the cost-of-living crisis remains acute in the UK, and amidst much global uncertainty and wider humanitarian crises. We recognise that this makes our role in providing a good pension even more important, and we know that tackling climate change in a just and equitable manner is crucial in this context.

The complexity of the railways pension schemes combined with the level of detail required in TCFD reports means that this report is, by necessity, very long and that some of the language we are required to use may be difficult to understand. With this in mind, we have provided a Summary for Members ([Section 2](#)) and a [Glossary](#) (towards the back of the document) to help explain the terms used.

I hope you find the report informative.

Christine Kernoghan
Chair of RPTCL



1. About this report

The purpose of this report is to explain the governance and actions taken by the Trustee in identifying, assessing and managing climate-related risks and opportunities. The report fulfils the requirements of the Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations 2021, Occupational Pension Schemes (Climate Change Governance and Reporting) (Miscellaneous Provisions and Amendments) Regulations 2021, and the new requirements detailed in the Occupational Pension Schemes (Climate Change Governance and Reporting) (Amendment, Modification and Transitional Provision) Regulations 2022 (taken together as ‘the Regulations’), which are themselves designed to align with the recommendations of the Taskforce on Climate-related Financial Disclosures¹ (TCFD).

The schemes in scope for this report are the Railways Pension Scheme (RPS) and the British Transport Police Force Superannuation Fund (BTPFSF); the report content refers to both schemes unless otherwise stated. The RPS is made up of six parts (including defined benefit (DB) and defined contribution (DC)

arrangements) with over 100 individual underlying sections². The BTPFSF is a registered pension scheme providing DB and DC benefits (in respect of its Additional Voluntary Contribution (AVC) arrangements). Both schemes are administered by the same Trustee, invest in the same pooled funds, and are managed to the same climate governance arrangements. Therefore, this year’s TCFD report combines the content for both schemes into a single document, making it clear throughout if metrics or narrative reporting refer to one particular scheme in isolation.

The railways pension schemes are amongst the most complex in the UK, with the individual sections servicing many different benefit arrangements. To simplify the governance and reporting of climate-related risks the Trustee has availed itself of flexibility within the statutory guidance³ to group similar sections, with the current groupings shown in figure 1.1 to the right.

Figure 1.1: Level at which sections and arrangements are grouped for reporting purposes

Reporting content	Level (s) at which information is reported
Climate metrics	Section level Pooled Fund level Scheme level/ Arrangement level Total schemes level
Scenario analysis (asset side)	Pooled Fund level
Scenario analysis (liability side)	Scheme level Grouped-section level
Covenant	Sector level Employer level (in some cases)

The TCFD Recommendations – and therefore the Regulations and associated statutory guidance – are structured around four pillars:

- Governance
- Strategy
- Risk Management
- Metrics & Targets

In structuring our report, we have found it beneficial – in terms of the ease with which members could engage with the report – not to structure the report in a way that progresses sequentially from 1 to 4. Instead, we have prepared our disclosure in such a way as to maintain readability, though we provide an index at the back of the document for those wishing to look up particular statutory or TCFD reporting requirements.

All the data in this report is as of 31st December 2023, unless otherwise noted.

The day-to-day operation of the railways pension schemes is delegated to Railway Pension Investments Limited (Railpen), a subsidiary that is wholly-owned by the Trustee. Railpen undertakes a significant amount of climate-related activity on the Trustee’s behalf. This is reflected in the content of this report, which includes references to activities carried out both by the Trustee and by Railpen.

Further information in relation to Railpen’s approach to climate change can be found on Railpen’s website at railpen.com and in Railpen’s Net Zero Plan⁴.

¹ <https://www.fsb-tcf.org/> and IFRS – ISSB and TCFD

² Please see the Annual Report and Accounts for more detailed information.

³ [Governance and reporting of climate change risk: guidance for trustees of occupational schemes, Department for Work and Pensions](#), originally published June 2021, amended and re-published October 2022.

⁴ [Net Zero Plan](#)





1.1 Internal Audit

Whilst not a mandatory requirement to seek assurance over the TCFD report, Railpen's Internal Audit team were engaged on the Trustee's behalf to undertake work on the report prior to publication. This team is independent, objective and has an extensive track record in providing challenge and insights across the wider Railpen business, in conformance with the Chartered Institute of Internal Auditors 'Guidance on Effective Internal Audit' (The Code). An internal review of this report was chosen owing to the Internal Audit team's extensive experience and the value that this would add to the process.

The objective of this review was to provide assurance over the Trustee's TCFD report and an independent and objective view of the process, content and statements made within the report. This was approached through a review of a sample of assertions made within the report, to evaluate the statements made, and the evidence the organisation holds to support making these specific disclosures. Internal Audit provided challenge and found that the sample of assertions tested were supported by clear evidence. A number of recommendations were raised around specific figures or language used in the report, and the resulting amendments that were suggested were adopted within the final version of this report.



2. Summary for members

Climate-related risks are financial risks. Over the long term, companies, consumers, and the financial industry are likely to have to adapt to new and bold climate policies like carbon taxes, or adapt to the potentially catastrophic consequences of uncontrolled climate change like sea level rises and increasingly frequent extreme weather, or a mixture of both.

Whilst climate risk is likely to play out over many decades to come, its effects are already evident both in the dramatic and tragic weather events you might see on the news and, from time-to-time, in financial markets. There is some evidence that investors have decided they have enough certainty about the future evolution of, for example, energy policy and they have begun to factor climate change issues into the way they buy and sell financial assets. Attending to climate risk is part and parcel of an investor's 'fiduciary duty' – the promise to act in the best interests of the person whose money is being invested.

Climate risks have the potential to affect almost every sector, region, and asset class, depending on how the risks play out. This makes climate risk a systemic risk, because its effects are likely to be felt by a large part of the financial system, rather than being localised to one or two areas. This means long-term investors like pension funds are unlikely to be able to completely avoid climate risks by simply refusing to invest in certain sectors or countries.

The Trustee of the railways pension schemes treats climate risk with the seriousness it deserves. As we explain in this, our third TCFD⁵ report, the effects of climate change could impact three key areas of a pension scheme like ours:

- Threats to the employer **covenant**: the pension fund depends on ongoing contributions from your employer. If your employer turns out to be vulnerable to climate risks, this could threaten the employer's ability to contribute in the future.
- Threats to scheme **liabilities**: the liabilities of the scheme – the amount of cash we need to pay out in pension benefits over a long period of time – might be affected by climate change if, for example, changes in climate affect life expectancy in the UK. This is very hard to predict, but is something pension funds need to monitor.
- Threats to **investment** returns: a large part of our members' pension is provided by investment returns which are generated when Railpen, the schemes' investment manager, invests money on your behalf. Railpen is well regarded for taking a leading approach to climate change issues, but the possibility remains that climate-related risks could affect the amount of investment return generated by investing the schemes' assets. Trustees, and their investment managers, need to take account of this.

The railways pension schemes are among the largest and most complex schemes in the UK. Good governance is essential when managing complexity. Since last year's report, the Trustee Board's Skills Matrix was updated to include reference to climate change in line with The Pension Regulator's (TPR) recommendations on good practice. You can read more about climate governance in section 4 of this report.

We have a framework for managing climate risks that spans the climate-related threats to covenant, liabilities, and investment returns. A summary is included in figure 2.1 on the next page.

⁵ TCFD stands for Taskforce on Climate-related Financial Disclosures, a body that has recommended a reporting structure for organisations wanting to make a disclosure about climate change. From 2022, large UK pension funds have been required to produce a report that complies with the recommendations of the TCFD.





Figure 2.1: A framework for managing climate risks

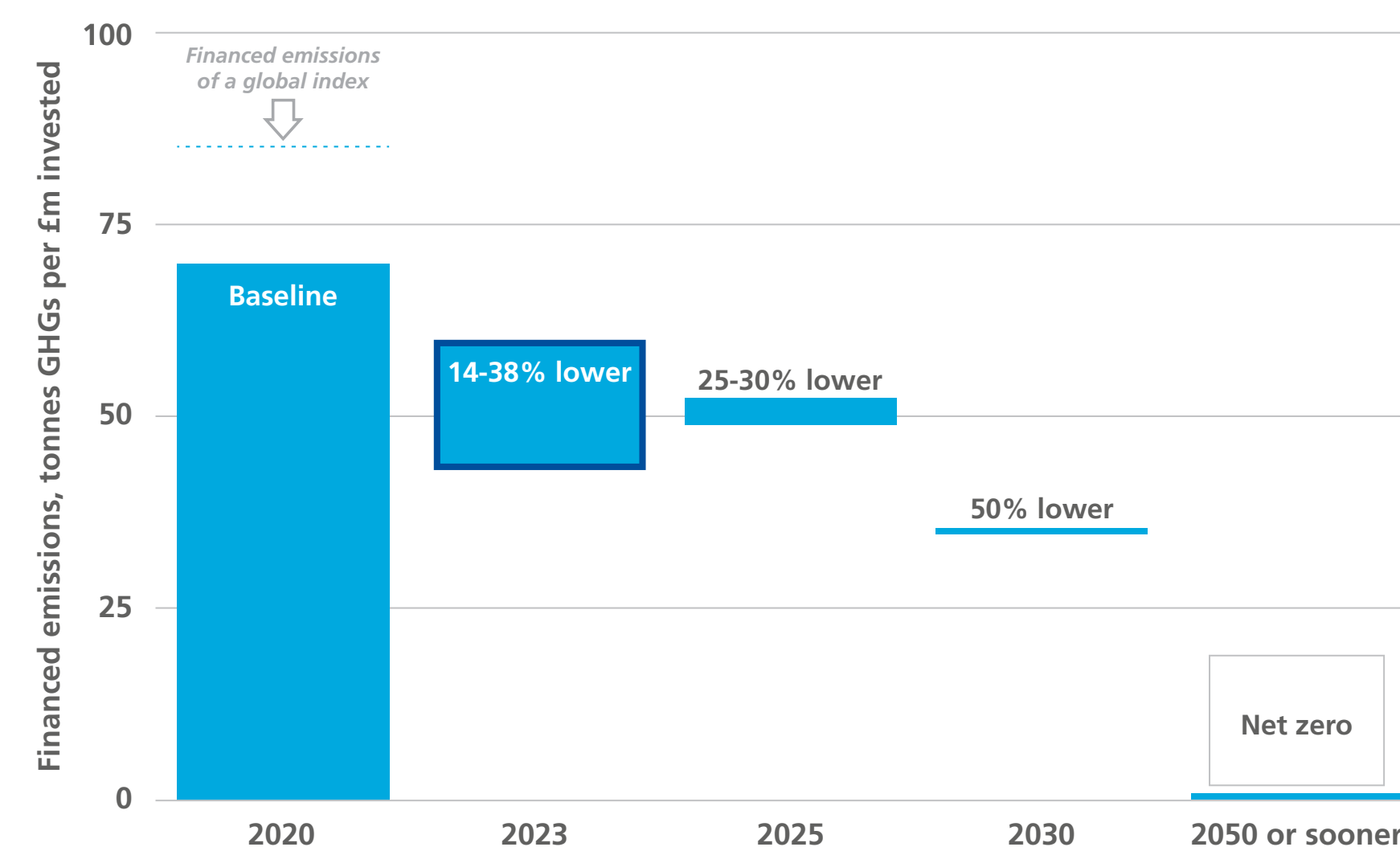
Covenant	<p>On our behalf, Railpen has assessed and keeps under review, the way in which climate risks affect and are affected by (i) UK policy, (ii) sectoral issues in the rail industry, and (iii) particular issues at individual employers. This provides the Trustee with a valuable assessment of climate risks to the schemes’ employers.</p> <p>You can read more about this in section 5.2.</p>
Liabilities	<p>To improve our understanding of the sensitivity of the schemes’ liabilities to climate risks, we undertook ‘climate scenario analysis’ in 2022. This means we made assumptions about the ways in which climate change might play out over the long term, then considered the potential impact on the schemes’ liabilities. In particular, we reviewed the impact that climate change might have on life expectancy.</p> <p>While the results of the analysis suggested the impact of climate change on liabilities is likely to be relatively low, the relationship between climate change and life expectancy is inherently unpredictable, so we will be monitoring this again in the future.</p> <p>We compared the impact climate change might have on liabilities to the impact it might have on investment returns. The results suggest that climate change might have a bigger impact on investment returns than on liabilities.</p> <p>You can read more about this in section 5.3.</p>
Investments	<p>Working on the Trustee’s behalf, Railpen incorporates climate risks and opportunities into the investment management process. Briefly put, Railpen aims to reduce climate-related risks, and identify climate-related opportunities, because it is likely that doing so would support the Trustee’s mission to pay pensions securely, affordably, and sustainably. This includes:</p> <ul style="list-style-type: none">■ Excluding companies we think might face elevated risks of asset stranding, including those with significant revenues from thermal coal and tar sands■ Incorporating assessments of climate risk and net zero alignment into investment decisions using a tool developed in-house■ Engaging companies and voting at company AGMs in a way that holds companies to account for the management of climate risks and the transition to net zero■ Overseeing external fund managers to make sure they meet our own high standards on climate change issues <p>You can read more about this in section 5.4.</p>

The Trustee has adopted climate targets that, if achieved, should put the schemes on track to be 'net zero' by 2050 or sooner. 'Net zero' is a state in which the emissions financed by the schemes' investments are very close to zero, and any residual emissions are removed from the atmosphere either by natural or technological means. The schemes aim to halve their carbon footprint by 2030, and to have reduced it by 25-30% by 2025.

In respect of these targets, the schemes are making good progress, and look on track to meet the 2025 targets at current pace. There is also a lot of work being done to engage with the individual investments within the schemes to encourage those companies and assets to adjust their operations to be aligned to a net-zero pathway. The current level of 'alignment' to this net-zero pathway is very low, which reflects the state of the global markets at present, however, the schemes are starting to see progress being made.

It is important to note that the metrics used in this report to monitor progress can be volatile and vary significantly year-on-year, and they can also be difficult to calculate precisely. Therefore, the Trustee focus is on the long-term trajectory for the schemes, and the quality of the activities and outcomes being undertaken to address climate risks. For more information on our performance against the 2020 baseline and our climate targets, please see [section 6.2](#) of this report.

Figure 2.2: Carbon footprint targets and performance to date





A significant amount of the schemes' assets are invested in renewable energy and other sectors that could benefit from the UK's transition to a greener economy. For example, we own two large wind farms in Scotland that produce enough energy to power around 45,000 homes. In January 2023, we completed our acquisition of a solar farm in Cambridgeshire which will produce clean energy sufficient to power a further 8,000 homes. Green investments can be attractive to long-term investors like pension funds, provided the price of the investment makes financial sense. The transition to net zero could provide significant investment opportunities, and the schemes' investment manager continues to locate sustainable investments that match the needs of our members.

In producing this TCFD report, we have provided as much climate-related information as we have been able to source, but unfortunately investors are still some way from having perfect information. For example, reporting annual Greenhouse Gas (GHG) emissions data is not compulsory in most markets, meaning that plenty of companies do not report to investors the amount of GHG emissions each year. It is not always possible to estimate a company's GHG emissions to plug gaps in the data. Issues like these mean that the carbon footprint data we provided on the previous page covers about three quarters of the investment portfolio of the railways pension schemes, rather than the whole lot. The Trustee and Railpen are members of several industry initiatives that support improvements in climate-related information ([see section 6.4.3](#)). More information should improve our ability to take action on climate risk, and keep our stakeholders – including our members – better informed via this annual TCFD report.

We recognise that many readers may be encountering this topic for the first time, and we have tried to make this report as readable as possible to members. Writing a report on climate change, and its complex connections with pensions, cannot be done without having to resort to concepts that are somewhat technical in nature and unfamiliar to many. We have tried to avoid jargon where we can, and we have provided a [glossary](#) of key terms to aid the report's readability.

Members who wish to contact us or learn more about the schemes' approach to climate change are encouraged to email us at contactus@railpen.com

3. Climate change and its relevance to pension schemes

3.1 Physical, transition, and litigation risks

In line with the TCFD framework, climate-related risks can be divided into two major categories:

- 1. Physical risks – those related to the physical impacts of climate change.
- 2. Transition risks – those related to the transition to a lower-carbon economy.

Figure 3.1.1: Definition of physical and transition risks

Physical risks	Transition risks
<p>Physical risks are those that pertain to the physical impacts that occur as the global average temperature rises. For example, the rise in sea levels could have impacts such as flooding and storm surge.</p> <p>Physical risks are event-driven (acute) or relate to longer-term shifts (chronic) in climate patterns.</p> <p>Physical risks have direct and indirect financial implications for investments, including damage to assets, impacts from supply chain disruption, water availability and quality, food security, extreme warming affecting premises, operations, supply chain, transport needs, and employee safety.</p>	<p>Transition risks arise as we seek to realign our economic system towards a net zero and resilient future.</p> <p>Transitioning to a net-zero economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change.</p> <p>Depending on the nature, speed, and focus of these changes, transition risks pose varying levels of financial and reputational risk to organisations.</p>

Investors ought also to be aware of litigation risks. Litigation risks are often categorised under transition risks, but can also be considered separately. These risks may result where businesses and investors fail to account for the physical or transition risks of climate change, and are prone to legal action from potential claimants.

Further, investors ought also to be aware of climate opportunities. These opportunities can come through efforts to mitigate climate change and drive the transition to net zero, as well as through solutions that help organisations and society adapt to the changing climate and make us more resilient to its impacts.

3.2 Why climate change matters to pension schemes

From an investment perspective, physical and transition risks can affect the assets, operations and financial performance (i.e. profits) of the assets in an investor’s portfolio. When climate-related risks crystallise at the company-level, it is likely they will also affect the value of the investor’s asset, for example, the financial value of a company’s shares in the marketplace. As a result, investors have a fiduciary duty to consider climate-related risks.

It is important to recognise that climate risk is ‘systemic’ in nature. This means that its impacts are so wide-ranging that they are likely to affect, in some way, the majority of the entire financial system, as opposed to being localised to one or two sectors or regions of the economy. Since climate risk is systemic, a long-term investor cannot eliminate this risk simply by avoiding certain sectors or regions.

Figure 3.2.1: Climate risk and the global financial system

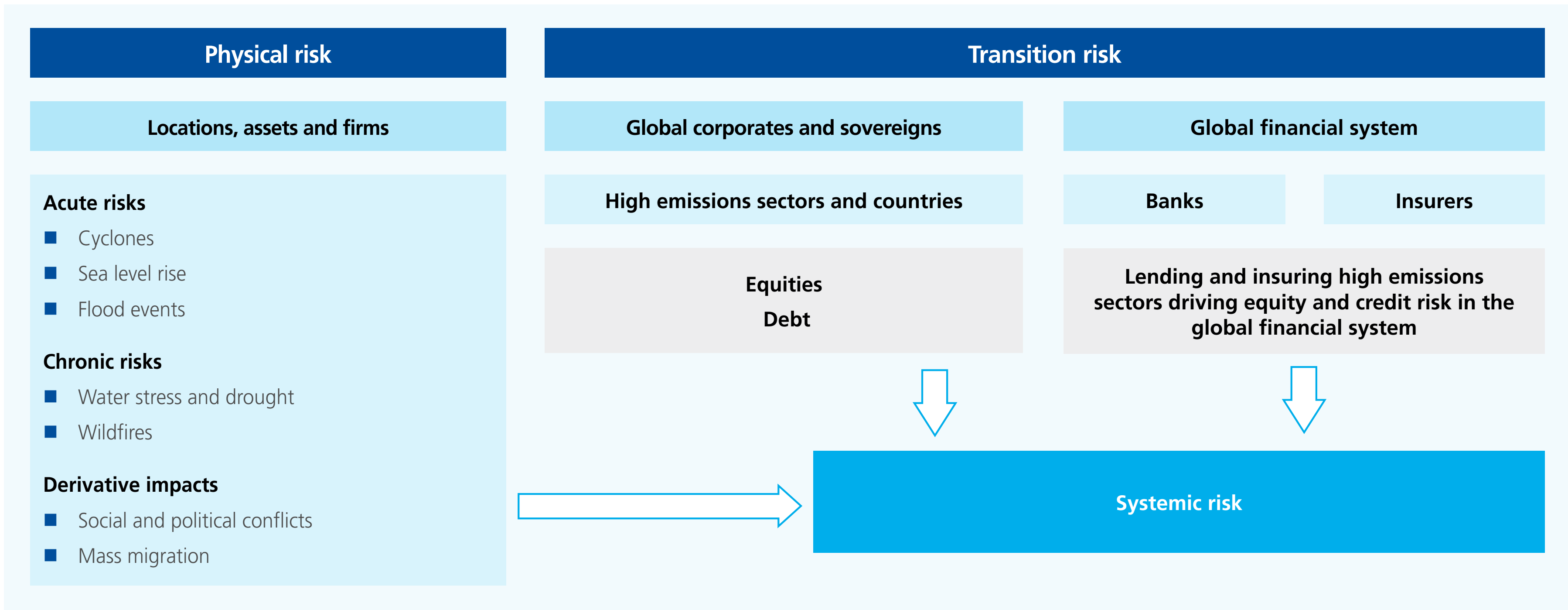


Figure 3.2.1 (above) depicts physical and transition climate risks, and their transmission into systemic risks.

In addition to investment returns, sustainable pension schemes must attend to climate risks to liabilities and the covenant strength of participating employers.

- **Covenant:** Employers that contribute to (or sponsor) a pension fund may themselves be vulnerable to climate-related risks. As a result, their ability to contribute to the pension scheme over the long term could, if risk management activity proves insufficient, be compromised by physical and climate risks.

- **Liabilities:** The liabilities of a defined benefit pension scheme could be affected by changes to mortality assumptions, other macroeconomic variables such as inflation (i.e. if climate change or climate policies affect the general level of prices for goods and services), or influences on the discount rate.

Our governance and activities in relation to climate risk, therefore, span the areas of covenant, liabilities, and investments, and this report is structured so as to provide disclosure on each area.

4. Climate governance at our schemes

‘Climate governance’ means the arrangements in place within the pension schemes to manage climate-related risks and opportunities. This section describes the schemes’ climate governance, in line with the Regulations.

4.1 The railways pension schemes

Railways Pension Trustee Company Limited (RPTCL) is the corporate Trustee⁶ of the railways pension schemes and for each separate section within the Railways Pension Scheme. The Trustee is responsible for managing four railways pension schemes:

- BR (1974) Fund
- British Transport Police Force Superannuation Fund
- British Railways Superannuation Fund
- Railways Pension Scheme

The schemes are occupational pension schemes providing defined benefit (DB) and defined contribution (DC) benefits.

The Trustee Board is comprised of 16 directors, 8 nominated by employers and 8 by members of the railways pension schemes (6 are nominated on behalf of employees and 2 on behalf of pensioners). Directors are appointed for a six-year term of office, with a third of them retiring by rotation every two years.

Railpen (the trading name of Railway Pension Investments Limited), is a wholly-owned subsidiary of the Trustee. Railpen is authorised and regulated by the Financial Conduct Authority (FCA). Railpen acts as the investment manager and fiduciary adviser for the railways pension schemes and is responsible for the day-to-day operation of the schemes and the management of around c.£34bn of assets.

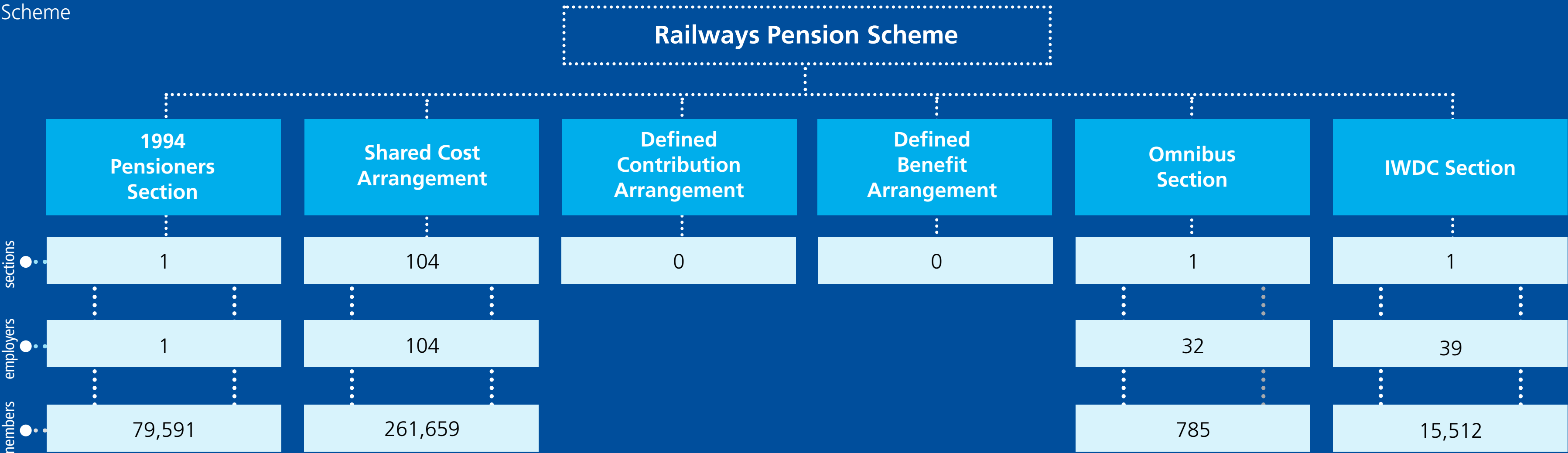
The Trustee is the only client of Railpen, ensuring that its activities are aligned with the interests of the schemes’ members.

Further information on the schemes and the composition of the Trustee Board is available in the 2023 Annual Report and Audited Financial Statements⁷.

4.1.1 The Railways Pension Scheme (RPS)

The RPS is the largest of the four schemes and was created in 1994, following the privatisation of the railway industry and reorganisation of the British Rail Pension Scheme. It is one of the largest schemes in the UK. It provides pensions for over 150 companies operating within the privatised railway industry.

Figure 4.1.1: Overview of the Railways Pension Scheme



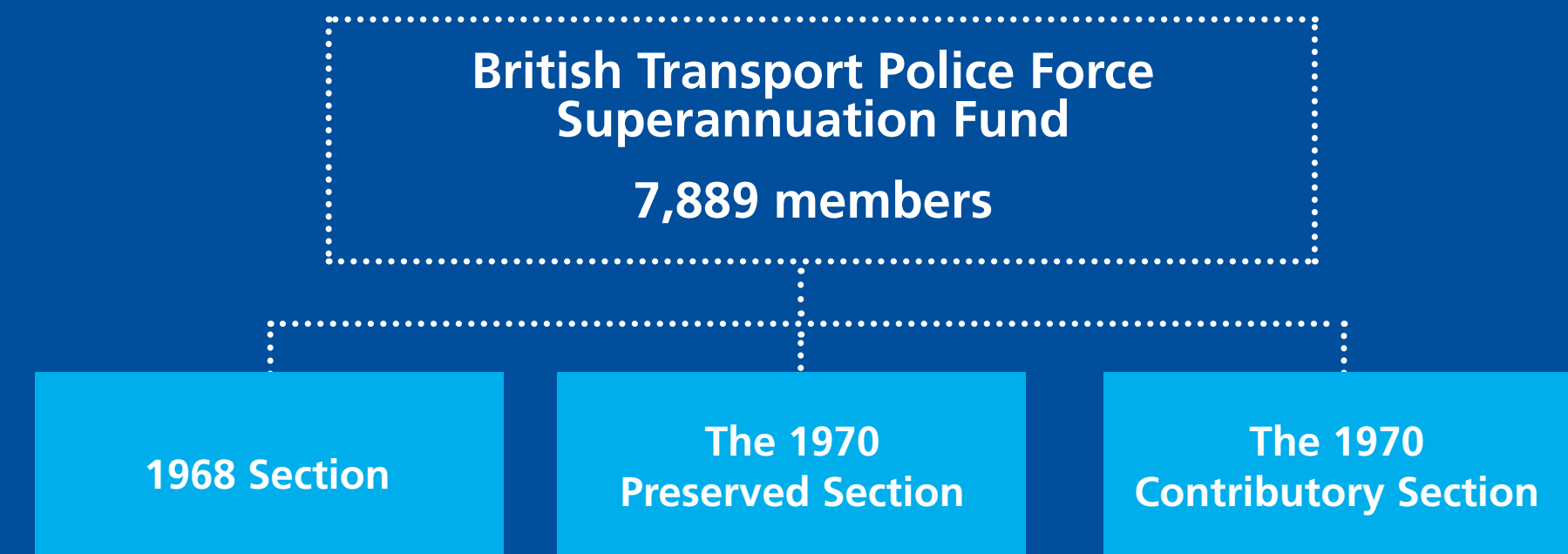
⁶ We use ‘RPTCL’ and ‘Trustee’ interchangeably in this report. ⁷ Available at <http://www.railpen.com>



4.1.2 The British Transport Police Force Superannuation Fund (BTPFSF)

The BTPFSF is made up of the 1968 Section (which is a small historical Section); the 1970 Preserved Section (comprising pensioners only); and the 1970 Contributory Section which is open to new entrants and has three benefit structures depending on when a member joined the Fund. The scheme invests in the pooled fund structure of the railways pension schemes and is currently open to new members.

The principal employer of the Fund is the British Transport Police Authority (BTPA), an independent body responsible for overseeing the work of the British Transport Police (BTP) – the national dedicated police force for the railways. Membership of the BTPFSF was 7,889 as of 31 December 2023.



4.2 Climate governance overview

The Trustee places great emphasis on maintaining high standards of fiduciary governance. Governance⁸ means having the people, structure and processes in place to provide the foundation for the efficient operation and effective decision-making of the Trustee Board. The experience and skills of Trustee directors are the cornerstones of the Board's effective ways of working.

When it comes to climate-related risks, the Trustee has a duty to ensure good governance of climate risks and to monitor the potential impacts on investment returns, liabilities, and employer covenant.

Governance is multi-faceted: climate governance – including the Trustee, others undertaking scheme governance activities, and advisers – may be considered in six parts, as shown in figure 4.2.1 (right). Taken in aggregate, the six subsections shown explain how the Trustee maintains oversight of the climate-related risks and opportunities relevant to the schemes.

Figure 4.2.1: Six parts of climate governance



The Trustee has chosen to take an approach to the oversight and management of climate-related risks and opportunities that integrates, as far as possible, into the processes for how they consider other risks and opportunities. However, given the unique challenge climate risks pose, some monitoring and reporting is carried out separately to other risk management processes. The Investment Risk Governance Framework (explained in section 4.4) is reviewed annually and approved by the Trustee. At the time of publication, the Trustee is satisfied that this framework is sufficient for the management of investment risk, including climate-related risk.

The schemes are amongst the most complex in the UK. The day-to-day operation of the schemes are delegated to Railpen, with oversight maintained by the Trustee through reporting quarterly, annually, and as required. Within Railpen, oversight of climate risk management is ensured by the application of the Investment Risk Governance Framework and, in an investment context, through oversight of Railpen's Investment Management team by its Fiduciary team. Physical and transition climate risks are identified, assessed and managed using several tools and approaches as described later in this report, particularly [section 5](#).

RPTCL's Statement of Investment Offering (see [section 4.4](#)) prescribes a list of pooled funds that individual sections subscribe to according to their investment and funding requirements. Given the one-to-many mapping of pooled funds to the sections that invest in them, it is efficient from a governance and reporting standpoint to consider the impacts of climate risk at a pooled fund level. This means that, in this TCFD report, we produce analytics and pass comment at a pooled fund level (for example when reviewing climate scenario analysis or climate metrics).

Railpen is responsible for ensuring that external fund managers invest scheme assets in line with RPTCL's investment policy. Railpen also requires that the fund managers' climate, ESG, stewardship and sustainable investment policies align with RPTCL's own policies. This includes assessing how the relevant manager makes investment decisions based on the medium-to long-term financial performance and climate and ESG risks of investee companies and engages with investee companies to improve their performance. The climate and ESG practices of external managers are typically reviewed prior to appointment and on a regular basis thereafter.

In the interests of providing the reader with a simplified exposition of climate governance at the railways pension schemes, we refer only to those bodies, committees and documents, that have a relation to the governance of climate risk, i.e. the arrangements we refer to do not represent an exhaustive mapping of governance at the railways pension schemes and Railpen.

⁸ In this report we adopt the definition of 'Governance' used in the relevant Statutory Guidance: "the way a scheme operates and the internal processes and controls in place to ensure appropriate oversight of the Scheme... This includes – but is not limited to – decisions relating to investment strategy or how it should be implemented, funding, the ability of the sponsoring employer to support the Scheme and liabilities."

4.3 Investment Beliefs

The [Investment Beliefs](#) shared by the Trustee and Railpen serve as a foundational and reliable guide to investment decision-making. The investment activities that Railpen carries out on behalf of the Trustee must align to the these beliefs. These investment activities are overseen by the Asset Management Committee (AMC) who ensure adherence to the Trustee's investment policy. The Trustee reviews and monitors performance (and fees) to ensure that the activities of Railpen continue to be aligned with the Trustee's investment policy. As noted in the Statement of Investment Principles, the Trustee reviews the Investment Beliefs annually.

The Trustee made material updates to the Investment Beliefs in 2021. Previous Investment Beliefs referred to a link between ESG⁹ factors and investment performance, and a duty to incorporate ESG into investment decision-making. The updated Investment Beliefs refer explicitly to climate change, reflecting its significance for the successful delivery of the Trustee's mission (see figure 4.3.1). Climate change could be said to relate to all six of the Investment Beliefs, though we highlight one particular belief for its explicit reference to climate change.

Figure 4.3.1: The shared Trustee and Railpen Investment Beliefs, updated in 2021

Beliefs	Belief narrative
1. Managing asset-liability risk is integral to a scheme's long-term success.	<p>Environmental, social, and governance (ESG) factors affect corporate financial performance, asset values, and asset-liability risk. Well-informed and financially material ESG analysis, as part of a holistic investment process, supports the identification and ultimately the pricing of ESG risk and opportunity. Constructive engagement combined with thoughtful voting can protect and enhance investment value.</p> <p>A long investment horizon exposes a pension scheme to societal and systemic risks, such as climate change. These risks are growing and need to be managed. Capital allocation by investors and corporates makes a difference in how these risks play out. Railpen has a responsibility to make a scheme assets resilient to systemic threats and position portfolios for long-term opportunities. We believe it is possible and necessary to deliver the returns the schemes need, whilst positively contributing to the world our members retire into.</p>
2. Long-term focused investment decision making has many advantages that should be carefully exploited.	
3. Diversification of the overall investment portfolio, across different structural drivers of return, improves the resilience of a scheme's assets in an uncertain world.	
4. Incorporating and acting upon climate risk and other environmental, social and governance factors is a significant driver of investment outcome and part of our fiduciary duty.	
5. Effective portfolio management requires flexibility around a thoughtfully considered investment strategy.	
6. Investments should be selected, structured and sized in a manner aligned to a scheme's long-term objective.	



⁹ Environmental, social, and corporate governance investment factors.

4.4 Documentation and processes

The Investment Risk Governance Framework (the 'Framework') defines the structure and relevant processes for the governance surrounding the management of investment risks across the schemes, sections and pooled funds. A risk governance framework principally needs to drive clear ownership and accountability for all investment decisions. It should create a well-defined set of expectations regarding risk taking and assessing adherence with those expectations, thus facilitating purposeful business outcomes.

This is achieved by having a structure with distinct levels of authority. Risk governance is divided into three levels, as shown in figure 4.4.1. The levels allow the risk governance framework to provide a strong link between delegation, oversight and decision-making. This in turn ensures the right decisions are made by those with the most specialism and experience, whilst sufficient oversight is guaranteed.

Figure 4.4.1: Three levels of risk authority



More information on the roles of Level 1, 2, and 3 risk authorities is provided in [section 4.5](#).

A thorough, consistent and aligned set of governing documents forms the cornerstone of successful governance. The Investment Risk Governance Framework establishes a document hierarchy that is driven by the three levels, and which defines oversight and accountability for the entirety of items within the Trustee's scope, including climate risk. This confers responsibilities on the Trustee, others undertaking scheme governance activities, and advisers.

The Investment Risk Governance Framework ensures a clear understanding of which governing documents are required and who owns them. The documents owned by the Boards and committees provide the well-defined parameters from which all subsequent investment risk decisions are derived. These documents include Mission and Beliefs, the Statement of Investment Principles (SIP), Railpen's Investment Manager Agreement (IMA), and Terms of References and Policies. The Investment Risk Governance Framework also establishes a decision authority matrix with governing authorities and investment approval delegated authorities. Ultimately, the Investment Risk Governance Framework enables boards and committees to satisfy themselves that persons advising or assisting take adequate steps to identify and assess any climate-related risks and opportunities which are relevant to the matters on which they are advising or assisting.

Figure 4.4.1.2: Document hierarchy in the Investment Risk Governance Framework

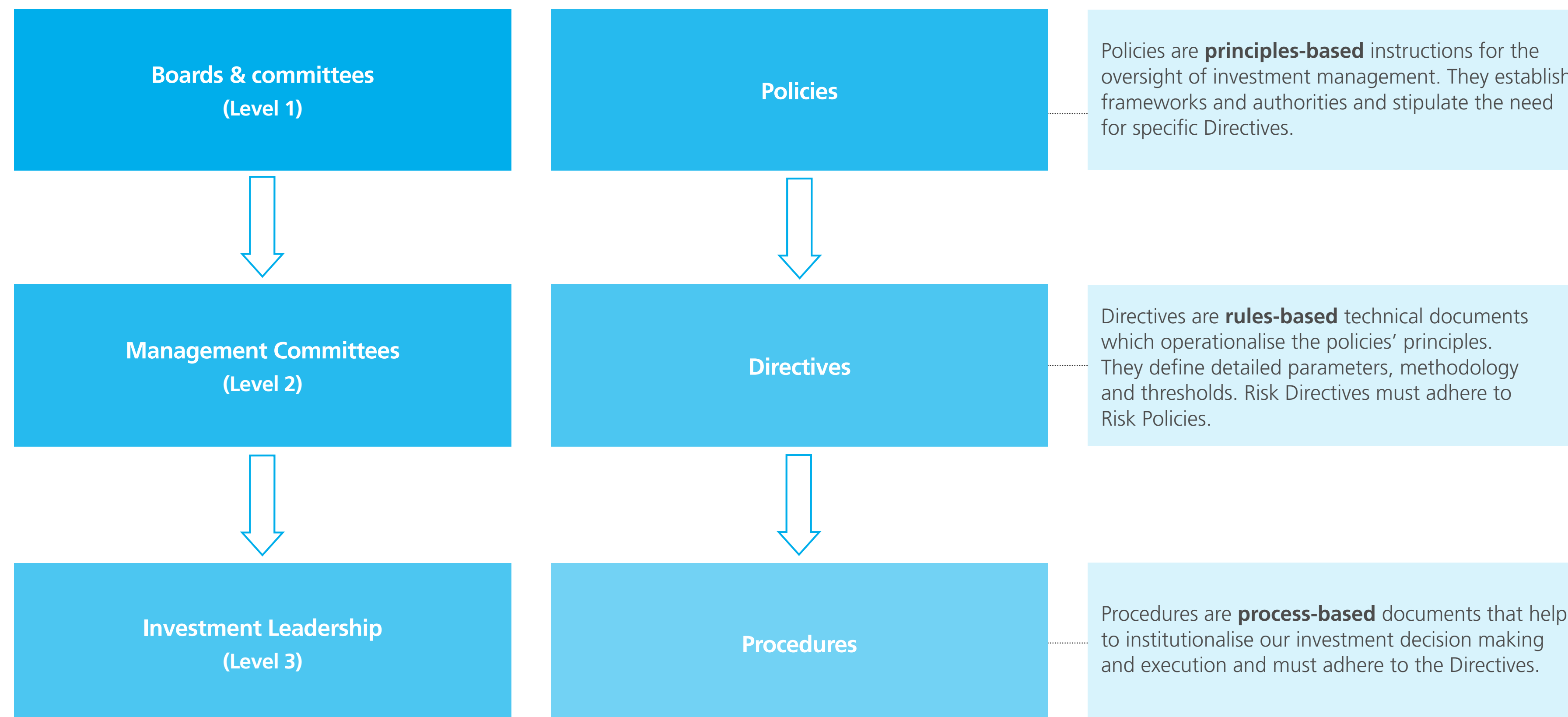




Figure 4.4.1.3 lists the key level 1, 2, and 3 documentation that relates to the management of climate risk. The tables that follow explain the specific relation between the document and climate risk for levels 1 and 2 documents.

Key frameworks and policies were reviewed and re-approved in 2023. Where the review amended an arrangement relating to climate risks, this is noted in the following tables (right).

Figure 4.4.1.3: Documentation relating to climate risk, levels 1, 2 and 3

	Risk authority	Document type	Documentation relevant for climate risk
Level 1	Boards and committees	Policies	Investment Risk Governance Framework RPTCL – Railpen Investment Management Agreement (IMA) Statement of Investment Principles (SIP) Investment Beliefs Statement of Investment Offering Pooled Fund Policy & Pooled Fund Mandates Investment Risk Policy Board and committees Terms of Reference & Meeting Minutes Investment & Risk Report
Level 2	Management Committees	Risk Directives	ESG Risk Directive Investment Transaction Approval Directive Investment Management Agreements
Level 3	Investment Leadership	Procedures	Team Procedures Investment Recommendations

Level 1 documents relating to climate change¹⁰

Investment Risk Governance Framework	
Purpose	This document defines the structure and relevant processes for the governance surrounding the management of investment risks across the schemes, sections and pooled funds.
Relevance for Climate Governance	The Investment Risk Governance Framework documents: <ul style="list-style-type: none">■ Inventory of major investment decisions■ Authority for delegation and oversight of decisions■ Authority for making of decisions■ Approval processes and governance documentation.

Statement of Investment Principles (SIP)	
Purpose	The RPTCL SIP sets out the Trustee’s arrangements in respect of investing scheme assets.
Relevance for climate governance	<p>The SIP recognises that climate change can have a financially material impact on investment returns, and that the Trustee has a legal duty to consider financially material climate factors. In the SIP, the Trustee commits to undertake annual training on ESG and climate change.</p> <p>The SIP was reviewed in December 2022 with the Trustee’s expectations in relation to ESG factors restructured for additional clarity. In addition, the term ‘climate change’ has been included throughout to make clear that the Trustee’s expectations in relation to ESG factors encapsulate climate factors where material.</p>

¹⁰ Please note the Investment Beliefs, which are described on [page 15](#) plus the Investment & Risk Report, which is explained on [page 27](#).



Statement of Investment Offering

Purpose	This document defines the range of investment products to be used in client investment strategy and, importantly, sets out the Trustee’s expectation that its Investment Beliefs should be integrated into the investment process.
Relevance for climate governance	Our Investment Beliefs include explicit reference to climate change.

Pooled Fund Policy and Pooled Fund Mandates

Purpose	This document sets out the investment objectives and investment risk guiding principles and limits for investment management activities within the pooled funds.
Relevance for climate governance	The document states that ESG risk, which includes climate risk, should be integrated into the investment process, minimised and diversified. It should be risk-managed as part of the ongoing active management of assets.

Investment Risk Policy

Purpose	This document stipulates the guiding principles and framework for the management of investment risks.
Relevance for climate governance	The Investment Risk Policy defines ESG risk (which includes climate change) and sets a requirement for a Level 2 document, namely an ESG Risk Directive.

Board and committees Terms of Reference and Meeting Minutes

Purpose	Terms of Reference (ToR) for the Trustee Board, the Integrated Funding Committee, and the Defined Contribution Committee, are approved by the Trustee Board; the ToR for the Asset Management Committee are approved by the Railpen Board; the ToR for the Investment and Risk Committee are approved by the Asset Management Committee.
Relevance for climate governance	Duties laid out in ToRs cover roles and responsibilities for activities that have a bearing on funding and investment issues. Climate-related risks (where material) are considered to be within the scope of the duties laid forth in Board and committees terms of reference.

RPTCL-Railpen IMA

Purpose	Establishes the terms of the discretionary investment management agreement given to Railpen by the RPTCL.
Relevance for climate governance	Requires Railpen to invest in line with the Trustee’s SIP, which refers to climate change. Delegates investment powers and voting rights to Railpen. Requires Railpen to provide the Trustee with information that enables the Trustee to review and monitor engagement activities, the exercise of voting rights and the ‘financially material considerations’ and ‘non-financial matters’ (as set out in the Investment Regulations) taken into account in the selection, retention and realisation of investments.





Level 2 documents relating to climate change

ESG Risk Directive	
Purpose	This document specifies how ESG risk, as defined in the Investment Risk Policy, should be monitored, measured, and managed.
Relevance for climate governance	ESG risk is defined to include climate risk. The Directive sets certain pooled fund-specific requirements in respect of ESG risk management, and directs a policy of excluding carbon intensive businesses (thermal coal and tar sands) in order to reduce the risk of asset stranding.

Investment Transaction Approval Directive	
Purpose	This document defines the framework for determining the classification of investment transactions (by size and nature) and the relevant approval authorities.
Relevance for climate governance	Investment approvals may be escalated for reasons relating to ESG risk including climate risk. The Directive requires investment managers to provide all relevant investment and due diligence information to Railpen’s Investment Risk and Sustainable Ownership teams. More information is provided in section 4.5 .

Investment Management Agreements (IMAs) – external managers	
Purpose	These documents establish the terms of appointment of external managers.
Relevance for climate governance	IMAs and similar documentation place requirements on external investment managers in relation to ESG and climate change. Requirements are in place for the management of climate risks, and the reporting of risk management activities on an agreed basis. Specific requirements are set out for those managers in-scope of Railpen’s Net Zero Plan.

In addition to the above, a number of third-party suppliers support the governance of climate-related risks. Supplier contracts document the requirement for climate-related data, proxy advice, climate scenarios, consultancy and so on. Certain significant suppliers are required by contract to produce Key Performance Indicators or other indicators of activity such that the Trustee, or Railpen acting on its behalf, can measure the delivery of services to RPTCL.

Key documents are stored, managed, reviewed, and processed for approval via a Sharepoint site.

4.5 Roles and responsibilities

This subsection describes the roles of those undertaking and those advising and assisting the Trustee with scheme governance activities, in the identifying of, assessing and managing climate-related risks and opportunities relevant to those activities.

As described in [section 4.4](#), the Investment Risk Governance Framework establishes three levels of risk authority for the Trustee and Railpen:

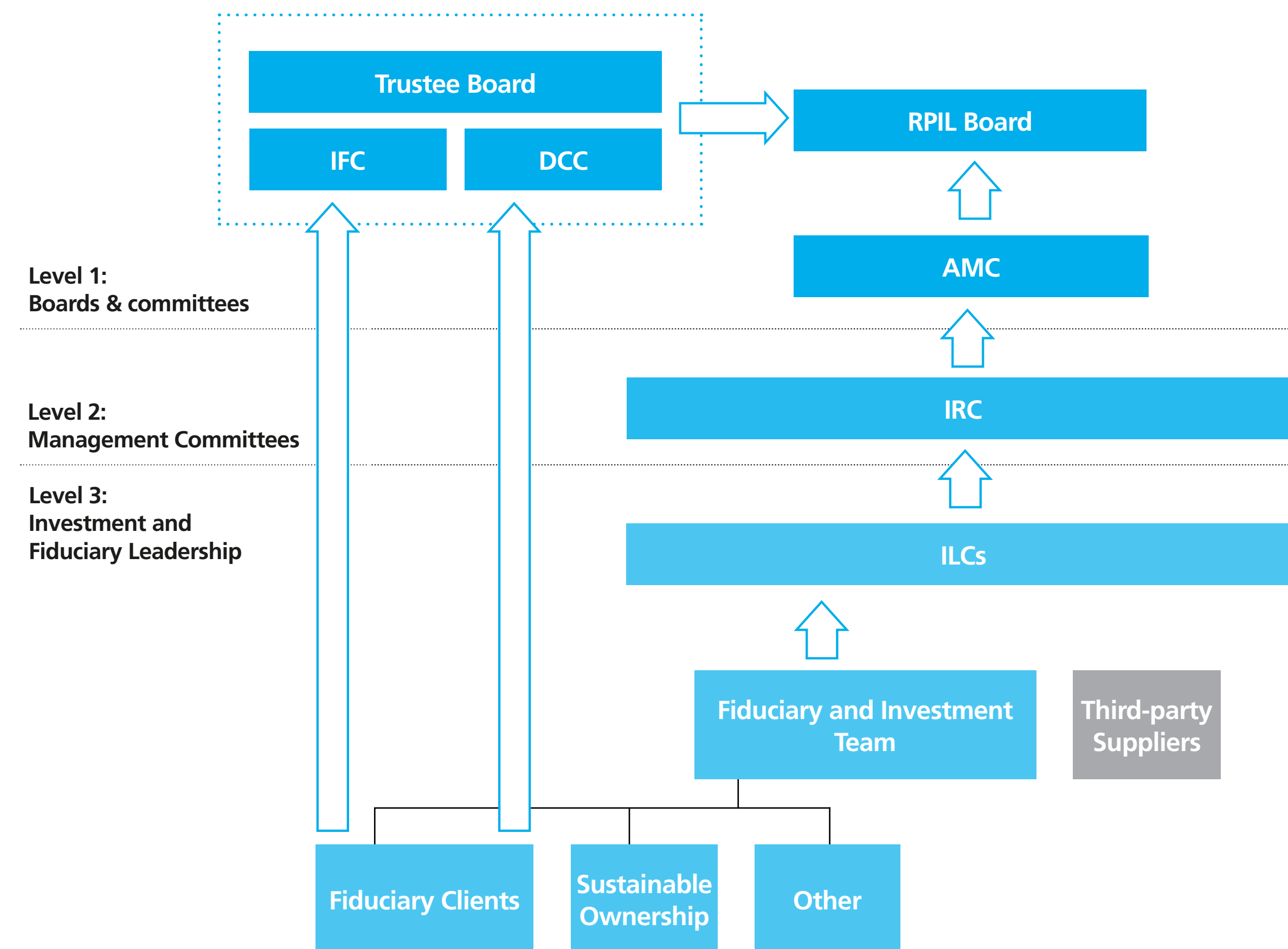
Level 1: Boards and their committees oversee the governing parameters, which set the necessary expectations and context for all investment decisions. Level 1 also provides the valuable role of oversight, ensuring delegated authorities are thoughtful and well maintained.

Level 2: The second level of authority consists of various Management Committees. These operate within the Level 1 defined frameworks and policies. These Management Committees are granted authority to make various investment decisions, which are overseen by Level 1. In addition, these Management Committees are eligible to further delegate more detailed, but less material, investment decisions to individual investment teams / members. For example, the Investment and Risk Committee would approve risk thresholds (which fall below the Asset Management Committee (AMC) approval limit), and for example, would recommend the AMC any changes to Pooled Fund Mandates.

Level 3: The last level represents Investment Leadership, including the Investment Teams, who are ultimately responsible for the execution of bottom-up investment decisions. These are investment experts who are employed to deliver investment returns in line with Railpen's purpose. These may be teams or individuals who make security and portfolio level investment decisions or, for example, recommend (for approval) investments to a Management Committee. These include Investment Leadership Committees (ILCs), which comprise the Public Markets Investment Committee (PMAC), Private Markets Investment Committee (PMIC), and the Real Assets Investment Committee (RAIC).

In the context of climate risk governance, key level 1, 2, and 3, risk authorities are displayed in Figure 4.5.1. The remit of each authority as relating to climate risk is explained on the following pages.

Figure 4.5.1: Summary of climate governance within the railways pension schemes and Railpen¹¹



¹¹ Level 1 relates to what the TCFD Recommendations refer to as 'the Board' and Levels 2 and 3 relate to what the TCFD Recommendations refer to as 'Management'.



Section 4.4 describes the Investment Transaction Approval Directive, which determines which risk authority may approve which transaction depending on its nature classification, where transaction nature classification depends on a range of factors including the perceived degree of climate risk. Figure 4.5.2 summarises which risk authorities approve which transactions, and further information is available below.

Figure 4.5.2: Risk authorities for investment approvals

	Risk authority	Nature Classification
Level 1	Boards and committees	Special nature transactions
Level 2	Management Committees	Material transactions
Level 3	Investment Leadership	Significant transactions

Railpen undertakes a range of activities to assist or advise the Trustee with its oversight responsibilities relating to climate-related risks and opportunities. This includes delivering training (see section 4.6), investment management services including climate risk integration (see section 5.4), advice relating to climate impacts on employer covenant and liabilities (sections 5.2 and 5.3), external manager monitoring, delivery of programmes to support the Trustee’s climate targets, provision of climate scenario analysis, and support in the production of the schemes’ TCFD report.

As stated in the Statement of Investment Principles (SIP), the Trustee is satisfied that Railpen has the appropriate knowledge and experience for managing the investments of the schemes, and it carries out its role in accordance with the criteria for investment set out in Investment Regulations, the principles contained in the SIP, the Trustee’s investment policy and any applicable investment guidelines and restrictions agreed with the Trustee. Railpen assesses the credentials and competence of relevant employees prior to appointment and on an ongoing basis through rigorous recruitment processes, performance assessments, and monitoring of continuous professional development.

The schemes’ actuaries are a valuable source of expertise – including on financially material climate-related risks and opportunities – for scheme governance activities. WTW is the RPS Scheme Actuary, and their advice includes a focus on the assumptions to be used for the triennial valuations and other ongoing funding discussions. This includes discussion of the potential impact of climate change on mortality assumptions; the impact of climate risk on financial assumptions is built in through the WTW Investment Model. XPS Pensions Group is the Scheme Actuary for the BTPFSF, and climate risks are included at a high level in future scenario modelling as part of forecasting mortality rates within demographic analysis as part of the scheme valuation. Such analysis helps provide comfort that assumptions in the valuations are prudent.

The following tables describe the composition and remit of the committees and other groups depicted in figure 4.5.1.

Level 1 risk authorities relating to climate change

Trustee Board	
Composition	Eight Board members nominated by employers and eight by members of the railways pension schemes (of which six are nominated on behalf of employees and two on behalf of pensioners).
Relevance for climate governance	The Trustee has ultimate responsibility for ensuring effective governance of climate-related risks and opportunities. These responsibilities are discharged, delegated, and overseen as described throughout this TCFD report.

Integrated Funding Committee (IFC)	
Composition	Four employer-nominated and four member-nominated directors of the Trustee Board.
Relevance for climate governance	The IFC is responsible for principles for integrated risk management; discount rates and other funding assumptions; the investment advice framework; covenant ratings and client portfolio management principles. Material climate risks relating to these duties are considered within the scope of the IFC. The IFC oversees the appointment and monitoring of the scheme actuary.



Defined Contribution Committee (DCC)

Composition	Three employer-nominated and three member-nominated directors of the Trustee Board.
Relevance for climate governance	Ensures appropriate management and governance of BRASS (the main Additional Voluntary Contribution (AVC) arrangement in the RPS), AVC Extra, and the Industry-Wide Defined Contribution (IWDC) Section of the Railways Pension Scheme, including compliance with the requirements of master trust authorisation for the IWDC Section. It helps to shape and articulate the Trustee's policy on DC matters. The DCC's mission is to provide DC arrangements, which are designed for the long term and offer good value for members, including default investment strategies which are suitable for the majority of members throughout their scheme membership, and an appropriate range of fund choices for those who wish to self-select. IWDC is an authorised master trust.

Railway Pension Investments Limited Board (Railpen Board)

Composition	Three independent non-executive directors; four directors of the Trustee Board (two employer-nominated and two member-nominated); Railpen's Chief Officer; Railpen's Chief Financial Officer.
Relevance for climate governance	Responsible for the governance and management of Railpen. Reports to and is accountable to the RPTCL on the management of the business. Oversees the AMC.

Asset Management Committee (AMC)

Composition	Two independent investment experts; two Trustee Board directors; Railpen's Chief Officer; and the Chair, who must be an independent non-executive director of the Railpen Board.
Relevance for climate governance	Provides advice on the pooled funds, investment planning, macro and investment risks, and oversees investment and fiduciary activities on behalf of the Railpen Board. The AMC engages with the Trustee and the IFC on fund management, Pooled Fund, investment and ESG risk issues, including climate change. AMC receives a quarterly Investment and Risk Report, which includes reporting on ESG issues including climate change. AMC receives a KPI report in relation to the Railpen pooled funds, which includes a KPI on ESG (including climate change). AMC approves Railpen's Net Zero Plan; reports to the Trustee Board at least annually, including a report containing KPIs relating to Railpen's performance; reviews and approves 'Special Nature' investment transactions, which might include those escalated for reasons of climate risk.





Level 2 risk authorities relating to climate change

Investment and Risk Committee (IRC)	
Composition	Chief Officer Fiduciary and Investment Management, Director of Fiduciary Clients, Director of Fiduciary Management, Director of Investment Management (Private Markets and Real Assets), Director of Investment management (Public Markets), Head of Private Markets, Director of Investment Risk Oversight and Sustainable Ownership.
Relevance for Climate Governance	Oversight of investment risks relating to investment activities, including climate risks, across Total Fund, Pooled Funds, Strategies, and Manager Portfolios. Approves the ESG Risk Directive (which includes climate change). Is authorised by and directly accountable to the AMC. Reviews and approves ‘material’ investment transactions, which might include those escalated for reasons of climate risk. Railpen’s Director of Investment Risk Oversight and Sustainable Ownership is on the IRC, adding further climate expertise to the committee.

Other relevant teams and working groups

Fiduciary and Investment Management team	
Relevance for climate governance	Within Railpen, oversight of climate risk management is ensured by the application of the Investment Risk Governance Framework and, in an investment context, by Railpen’s Fiduciary and Investment Management team. Climate risks are considered in their appropriate context, whether covenant, liabilities, or investments, and in respect of the latter whether the investment relates to public markets, private markets, or real assets.
Fiduciary Clients Team	
Relevance for climate governance	Support the DCC in discharging its duties. Where climate risks are material, this would involve supporting the DCC in reviewing and monitoring relevant risks. Support the IFC in discharging its duties. This includes support with employer covenant ratings and establishing integrated funding plans. The support provided to the IFC incorporates climate risk, where material.
Sustainable Ownership team	
Relevance for climate governance	Railpen’s in-house ESG expert team. Includes a dedicated resource overseeing a specific workstream related to climate risk, alongside complementary resources that support the analysis and monitoring of climate risks and delivery of Railpen’s Net Zero Plan.
Third-party suppliers	
Relevance for climate governance	The Trustee’s oversight of climate-related risks depends on the support of third-party suppliers, for example those rendering services relating to climate scenario analysis, GHG data, and proxy voting advice. Climate-relevant service providers are appointed after a careful selection process driven by procurement specialists. Contracts are established to ensure high-quality service delivery and enable supplier monitoring.



4.6 Training, Trustee Knowledge and Understanding

This section describes the training opportunities provided for Trustee directors and relevant employees in relation to climate change risks and opportunities.

Trustee directors have a comprehensive training programme on appointment and throughout their tenure. They complete training skills analyses and a programme of training and workshops is provided, designed to support individuals and the Board as a whole, and facilitate effective succession planning based on the Board’s skills matrix. All Trustee directors must achieve a minimum standard of Trustee Knowledge and Understanding (TKU) that meets The Pensions Regulator’s (TPR) requirements, and are required to complete the Trustee Toolkit prior to appointment. A wide range of training is offered by external providers and Railpen, including training on the unique characteristics and complexity of the railways pension schemes. To further support Trustee directors, they can access information relevant to their roles online, alongside all Board and committee papers.

The Board’s skills matrix was updated to include reference to climate change in line with TPR’s recommendations on good practice.

In respect of the identification, assessment and management of climate risks in particular, the Trustee Board undertakes training at least annually. This has included understanding how scenario analysis works, why climate change poses a material financial risk, and its relevance to overall risk management. Recognising that the Trustee directors themselves delegate the act

of identifying and assessing climate risks, the objective of the training is not to achieve technical mastery, but rather to empower the Trustee directors with the ability to challenge the risk information they receive from others. The Trustee directors receive training and engagement on other aspects of risk management outside climate change (for example on the general Investment Risk Governance Framework), further supporting the governance of climate risk.

The 2023 Trustee training session on climate change included a review of the updated TCFD regulations, updates to the TCFD report, and Railpen’s work in climate stewardship. The extent of Trustee training and level of engagement with Railpen’s Sustainable Ownership team are reviewed and agreed each year.

As the primary adviser to the Trustee, Railpen also undertakes training on climate change and has a dedicated Sustainable Ownership team, as detailed in section 4.5 above. Railpen has appointed a range of suppliers to support climate risk management, covering GHG data, scenario analysis, proxy advice, amongst other areas. The appointment of high-quality service providers and external fund managers provides a valuable source of information and discussion. The Trustee and Railpen have the opportunity to attend conferences to further build climate change expertise, and engage in industry collaboration and knowledge sharing through a range of industry initiatives (see [section 6.4.3](#)).

4.7 Risk monitoring

The Trustee has approved an annual programme of engagement with Railpen’s Sustainable Ownership team, with clear objectives relating to the fulfilment of regulatory, fiduciary, and disclosure requirements (now and forthcoming) in respect of environmental, social, and governance (ESG) issues including climate change. The Trustee is satisfied that, at the present time, the governance and risk monitoring arrangements in place are sufficient. This is, however, reviewed at least annually.

The Trustee receives a quarterly Sustainable Ownership report, which includes reporting on climate-related matters. The quarterly reports contain information related to integration (which when relevant, may include the consideration of climate risk in investment decision-making), active ownership (engagement and voting data including on climate risks), and the climate transition. Separately, the Trustee has received four additional climate-related updates at Board meetings in the past 12 months covering TCFD reporting. In the round, climate risks have been a substantive agenda item in the past 12 months.

The Trustee, including via the Audit and Risk Committee, agree the key Trustee and scheme risks, including risk appetite and key risk indicators, and review them at least annually. The Trustee monitors the status of key Trustee and scheme risks at least quarterly, and looks to embed a risk culture and ensure risk is considered in all Trustee decision-making.

Railpen’s Enterprise Risk and Company Secretariat teams support the Trustee in an annual review of its risk register. This includes reviews of the risks associated with those undertaking scheme governance activities and other significant suppliers. Supplier service levels are also monitored through the receipt of KPI reports and other relevant means. The specific frameworks and tools used to monitor climate risks are detailed in [section 5](#).

All Trustee Board reports are required to include a ‘Risks’ section – which should include climate-related risks and compliance with regulatory requirements, where relevant – for the purposes of Trustee discussion and challenge. Examples of recent challenge provided by the Trustee include interrogating the metrics and targets proposed, including the stringency and potential unintended consequences of climate targets, and other challenges related to TCFD reporting. Risks are mapped to the Trustee’s enterprise risk management system provided by a third-party supplier of enterprise risk management software. The risks in this software tool are actively monitored for changes to risk scores, emerging risks, and developments in the control environment. Other risk authorities within the Investment Risk Governance Framework offer challenge on the Trustee’s behalf, including when appraising new investment transactions (in this setting, challenge is typically offered by IRC or an ILC).

The extent of Trustee time devoted to monitoring climate-related risks is reviewed annually. The production of annual TCFD reports provides a natural focal point for climate risk monitoring at Trustee-level and detailed discussion.

The Asset Management Committee (AMC) receives an Investment and Risk Report, which includes Sustainable Ownership (including climate change) reporting on a quarterly basis. In addition, the AMC is able to request ad-hoc information on climate-related matters and provide challenge. In addition, the AMC receives a quarterly KPI report, which includes an ESG KPI (where ESG includes climate change). In turn, the Trustee receives an annual update of KPIs from the AMC chair. The AMC has oversight of the IRC, which oversees Railpen's climate-related exclusion policies (currently applying to companies with significant revenues from thermal coal and tar sands).

Railpen's climate risk monitoring includes fortnightly SO team meetings on ESG risks (including climate risks) at key portfolio holdings, quarterly portfolio reviews, external manager monitoring, company engagement, and reviews of climate metrics and data.

4.8 Reporting

The preceding sections detail the non-public facing reporting on climate-related issues within the Trustee and Railpen. In addition, climate-related information is reported through the channels shown in figure 4.8.1.

Figure 4.8.1: Key climate-related reporting

Report	Content
Scheme Report and Accounts	Includes a detailed 'Implementation Statement', explaining how the Trustee has fulfilled its Statement of Investment Principles (SIP), including detail on sustainable ownership, including climate change. It also includes a link to the TCFD report.
Annual TCFD report	A report delivering to the Regulations.
Stewardship report	An annual report covering the 12 principles of the Financial Reporting Council's UK Stewardship Code. The report includes climate-related information in several areas.
Voting disclosure	A portal available on Railpen's website detailing the outcomes of Railpen's voting decisions, which includes climate-related voting.
Sustainable Ownership review	A brief, member-focused document explaining Sustainable Ownership activities (including, but not limited to climate change) carried out on behalf of the scheme membership.





5. Climate risks in the schemes, impacts on strategy and the actions we are taking

5.1 Overview and climate scenario specifications

Transition and physical risks are identified and assessed using quantitative and qualitative approaches. These approaches are applied as appropriate for assessments of covenant, liabilities, and investments. This includes the use of proprietary tools and frameworks developed in-house by Railpen, in addition to the analytical capabilities of respected third parties.

Once risks have been identified and assessed, risk management is achieved through approaches tailored to context (i.e. covenant, liabilities, or investment, and the detail of the risk type within each of these areas). Depending on the type of risk, actions are taken to avoid, reduce, or exploit the risk. Risk management activities are described in more detail in the sections that follow.

Although the focus of this report is on the management of scheme-wide climate risks, the Trustee believes a combination of top-down and bottom-up perspectives is important for the purposes of analysing

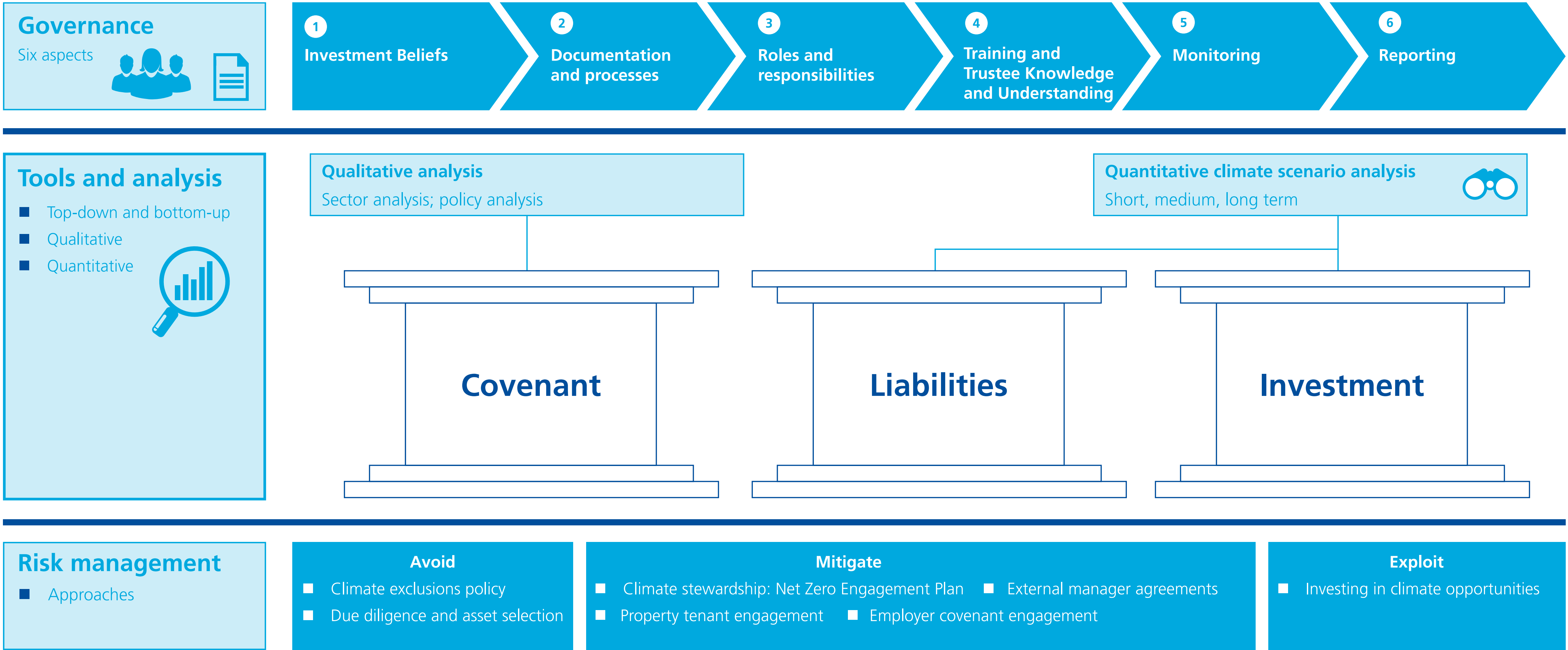
and managing physical and transition risks. Bottom-up perspectives are particularly significant in assessing (i) employer covenant, and (ii) particular investments made on the Trustee's behalf.

Ultimately, the schemes utilise a framework of Governance, Tools and Analysis, and Management (GTAM) for identifying, assessing, and managing climate-related risks across the three areas of covenant, liabilities, and investment. This is depicted in [figure 5.1.1](#) and further explained in the report sections that follow.

According to the Regulations and Statutory Guidance, trustees are required to undertake and report climate scenario analysis on a frequency of no less than once every three years. Following review and given ongoing dynamics in the macro and scheme-specific environments, the Trustee has opted not to repeat the analysis previously undertaken. These dynamics include uncertainty with regards to inflation and interest rates, fluctuations in scheme and section funding levels, a live programme of section de-risking, updates to investment strategy, and the scheme

valuation. Undertaking point-in-time scenario analysis in this operating backdrop would lead to an analysis that would be out of date (and potentially misleading) soon after completion. As a result, the climate scenario analysis presented in the report sections that follow derives from previous years' reporting, and certain parametric settings (such as choice of scenarios and definition of short, medium, and long term) will be unchanged this year. The Trustee intends to undertake new climate scenario analysis prior to publishing next year's TCFD report.

Figure 5.1.1: Governance, tools, analysis and management





5.1.1 Selection of climate scenarios

Climate scenario analysis is a means by which investors can understand the potential financial consequences of climate risks in certain plausible scenarios. It is important to note that climate scenarios are hypothetical constructs that assess sensitivities to potential climate change outcomes, not forecasts or predictions. The Trustee uses quantitative climate scenario analysis to understand the potential impacts on scheme liabilities and investment returns.

Services from Railpen, Ortec Finance, and WTW were procured in order for the Trustee to assess, using scenario analysis methods, climate-related risks to scheme liabilities and investment returns. The following scenarios were used: Paris Orderly, Paris Disorderly, and Failed Transition. These scenarios are summarised in figure 5.1.1.1. The scenarios are developed by Ortec Finance¹² as part of its Climate MAPS tool. The mortality impacts in different scenarios are inferred from modelling provided by WTW. The Trustee, on the advice of Railpen, selected these scenarios having regard to the following criteria:

- Plausibility – national and international climate agreements on limiting GHG emissions, and given recent trends in emissions growth.
- Statutory Guidance – aside from the requirement to consider a scenario within a temperature warming range of 1.5-2C above pre-industrial temperatures, the Trustee agrees with the Guidance to consider different scenarios with the same temperature outcome, in addition to a higher temperature outcome.

- Simplicity – there is no limit to the number of scenarios one could compute for systems so complex and long term; in order to facilitate effective risk management, it is necessary to streamline and simplify the scenarios in use.

¹² Further information on Ortec Finance's Climate MAPS model is available at <https://www.ortecfinance.com/en/insights/product/climate-maps>

¹³ In this table, 'life expectancy' means the number of years after the age of 60 lived by an average male pension scheme member. Life expectancy increases in this table ignore potential improvements or deteriorations to life expectancy that could result for reasons other than climate change.

Figure 5.1.1.1: Description of the climate scenarios selected by the Trustee

	Paris Orderly transition	Paris Disorderly transition	Failed transition
Use case	Tests exposure to the risks / opportunities from the systemic drivers of an orderly transition and locked in physical risk	Shows resilience of the portfolio to sudden transition triggering a market dislocation centred on high emitting stocks	The main focus of this scenario is physical risk, results show the exposure to plausible, severe climate change impacts
Risk transmission and key assumptions	<ul style="list-style-type: none">■ Large transition impact due to policy measures and technology drivers■ Transition is assumed to occur as smoothly as possible■ Market pricing-in dynamics occur smoothed out over the 2020-2025 period■ Physical impacts occur up to 1.5/2°C which are greater than today but still much less than under a Failed Transition	<ul style="list-style-type: none">■ Large transition impact due to policy measures and technology drivers■ Transition has disruptive effects on financial markets with repricing followed by a sudden sentiment shock and stranded assets in 2024/2025■ Physical impacts occur up to 1.5/2°C which are greater than today but still much less than under a Failed Transition	<ul style="list-style-type: none">■ Limited transition impact economies follow the business as usual track without additional new policy measures■ Severe physical impacts occur and continues to increase over time, both gradual physical changes, as well as more frequent and severe extreme weather events■ Markets price in physical risks up to 2050 by end of this decade, and price in post 2050 physical risks from the mid-2030s onwards
Mortality impacts	By 2050, life expectancy ¹³ increases by around 3 years	By 2050, life expectancy increases by around 2.25 years	By 2050, life expectancy is essentially unchanged
Temperature outcomes	<ul style="list-style-type: none">■ Average temp increase of 1.6°C by 2100■ In line with: Emissions ≈ IPCC RCP 2.6■ 97% probability of limiting warming to 2°C and c.29% probability of limiting to 1.5°C.		<ul style="list-style-type: none">■ Expected global warming of 3.8°C by 2100■ In line with: Emissions ≈ IPCC RCP 6.0



Climate scenario analysis on the assets of the railways pension schemes was first undertaken in 2019, ahead of it becoming a regulatory requirement. In the years since, the uptake of climate scenario analysis by investors has increased, and the sophistication and reliability of climate scenario models has improved. Nevertheless, the usefulness of climate scenario analysis remains challenged by the following limitations and assumptions:

- Time lags in the scientific and economic data that are used as model inputs.
- Climate scenario analysis depends on climate scientific modelling. If the scientific modelling is precautionary, this might lead to an under-estimate of physical risks and their financial impacts.
- The need to use proxies for modelling climate risks in investment portfolios. These proxies might be imperfect representations of the actual investments in the schemes' investment portfolios.
- Typically, climate scenario analyses assume investment strategy remains constant for many decades, whereas this is unlikely to be the case.
- Actual climate-induced mortality impacts might be influenced by exogenous factors such as lifestyle changes and public health interventions.
- Challenges in identifying a probability for a given climate scenario (climate scenario analysis tends to focus on impact rather than likelihood).
- The requirement to make assumptions about when climate risks will be priced into asset values.

Further limitations are described in [section 5.3](#). Overall, climate scenario analysis is useful for identifying outliers and direction of travel, rather than pin-point accuracy.

5.1.2 Selection of time horizons

The financial impacts within climate scenarios are time-sensitive – the impacts in a given scenario might be different in the short term compared to the long term. For example, transition risks might be a dominant influence in the short term, but physical risks might dominate in the longer term. In the context of climate scenario analysis, the Trustee defines short, medium, and long term in the following way:

Figure 5.1.2.1: Trustee's definition of short, medium, and long term in the context of climate scenario analysis.

	Short term	Medium term	Long term
Time	10 years	20 years	40 years

A significant majority of assets in the schemes are invested to fund open defined benefit sections. Therefore the investment strategy of the schemes is long term, and the shared Trustee and Railpen Investment Beliefs also make explicit reference to the long term. As such, we believe the time horizons in figure 5.1.2.1 are appropriate for the schemes.

When analysing climate impacts to scheme liabilities, the Trustee focuses on the long-term horizon (40 years). When used in climate scenario analysis, shorter-

term horizons tend not to show funding impacts significantly different to the climate agnostic baseline.

The time horizons considered for the DC arrangements link to the timeframe for which current members' monies will be invested to and through retirement. It is therefore appropriate, when applying climate scenario analysis to DC arrangements, to adopt the same time horizons as those in figure 5.1.2.1.

For the climate scenario analysis presented in [sections 5.3](#) and [5.4](#), RPS asset allocation data, fund ranges, and membership liability data are as of 31st December 2021 (for asset allocation data and fund ranges) and 31st December 2019¹⁴ (for membership liability data). At the time of first specifying these climate scenarios, no actuarial valuation of the BTPFSF had been completed since 31st December 2015¹⁵. Therefore, when considering the liabilities, WTW have assumed that the discount rates used to determine the Technical Provisions will have changed broadly in line with those adopted for the Shared Cost sections of the RPS, and a funding level of 100% has been assumed.

Following review, the Trustee has not altered its definition of short, medium, and long term in this year's TCFD report (see [section 5.1](#)). The Trustee will review these definitions prior to next year's TCFD report, including the advantages and disadvantages of maintaining different definitions of short, medium, and long term for different schemes, sections, or types of benefit arrangement.

¹⁴ The date of the most recent RPS valuation.

¹⁵ The 2021 BTPFSF valuation was completed earlier in 2023.

5.2 Climate risks to employer covenant

The Pensions Regulator defines the employer covenant as *"the extent of the employer's legal obligation and financial ability to support the scheme now and in the future"*. The strength of an employer covenant is, therefore, driven by a combination of:

- An employer's legal obligation to support a scheme
- An employer's financial capacity to do so
- An employer's longevity – the time horizon over which the employer might be expected to support a scheme (given the scheme's duration).

Physical and transition climate change risks could have a bearing on an employer's financial capacity and longevity. Such impacts could be wide-ranging – affecting, for example, business operations, infrastructure, supply chain, and key customers, and vary from employer to employer. Such risks are analysed by Railpen's Employer Covenant team and overseen, as detailed in [section 4](#).

5.2.1 Employer covenant and approach to climate risk

The RPS is a multi-employer scheme, and employer covenant is analysed and reviewed on a case-by-case basis. At the present time, the Trustee does not utilise model-driven quantitative climate scenario analysis when reviewing information on employer covenant.¹⁶

¹⁶ Where individual employers have undertaken quantitative climate scenario analysis, this could be factored into the covenant analysis where appropriate.

Short, medium, and long-term climate risks (and opportunities) are considered within an employer covenant context using the following three tiers of assessment:

Figure 5.2.1.1: Three tiers of climate risk integration in employer covenant analysis

UK policy	UK government climate policy, support and regulation of the rail industry (current and forthcoming)
Sector risks (physical and transition risks)	Sector-based analysis of climate risks and net-zero alignment in UK rail, and the sub / other sectors within which RPS sponsoring employers and their wider groups operate
Employer-specific risks	Employer covenant specific climate risks, net-zero alignment assessment, adaptation potential and mitigation efforts

This report focuses on the UK policy and sector risks tiers noted above. At an employer-specific level, the covenant strength of each section within the RPS is rated on a 1-6 scale, where ‘1’ is the strongest rating and ‘6’ is the weakest¹⁷. The covenant longevity of each section is also rated, as either positive, neutral or negative, based on an analysis of (i) Sector / industry-specific characteristics (including climate-related risks and opportunities), (ii) Employer-specific governance and management qualities, and (iii) Employer-specific longevity characteristics. The overall employer covenant ratings therefore take account of credit risk and longevity as well as specific legislative, contractual or other structural support from the rail industry or

central, local and/or devolved government, where appropriate. We intend to introduce employer-specific analysis in future reports, as appropriate, taking account of Trustee / employer confidentiality concerns.

Rail in the UK is considered the most environmentally friendly form of mass transport, and there are a number of initiatives underway within the UK railways industry to decarbonise further and to encourage a passenger and freight modal switch towards rail. Where climate factors are financially material to the employer and/or its sector and could impact on the employer’s ability to support the section now and the future, they could impact the covenant and longevity rating positively or negatively. To date, a number of RPS’ sponsoring employers have already witnessed physical climate-related risks and opportunities e.g. weather-related resilience of railway infrastructure, and transitional risk including the reduction of coal loads within the rail freight industry following the 2015 doubling of carbon tax on coal. The covenant impacts of such physical and transitional risks and opportunities have been considered at the sector/sub-sector level, and take account of the specific covenant strength characteristics on a section-by-section basis.

To date, Railpen has completed a longevity analysis of each sector within which RPS sponsoring employers and their wider groups operate. This analysis includes consideration of the climate-related risks and opportunities prevalent within each sector.

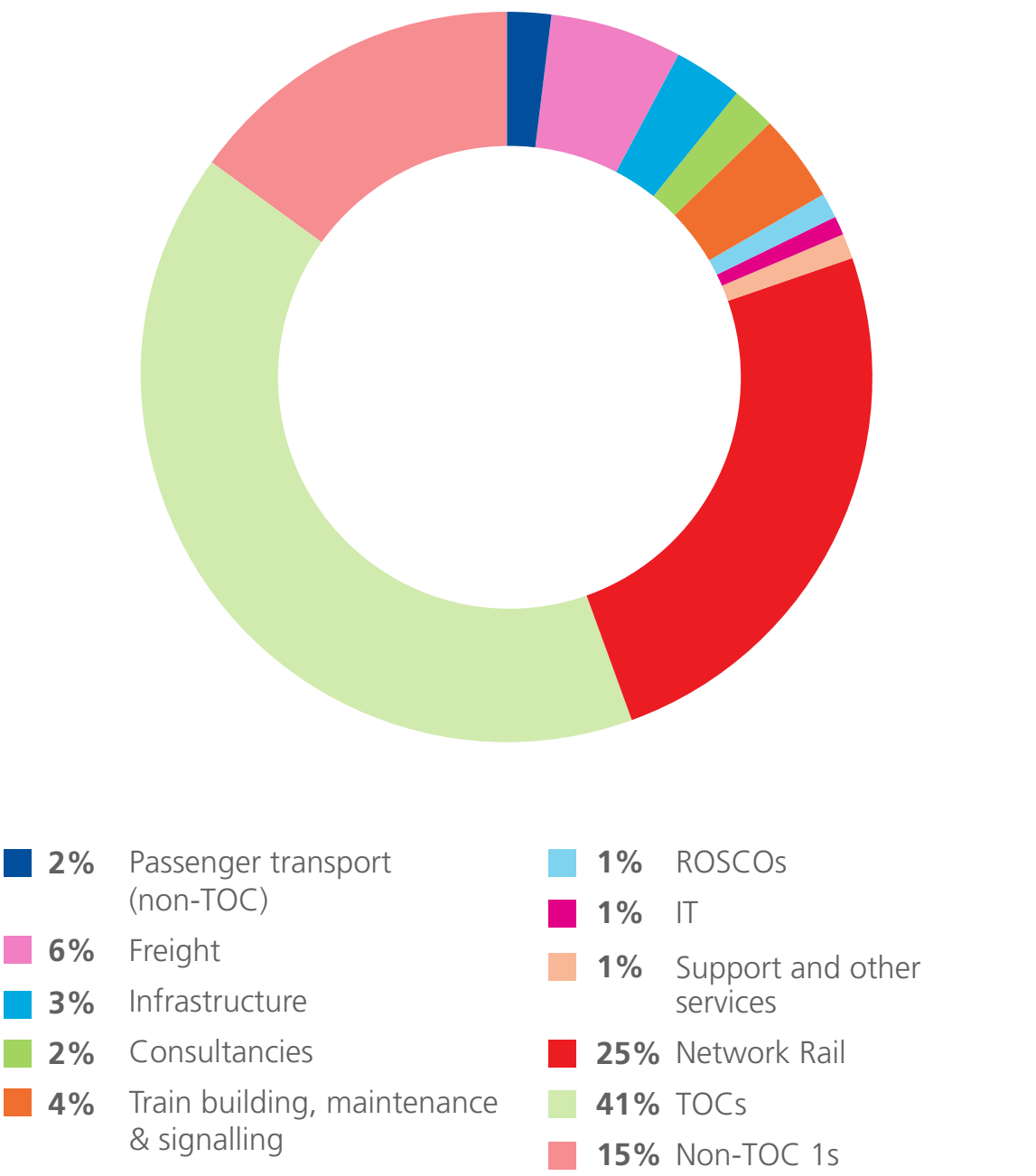
Thinking about climate risks as a regular and required item within employer covenant analysis is a relatively new and developing discipline. Railpen’s forward-thinking team co-authored an innovative industry guidance document in 2022, which supports others in analysing climate risks in the context of an employer covenant¹⁸.

5.2.1.1 Supplementary data on RPS covenant

The RPS administers pensions for more than 150 companies operating in the rail industry, spanning sectors including government-linked bodies like Network Rail and the train operating companies (TOCs); freight operating companies; train building, maintenance and signalling; passenger transport; infrastructure; ROSCOs (Rolling Stock leasing Companies); consultancies; IT; support services; and others. The BTPFSF is a separate scheme, albeit its sponsoring employer, the British Transport Police Authority, also sponsors a section of the RPS.

Figure 5.2.1.1.1: summarises how the assets under management (AUM) of the RPS and BTPFSF are split between the different categories / sectors.

Employer covenant sector by AUM



¹⁷ As a separate scheme, however, the BTPFSF is not captured within this 1-6 rating scale. The BTPFSF covenant strength is rated as ‘strong’, consistent with a ‘1’ rating on the RPS scale.

¹⁸ Employer Covenant Practitioners Association, January 2022, “Reflecting climate change impact and risks in employer covenant assessments”.

As illustrated in [figure 5.2.1.1](#), the majority of the AUM relate to sections sponsored by government-linked bodies (over 80%), including the Network Rail section (covenant-rating '1'), the 27 Train Operating Company (TOC) sections (covenant rating 1) and 11 other 'covenant 1 / strong' rated sections who benefit from legislative, contractual or other structural support from the rail industry or central, local and/or devolved government e.g. Rail Safety and Standards Board (RSSB) and British Transport Police. The aggregate of those sections remains the focus of this report. As of last year, we also analyse the climate-related covenant issues in relation to the rail Freight Operating Companies (FOCs) and the train builders, maintenance and signallers, which together account for a further c.10% of AUM. The tail of smaller RPS sections (individually each has less than £1bn in AUM, and in aggregate these sections account for less than 10% of total scheme AUM), will be covered in future TCFD reports, as appropriate.

The Department for Transport (DfT) explain the importance of the rail network to the UK economy: "The rail network plays a vital role in our transport system and the UK economy. It is a fast, safe and reliable way of moving people and goods over long distances, in and around our city centres and internationally. It enables people to get to work, visit friends and family, and do business. It also enables the efficient movement of goods from ports, quarries, and distribution centres to urban centres and helps alleviate the need for trucks on roads."¹⁹

Given the social and economic importance of the railways in the UK, the UK government plays a central role in the UK rail industry. The resultant regulatory and

contractual relationships between government and key rail companies mean that a number of RPS sponsoring employers benefit from direct and indirect government support.

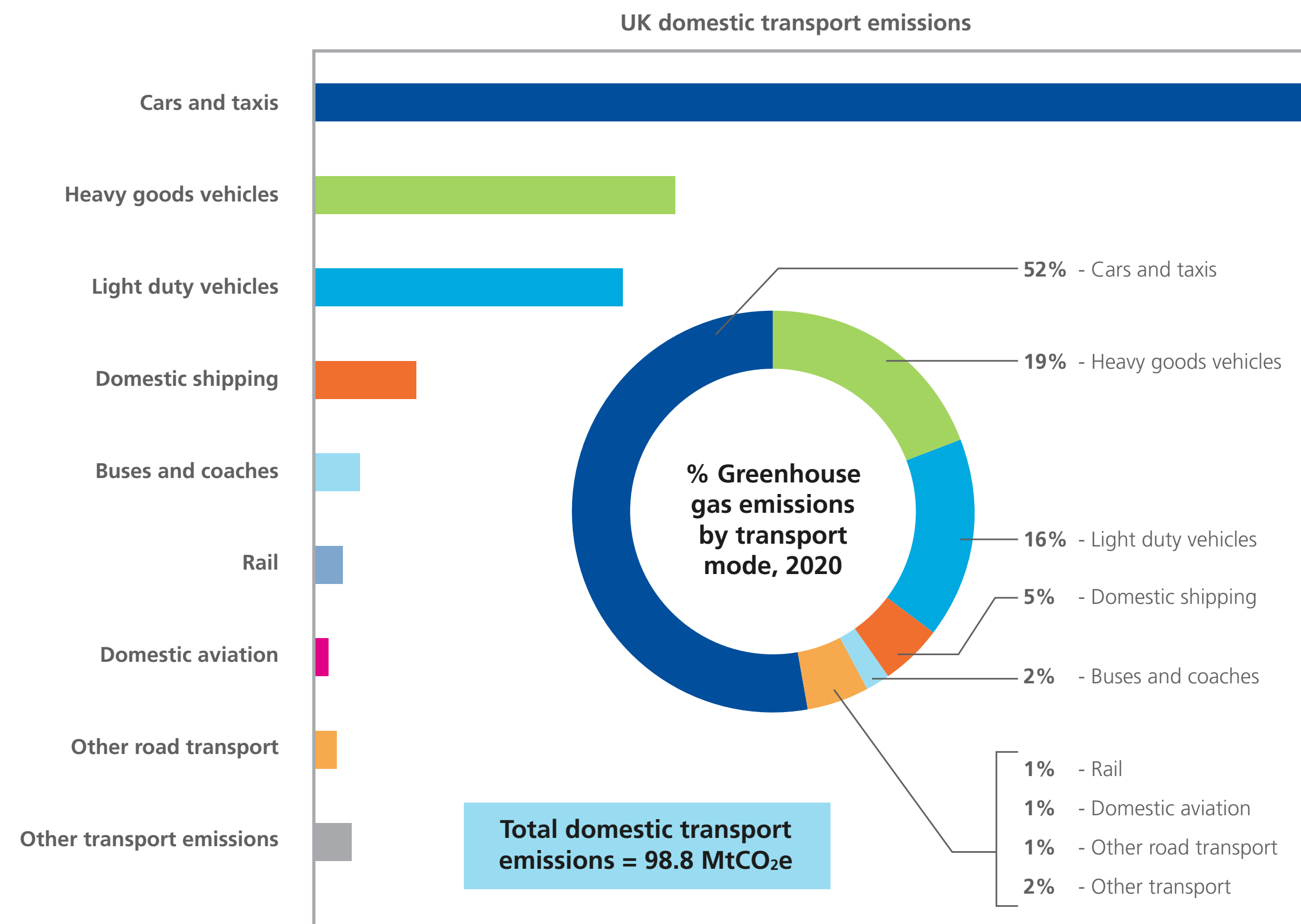
From an employer covenant perspective, RPTCL recognises where the employer's ability to support the pension liabilities of a section on an ongoing basis benefits from specific legislative, contractual or other structural support from the rail industry or the UK government, usually demonstrated by one or more of the following:

- Specific legislative provisions
- A Crown guarantee
- Written correspondence from UK central or local government bodies, or devolved government bodies, or
- Other specific documented arrangements confirming the effective ongoing support by the industry to the scheme.

5.2.2 UK policy

Climate transition risks and opportunities arise as we move to a more sustainable, low-carbon economy. In the UK, the transition is likely to be driven partly by changes in legislation and technologies, the impacts of which will vary widely by sector and geography. Transport is the largest contributor to UK domestic greenhouse gas (GHG) emissions, responsible for 24% in 2020. As shown and explained in [figure 5.2.2.1](#), rail is one of the least carbon-intensive forms of mass transport.

Figure 5.2.2.1: Illustration and description of GHG intensity by transport mode in the UK. ²⁰



¹⁹ Quotation taken from [Department for Transport \(DfT\) "Rail Environment Policy Statement", July 2021](#)

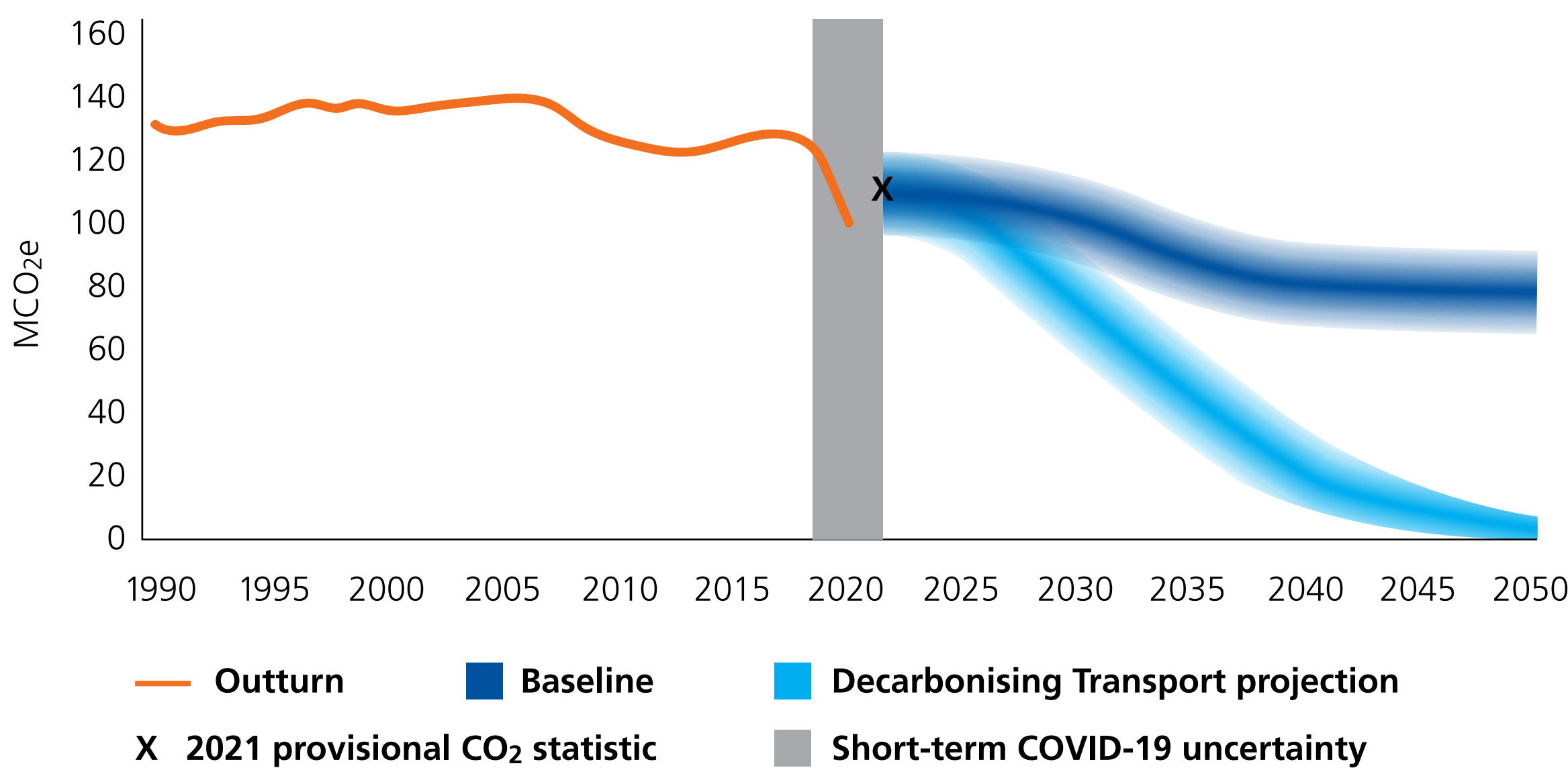
²⁰ Department of Transport document; "Decarbonising Transport: A Better, Greener Britain – One Year On".

In 2020, greenhouse gas emissions from rail made up just 1% of the UK's domestic transport emissions, despite rail accounting for 9% of passenger miles travelled in Great Britain (noting this passenger miles figure excludes Northern Ireland). In terms of the movement of goods, rail freight trains emit around a quarter of the CO₂ equivalent (CO₂e) emissions of HGVs, per tonne mile travelled. Even though rail is lower carbon than other long-distance transport modes, it is becoming even less carbon intensive as the National Grid decarbonises.

At a high level, UK government policy aimed at decarbonising transport in the short term is to encourage a modal shift away from the more carbon-intensive modes, towards rail, for passengers and freight. It also aims to encourage the rail industry to decarbonise further in the short, medium and long term.

The UK government's 'One Year On' report recorded that between 2019 and 2020, transport emissions fell by 19%, largely as people stayed at home in response to the COVID-19 pandemic. Actual transport emissions for 2020 – and provisional estimates for 2021 – are mapped onto the trajectory published in the original Decarbonising Transport: A Better, Greener Britain document (see [section 5.2.2.1](#)). To meet net zero by 2050, and the UK government's carbon budgets, the transport industry must continue to make rapid progress.

Figure 5.2.2.2: Decarbonising Transport domestic transport greenhouse gas projection including latest outturn data



The Williams-Shapps Plan for Rail White Paper introduced the creation of Great British Railways (GBR). The vision was that as a public body with responsibility for a major national asset, GBR would have a responsibility to put environmental sustainability at the heart of its operations. The establishment of GBR, a single organisation responsible for track, trains and stations, would better support the delivery of environmental objectives.

Whilst political uncertainty appears to have hampered progress on the creation of GBR, there also appears to be cross-party support for the creation of such an Integrated Rail Body (IRB). For continuity purposes, we continue to use the term Great British Railways (GBR) within this report, in the expectation that the climate-related plans published to date are likely to be adopted by any such IRB.

A specific duty will be placed on GBR to consider environmental principles across all its operations. It will be accountable for, and will lead to the sector's delivery of, a more environmentally sustainable rail network in line with its mission to make the railway the 'backbone of a cleaner, greener public transport network'.

Against this backdrop, in July 2021, the Department for Transport (DfT) set out its key climate-related policy positions in respect of transport in general, and rail in particular, within two key documents:

- Decarbonising Transport: A Better, Greener Britain
- Rail Environment Policy Statement: On Track for a Cleaner, Greener Railway



5.2.2.1 Decarbonising Transport: A Better, Greener Britain

The Decarbonisation Plan highlights electrification as the primary method of decarbonising the majority of the rail network. The report claims that electrification will not only decarbonise existing rail journeys but also has the potential to attract new passengers to rail.

The report notes that in the last 20 years, while the cost of motoring fell by 15%, over the same period the cost of rail fares went up by over 20%. The plan calls for simpler, cheaper fares for public transport to help make trains (as well as buses) better value and more competitively priced. The report outlines that the government will also look to newer technologies such as hydrogen and battery trains, deploying the most appropriate technology for each route across the network. The plan – which will include all transport modes but particularly road, rail and aviation – sets a transition pathway to achieving net-zero carbon emissions across the transport sector by 2050.

The rail-specific elements within the Decarbonisation Plan include:

- **Electrification:** To deliver an ambitious, sustainable, and cost-effective programme of electrification guided by Network Rail’s Traction Decarbonisation Network Strategy.
- **Hydrogen/battery technology:** Supporting the development of battery and hydrogen trains and will deploy them on the network as we decarbonise.
- **Network capacity:** Building extra capacity on the UK’s rail network to meet growing passenger and freight demand and support significant shifts from road and air to rail.
- **Modal shift:** Government will work with industry to modernise fares ticketing and retail to encourage a shift to rail and cleaner and greener transport journeys.
- **Freight:** Government will introduce a rail freight growth target to encourage the continued growth of rail freight.

These initiatives are further developed within the Rail Environment Policy Statement.

5.2.2.2 Rail Environment Policy Statement: On Track for a Cleaner, Greener Railway

The purpose of the Rail Environment Policy Statement (REPS) is to set a clear direction for the rail industry on environmental sustainability and to outline policy priorities for the Sustainable Rail Strategy. The report emphasises how the reform of the rail sector provides an opportunity to transform rail sustainability, noting that in order to support a green recovery from the pandemic, railways can shift away from polluting forms of transport such as planes, cars and lorries, to become the best option for long-distance travel, and improve the whole journey experience. This will include making it easier to get to and from stations by walking, cycling or other public transport; supporting green infrastructure outside cities; modernising fares to compete with air travel; improving freight connectivity through interchanges, and creating better links with freeports.

There is a notable emphasis in the report on the role that rail will have to play in maximising the environmental benefits of moving freight, with GBR having a ‘statutory duty’ to promote rail freight. The report also notes that GBR will develop a methodology to better assess the value of rail freight to support decision making, building on the ‘Value of Rail Freight’ report commissioned by the Rail Delivery Group in April 2021.

The plan lists the following priorities for the rail industry:

- Net-zero GHG emissions from trains by 2050.
- An ambition to remove all diesel-only trains from the rail network by 2040.
- A commitment to a sustainable delivery programme of electrification that delivers a higher-performing net-zero railway.
- Air quality targets will be set for all parts of the railway, with the ambition of meeting those targets by the end of 2030.
- The industry will be required to develop air quality improvement plans for all stations identified as having poor air quality.
- Network Rail will achieve net-zero biodiversity by 2024 and biodiversity net gain by 2035.
- In total, 100% of Network Rail’s cars and vans will be zero emission by 2027.
- Zero waste from railways activities will go to landfills by 2025.
- Targets will be set for renewable energy generation and use at stations.



Traction decarbonisation/electrification plays a significant role in the rail industry's environmental plans. This includes decarbonising rail freight by electrifying more of the network to enable electric rail freight to run on more routes and developing further interventions, in partnership with industry, to help Freight Operating Companies (FOCs) have the confidence and business assurance to invest in new rolling stock to overhaul their largely diesel fleets. There is a defined aspiration to achieve a stable, ongoing rail electrification programme that learns from past mistakes. GBR will lead an efficient electrification programme, working with funders and suppliers to minimise the cost and disruption of further electrification. Future rolling stock procurements will need to consider how to enable the use of hydrogen and battery trains where they are the best way to deliver decarbonisation targets.

In relation to **Passenger Modal Shift**, the policy is to make rail the first option for suitable journeys in the UK and encourage commuters to cycle, walk or take public transport to and from rail stations, making their journey environmentally sustainable from door to door. In the future, each Passenger Service Contract will be designed by GBR to support the needs of passengers and the whole network as part of an integrated system.

In relation to **Freight Modal Shift**, the government is supportive of modal shift from road to rail, wherever possible, to reduce emissions from the freight sector. The government will introduce a rail freight growth target for all areas of the network to provide a common objective for industry collaboration, help provide private operator investment confidence, and galvanise action across local partners and the industry. To further grow rail freight in 2021/22, the government invested £20m in the Mode Shift Revenue Support (MSRS) scheme. In 2022 to 2023, MSRS helped remove 900,000 lorry journeys from Britain's roads, saving almost 40,000 tonnes of carbon dioxide (CO²) emissions. DfT is undertaking a comprehensive review of the MSRS scheme, and a call for evidence was launched on 4 December 2023. It will continue to work with the rail freight industry, Innovate UK, and the Rail Safety and Standards Board (RSSB) to look at how best to progress options on innovation, research and development to reduce emissions from rail freight²¹.

As noted above, political uncertainty around the future of GBR to a degree hampered progress in these areas during 2022 and 2023. Some progress has been made, e.g. commitment to further electrification of lines as part of the Integrated Rail Plan and funding for a fast-charging trial for battery-only trains, and the government's publishing a rail freight growth target – for at least 75% growth in freight carried by rail by 2050²². In February 2024, the government published a Draft Rail Reform Bill²³, reaffirming the government's commitment to the creation of an IRB, bringing together the primary legislative measures, which form a key part of delivering rail reform envisaged by the Plan for Rail. We expect that this should reinvigorate the development of the rail decarbonisation programme

ahead of GBR / IRB becoming formally established, albeit we note the uncertainty that remains in this area.

These policies and plans help clarify the transition risks and opportunities facing the UK rail sector, and challenge the industry to develop its own plans to meet them. In addition, unlike most other UK sectors, the rail industry is already facing the challenges of physical climate-related risks.

5.2.3 Sector risks: Physical risks

Britain's railway operates in a wide range of weather conditions and is one of the safest in Europe. The increasingly frequent severe and prolonged weather events due to climate change present a growing challenge, with climate changes already affecting the infrastructure, causing significant disruption to the network with impacts felt by customers, staff and the communities in which we live and work. For instance, heavy rainfall may require delays to the arrival or departure of trains. In more challenging cases, trains can be stopped from running, and railway infrastructure may be obstructed and damaged, resulting in costly repairs. In rare, more extreme cases, there is a much bigger effect, with widespread delays, the need for more substantial repair work and the potential for severe safety consequences.

Network Rail owns, operates and develops Britain's railway infrastructure including 20,000 miles of track, 30,000 bridges, tunnels and viaducts and thousands of signals and level crossings. Network Rail also manages 20 of the UK's largest railway stations and is responsible for running a safe, reliable and efficient railway that serves customers and communities.

Between 2006/07 and 2020/21, Network Rail reported that weather-related incidents caused over 322,000 delay events, 26 million minutes of delays and over £1bn in compensation payments.

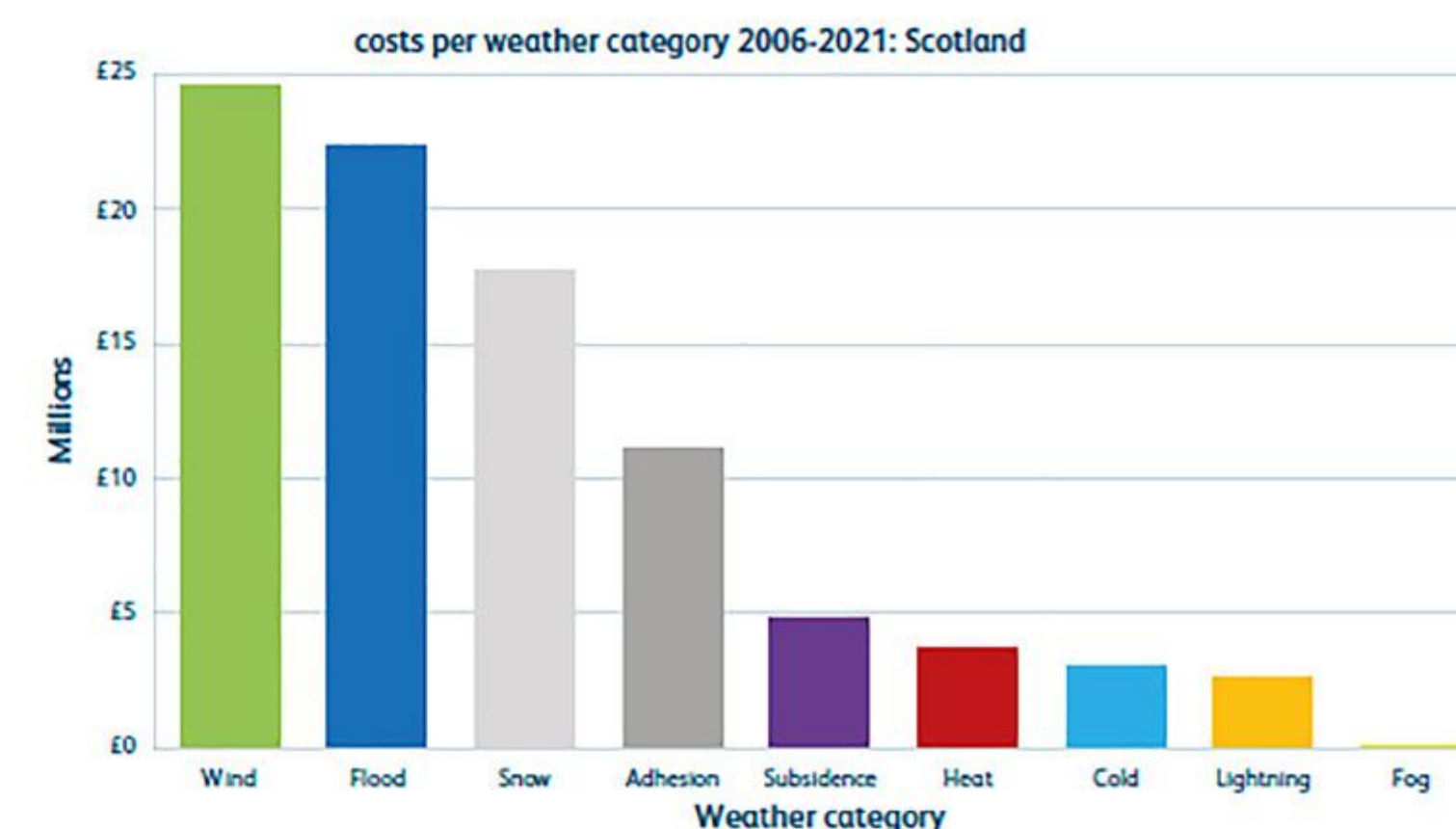
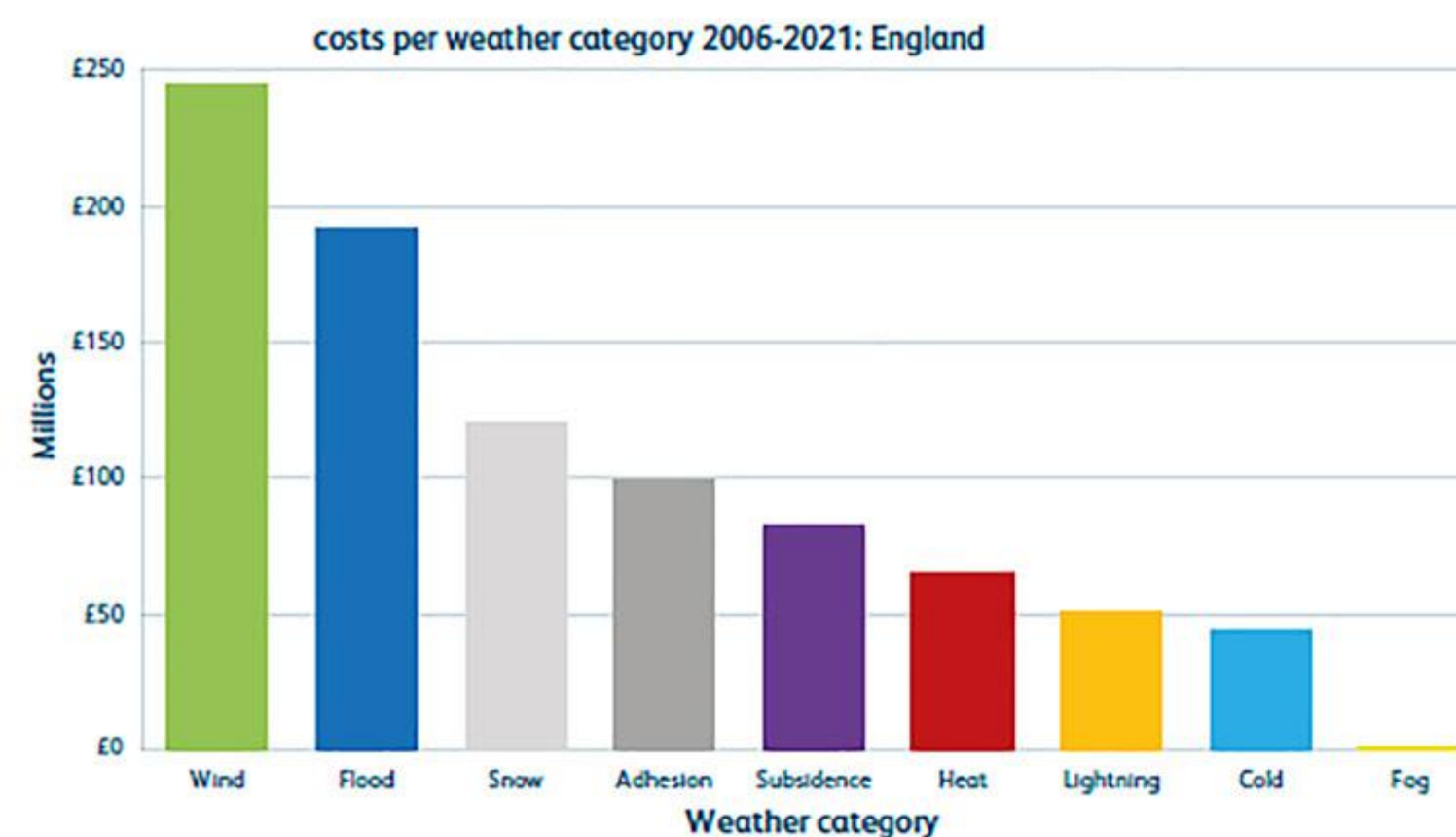
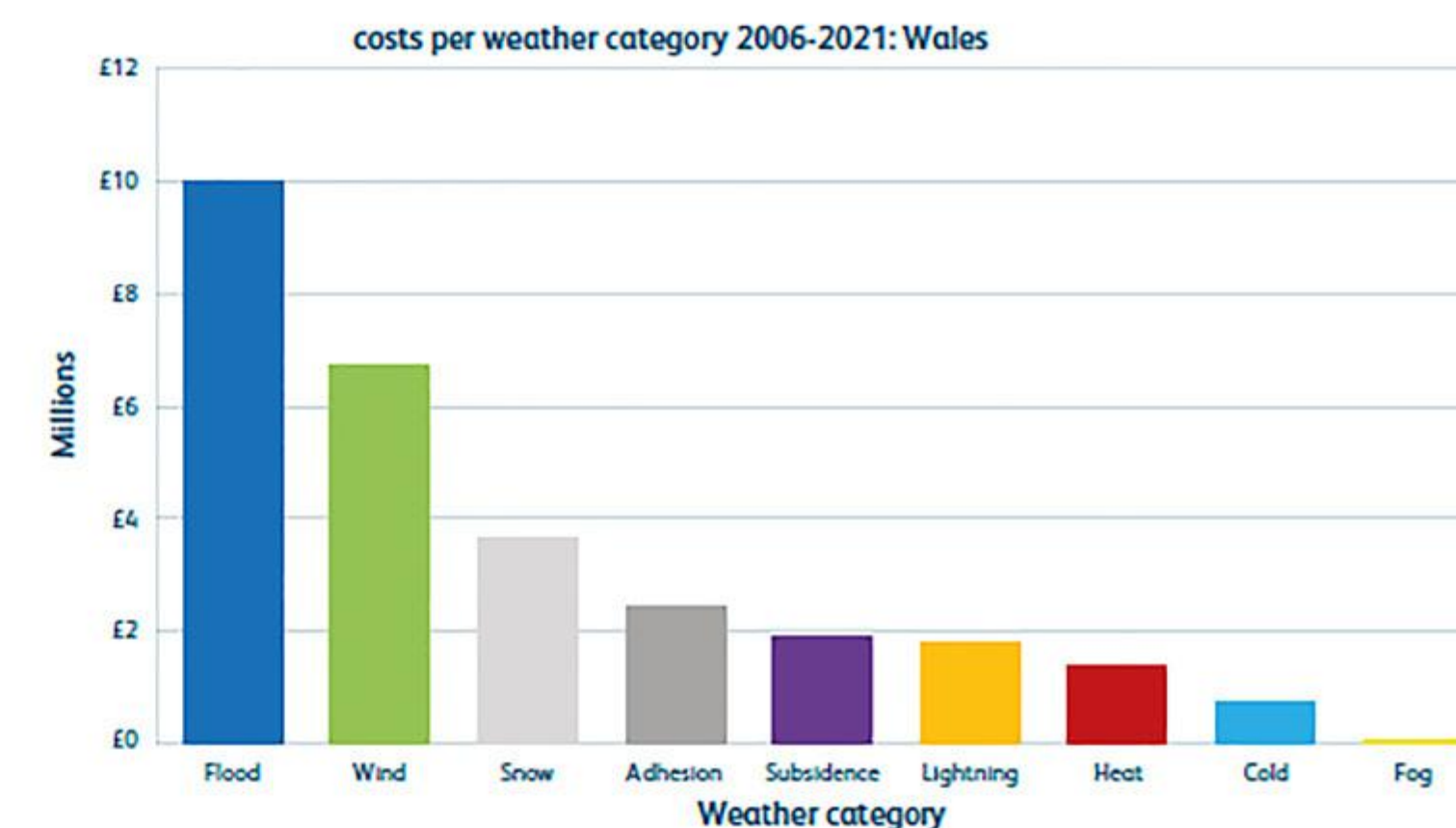
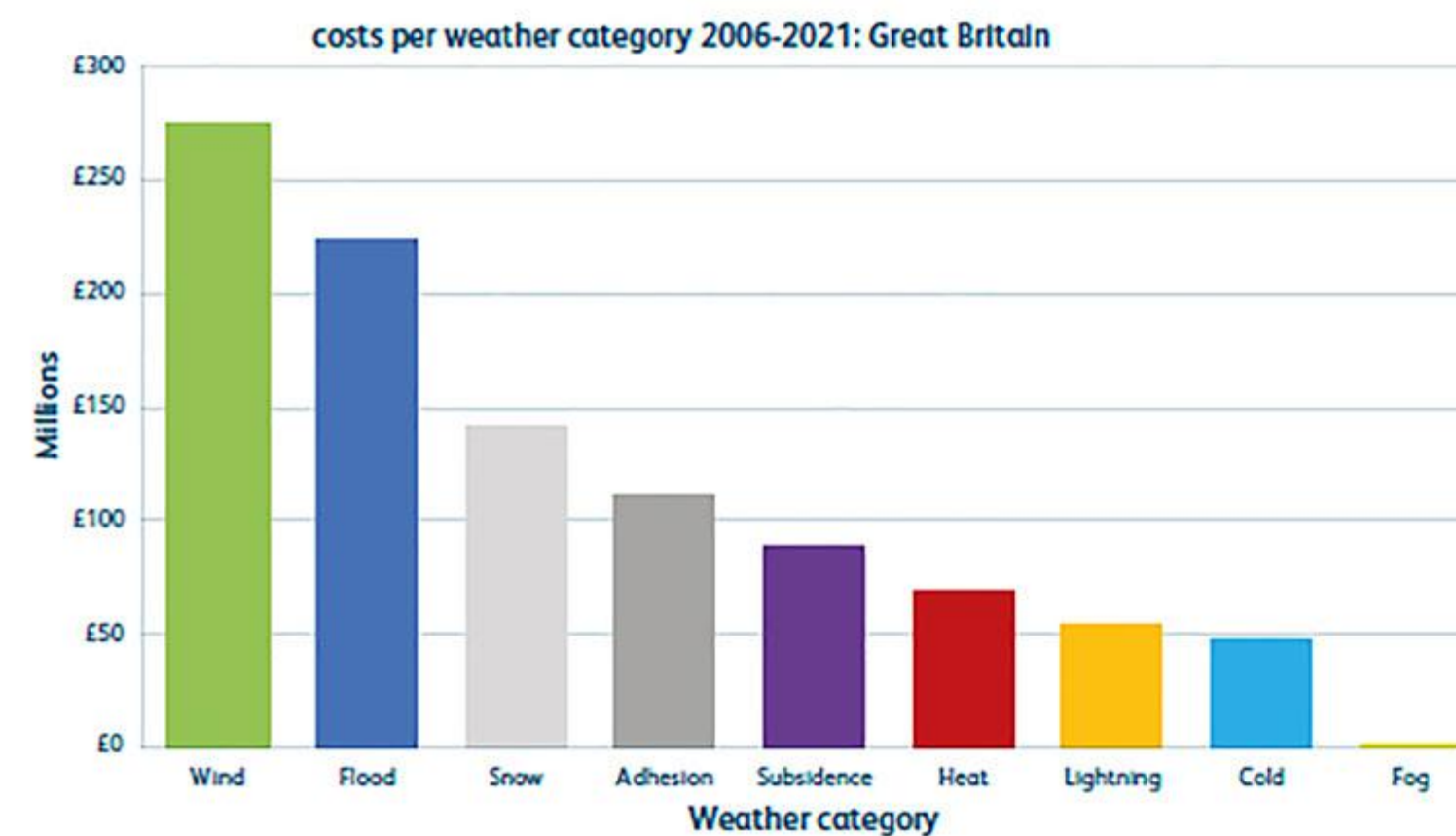
The figures on page 36 indicate the cumulative costs for each weather impact category from 2006/07 to 2020/21 across the whole network and for England, Wales and Scotland respectively. Nationally, the two biggest challenges come from wind and flooding incidents costing £275m and £223m each. There are also significant impacts associated with adhesion and snow, each costing more than £100m over the same period. While wind, flooding and snow remain the top impacts across all three nations, flooding has the largest impact in Wales. In Scotland, snow, cold and adhesion are greater challenges than elsewhere, while England and Wales see more issues related to heat, with England seeing the greater impact. Of the three nations, Wales shows the greatest impact from lightning, relative to other regions.

²¹ [Rail freight growth target](#)

²² [Rail freight growth target](#)

²³ [Draft Rail Reform Bill](#)

Figure 5.2.3.1: Cumulative costs by weather impact category from 2006/07 to 2020/21 across the rail network in England, Wales and Scotland



Source: <http://www.networkrail.co.uk/running-the-railway/our-regions>



5.2.4 Sector risks: Transition risks and opportunities

5.2.4.1 Government-linked bodies

As noted previously, the regulatory and contractual relationships between government and key rail companies results in a close proximity between the government / DfT, who set (and ultimately fund) high-level ambitions and policies, and the industry players responsible for meeting those challenges and realising those ambitions.

The rail industry is dominated by Network Rail (NR). Network Rail Limited (NRL) and its subsidiaries, including the section's sponsoring employer within the RPS, Network Rail Infrastructure Limited (NRIL), are a 'Non-Classified Arm's Length Public Body of Central Government'. NRL is a not-for-dividend company limited by guarantee with a Special Member, the Secretary of State (SoS) for Transport. NRIL owns all the assets of the group and carries out all the trading of the group. The SoS, supported by the DfT and in conjunction with the Office of Rail and Road (ORR), has a significant level of control over the strategic, operational and financial activities of NR, and the SoS is accountable to Parliament for the activities / performance of NR. As noted within the Williams-Shapps Plan for Rail, Network Rail is expected to become part of GBR, a new public body.

In addition to Network Rail, the Train Operating Companies (TOCs) and other covenant rated 1 employers are additional categories of key rail companies where the employer's ability to support the pension liabilities of a section on an ongoing basis benefits from specific legislative, contractual or other structural support from the rail industry or the UK government. GBR is to be created via legislation and will become the governing body for the TOCs. The Williams-Shapps Plan for Rail sets out that GBR will manage costs and revenue decisions for the network; that Ministers will hold GBR to account through a structured framework underpinned by legislation; and that Ministers will have statutory powers to set long-term strategy and have powers to issue guidance and mandatory direction to GBR on any matter, at any time.

The transition risks and opportunities faced by these key central rail companies are, therefore to a significant degree determined by government, and are inherently linked to the government's own appetite to fund the accompanying costs in an efficient manner – one that is fair to the taxpayer and the fare-payer.





Case study: **Managing climate-related risks at Network Rail**

Since extreme weather events are becoming more frequent and intense, the UK rail network will likely suffer more damage and greater disruption unless there is investment in climate adaptation technologies to improve the climate resilience of the network. To a large degree, such investment by Network Rail provides opportunities for other sub-sectors of the railway industry.

In 2020 Network Rail became the world's first railway company to set an approved science-based target (SBT) aligned to a 1.5°C temperature outcome. Through the initial target-setting process, Network Rail worked with Carbon Intelligence to quantify Network Rail's emissions, finding that 66% of overall emissions were in the supply chain. To address this, they set a target for 75% of their suppliers (measured by emissions) to set science-based targets by 2025. These targets extend across the entire value chain of Network Rail and will require collaboration to reduce carbon emissions from Network Rail's own operations and those of suppliers and customers. Since 2021, Network Rail has been working on a Supplier Engagement Programme to educate suppliers and work with them on developing their own

ambitious carbon reduction targets. By engaging with the supply chain and asking their suppliers to set science-based targets, Network Rail can help drive the UK closer to hitting its 2050 net-zero target.

Supplier engagement is a task faced with several challenges ranging from the accuracy of GHG data, securing internal buy-in, and education and engagements with very large and complex organisations. Ensuring clear objectives backed up with data, enabled Network Rail to overcome some of these challenges. The data gathering process enabled Network Rail to identify 70 high impact suppliers, from which Network Rail could collect further information to understand the individual decarbonisation targets and plans. By collating this information, Network Rail were able to develop a supply chain emissions reduction roadmap.

The UK government and Network Rail's extensive decarbonisation, adaptation, investment, and supplier engagement programme provide strong adaptation initiatives and mitigation efforts to the physical risks faced by the UK rail industry and set the stage for the rail industry to be a 'climate enabler' for the UK.

While the UK government is responsible for setting policies and challenges, and Network Rail is primarily responsible for meeting those challenges, the regulatory and contractual arrangements which underpin Network Rail's funding regime are such that Network Rail will only need to meet the challenges that the UK government agree to fund. This results in the covenant strength of the Network Rail section, and those of the other sections sponsored by government-linked bodies, being substantially protected from the challenges that the employers themselves face.

In addition, the UK government and Network Rail climate transition roadmap provides a template for other employers in the UK rail industry.

Source: Network Rail



5.2.4.2 Rail Freight Operating Companies (FOCs)

Rail freight is recognised as one of the least carbon-intensive ways of moving freight. The headline statistic often quoted is that each freight train removes 76 HGV lorries from the UK roads.

Rail freight is a critical part of the UK transport network, linking businesses with ports, quarries, suppliers and other supply chain nodes. The COVID-19 pandemic highlighted the importance of rail freight to the UK economy as a critical part of the UK supply chain – the retail and construction sectors in particular.

UK rail freight has also been noted as having an important role in the UK achieving its statutory net-zero target. Some commentators have stated that a much more pronounced shift away from road haulage is required for the UK as a whole to meet its decarbonisation targets. As companies begin to increase their focus on supply chain (scope 3) carbon emissions to achieve net zero, this should further encourage a modal shift and increase the demand for rail freight.

The government is supportive of rail freight and is to introduce a rail freight growth target for all areas of the network. On its creation, GBR will have a 'statutory duty' to promote rail freight.

In June 2022, the DfT published the 'Future of freight: a long-term plan', which sets out a commitment to a long-term, cross-modal approach to the freight and logistics sector – covering road, rail, maritime and air. The report highlights the importance of the freight and logistics sector as a whole – including its role in delivering essential goods (medicines, food, fuel etc), contributing £127bn p.a. to the UK economy, and employing >2 million workers. The report is the government's and sector's joint response to the challenges, and will be overseen by a refreshed Freight Council model, holding the government and sector to account on the delivery of these commitments over the coming years.





Future of Freight: a long-term plan, June 2022

- The UK rail freight is a fundamental part of the chain which is critical to the UK economy and to achieving net zero. This has been highlighted through recent events (COVID-19 etc) and the Future of Freight plan issued by DfT in June 2022 sets out strategic priorities for:
 - considering the national freight network more holistically, allowing for better decisions around infrastructure investment
 - addressing net-zero transition challenges, e.g. providing greater clarity over rail electrification plans, to allow the FOCs to invest (e.g. in new locos) and reduce the risk of stranded assets
 - reviewing planning approval processes and contents (noting the importance of strategic rail freight interchanges)
 - addressing workforce shortages, negative perceptions in the industry, and the lack of diversity
 - improving innovation and the adaption / roll-out of technological advances within the sector.
- This plan is based on the wider freight and logistics sector (i.e. also includes road, maritime and air), and we view this more joined-up approach as positive noting that modal shift, from road to rail, remains a key focus to alleviate road congestion and reduce carbon emissions.

Notwithstanding the already strong green credentials of the FOCs, the industry is keen to retain and build on these by further reducing its carbon footprint. This will be achieved primarily through switching to less carbon-intensive forms of traction. This is not without challenges. In keeping with the issues faced by transport in general:

- Further research and development is required into the fuels and technology of the future.
- There is investor uncertainty, as there is a lack of clarity around the energy infrastructure and supply network that will be in place in the decades to come – along with concern that it will come at a disproportionately high cost (e.g. the recent energy price volatility, which resulted in some FOCs parking up some of their electric locomotives).
- There are investor concerns about the risk of stranded assets, and first-mover disadvantages create a barrier to investment in new technologies. Therefore industry and government must work together to build greater certainty and give investors the confidence to invest in new assets, and new energy / fuel generation.

FOC-specific challenges include the following:

- Although 38% of the rail network is electrified, only 5% of freight is transported using electric traction – as even on routes where the majority of the network is electrified, there are lengths of the track that are not, meaning diesel is the preferred option.
- There are only 10 bi-mode (diesel / electric) locomotives (2%), and only 10% of locomotives are electric across the FOCs' fleet.
- Electrification of the rail network remains the key limiting factor for wider adoption of alternative (non-diesel) traction. Whilst this is not feasible on some parts of the network, the pathway to alternative technologies remains unclear. While low-carbon fuels have been successfully deployed (e.g. HVO), cost barriers prevent wider use.

Unlike the TOCs, the FOCs operate as private-sector companies in the UK so, unlike Network Rail and TOCs, are subject to non-publicly funded transition risks, as experienced in 2015.

Despite these challenges, the climate-related opportunities, including the ever-growing desire and push-factors to switch freight from road to rail, results in a positive medium and long-term outlook for the FOCs



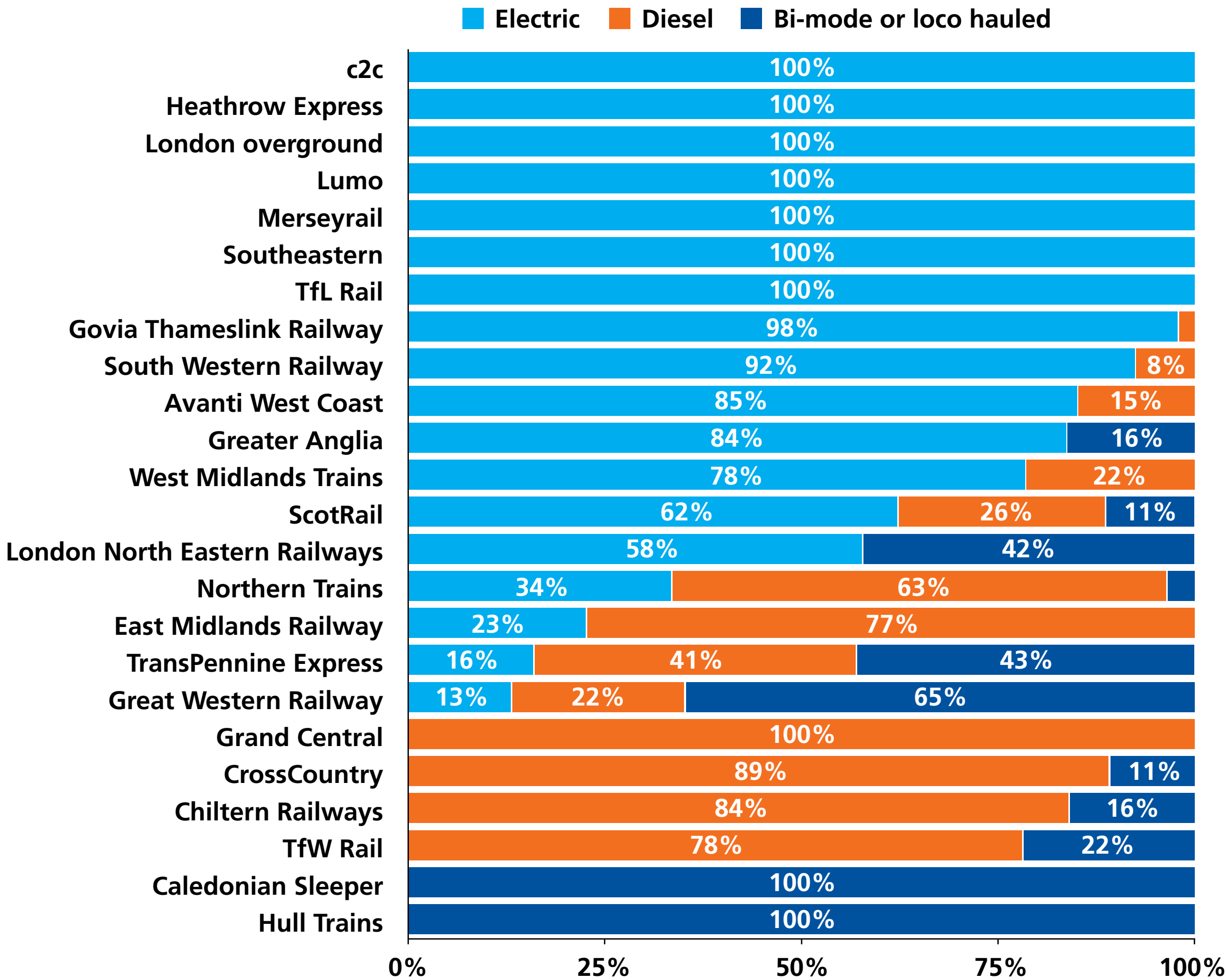
5.2.4.3 Train-builders, maintenance and signalling companies

Climate / environmental impact on new build pipeline

As noted previously, the DfT has challenged the rail industry to remove all diesel-only trains from the network by 2040. The Scottish government is aiming for a net-zero railway by 2035. This is an example of climate-related 'Transition Risk' for the industry, but for train builders, can also be viewed as a climate-related opportunity.

To remove the diesel trains from the network, fleets with greener traction need to be procured. As at 31 March 2022, 18% of the UK passenger rolling stock was diesel only (2,746 out of a total of 15,277 railways vehicles)²⁴. Only seven of the TOCs had all-electric fleets as at 31 March 2022.

Figure 5.2.4.3.1 UK rail network, proportion of fleet by fuel source



ScotRail has announced it will replace all diesel trains by 2035, by replacing 65% of its fleet between 2027 and 2035.

Cross Country's 'youngest' diesel trains will be 38-years old by 2040, suggesting they will be towards the end of their life.

However, other diesel trains may not be life expired by 2040 and new diesels are still being ordered and delivered e.g. Transport for Wales is in the process of taking delivery of new diesel trains, and the new East West Railway is expected to procure new diesel trains.

The increasing prevalence of new fleets presents a risk for maintenance companies, as the original equipment manufacturer (OEM) typically supplies new rolling stock combined with a substantial maintenance contract. Some rail industry figures however consider the removal of all diesel trains by 2040 as unachievable. Slower progress in bringing the new greener traction options to the UK market could lead to extended lives for existing fleets which presents an opportunity to provide more maintenance and overhaul work for the existing maintainers.

²⁴ <https://dataportal.orr.gov.uk/media/2139/rail-infrastructure-assets-apr-2021-mar-2022.pdf>

Pipeline – network constraints

Large parts of the network are non-electrified which restricts the use of electric traction to replace diesel. The roll out of electrification has been slow paced with just 1.3 miles of track electrified in financial year (FY) 22 and 111 miles in FY21 out of around 6,000 miles of non-electrified track.

Due to the slow roll out of electrification, the limited visibility on further electrification and some routes being unsuitable for electrification, alternative 'green' traction options are under consideration as well as an increased use of bi-mode fleets.

Battery-electric hybrids

- Battery-electric hybrid trains can be used where routes are partially electrified and are being developed by a range of suppliers, including Alstom and Hitachi, in partnership with Rolling Stock Companies (ROSCOs).
- Chiltern Railways is currently in a tender process for a battery-electric fleet with expected delivery in 2027.

Hydrogen trains

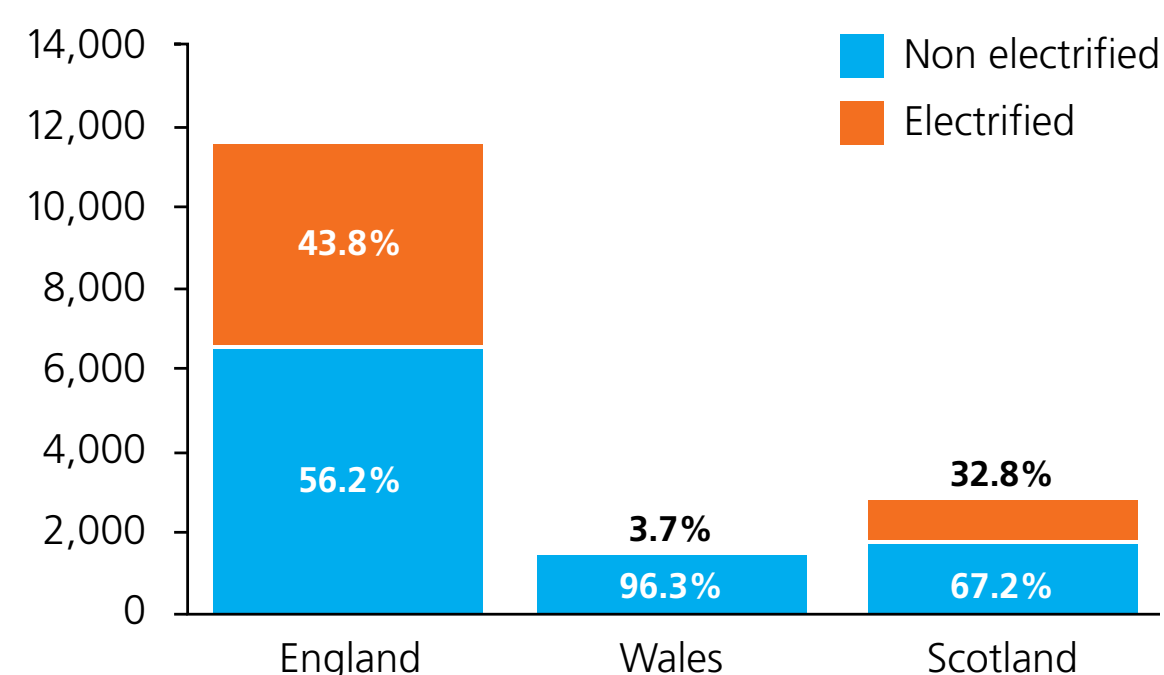
- Hydrogen powered trains are also in development for the UK market. Rail Safety and Standards Board (RSSB) published a Hydrogen Policy and Standards Review in October 2022. Further work needs to be carried out to understand several areas, including safety risks and to confirm technical elements (e.g. to determine where on the network hydrogen storage tanks would be installed) before concluding on the introduction of this technology.

- RPS employer groups have delivered hydrogen trains elsewhere in the world and are ready to take advantage of this opportunity in the UK.

Impact on train builders

- These new traction options provide alternatives to diesel fleets to meet the government's 2040 target. This presents an opportunity for new orders for train builders; however, new technology tends to be expensive for early adopters, which may act as a barrier to these orders being placed.

Figure 5.2.4.3.2: Total and electrified route length (km) by country, Great Britain, as of March 2022



European Green Deal

Many of the RPS employers in this sector are part of large groups, the majority of which are based in Europe – Alstom (France), Siemens (Germany), Thales (France) and Stadler (Switzerland). Whilst Hitachi is ultimately headquartered in Japan, the rail division is based in Europe with substantial entities in the UK and Italy.

The European Green Deal is a set of policy initiatives by the European Commission with the aim of making the EU a carbon-neutral economy by 2050. The Green Deal aims to make rail the backbone of its mobility strategy, noting it is the lowest carbon form of mass transit. There is support for a modal shift of both passengers and freight onto rail from other forms of transport such as road and air.

- The Green Deal includes a strategy to improve the connectivity of major urban areas across mainline Europe by rail through the development of more high-speed lines.
- This positive view of the rail sector in Europe is also illustrated by the decision of the French government to ban domestic flights where it can be made via a rail journey of under 2.5 hours.
- The EU's strategy to promote growth in European rail is positive to many of the groups which own the RPS employers in this sector.
- This has a positive impact on our view of longevity for the RPS employers where they belong to substantial groups which we expect have a strong long-term outlook.

Rail signalling

Improved signalling systems also have a role to play in freeing up capacity on the network by safely allowing more trains on the network – with less distance between them. Improved signalling, control and traffic management systems can make more efficient use of the network and reduce energy consumption – e.g. making better use of available platforms and lines to reduce unnecessary train acceleration and wait times.

Whilst there may be uncertainty on the forecasts for future growth in passenger numbers, the rail freight sector is modelled to have substantial growth over the next 20 years. A limiting factor to this growth could be network capacity. In terms of the signalling sector, increased capacity and more efficient use of the network is required to deliver the growth in rail freight. This clear demand for increased capacity is a positive for the signalling companies.

The Trustee will continue to engage with the RPS and BTPFSF sponsoring employers (including the employers not discussed in this report) to review their decarbonisation strategies and mitigation efforts to reduce potential climate change-related covenant impacts. We expect to report more on these activities and their impact in future TCFD reports.

5.3 Climate risks to scheme liabilities

This section of the report describes:

- The climate-related risks and opportunities relevant to the schemes over the time periods that the Trustee has identified
- The potential impacts on the schemes' liabilities which the Trustee has identified in those scenarios

In order to do that, we illustrate the impacts of the three climate scenarios (described in [section 5.1](#)) on the funding level of the DB sections of the RPS and the BTPFSF. Unless otherwise stated, the results disclosed below aggregate all DB sections of the RPS and the BTPFSF into two 'total scheme²⁵' views. The analysis has been carried out by WTW (the RPS Scheme Actuary), with financial assumptions informed by asset-side analysis carried out by Ortec Finance (further described in [section 5.4](#)).

The analysis considers (i) the asset-side climate impact on investment returns, and (ii) liability-side impacts through potential changes to mortality assumptions in different climate scenarios. The analysis does not consider climate-induced inflationary impacts on liabilities because (a) liabilities have a relatively low degree of sensitivity to inflation and (b) the climate scenarios used assume relatively modest changes to future rates of inflation. The analysis does not adjust discount rates because doing so would risk double-counting the asset-side loss or gain which is accounted for by (i) above.

The results in figures [5.3.2.1](#), [5.3.2.2](#), and [5.3.3.1](#) and [5.3.3.2](#) represent the cumulative impacts to assets and liabilities over the long term (defined per [section 5.1](#) as 40 years).

Limitations to the analysis include:

- Those described in [section 5.1](#)
- The impacts on both assets and liabilities of climate scenarios are highly uncertain, and a number of subjective judgements are required in order to calculate the indicative impacts
- Other uncertainties related to mortality assumptions (outlined below)

5.3.1 Mortality assumptions

When projecting the expected benefit cash flows of DB sections, there are direct impacts of climate change on mortality to consider, along with indirect impacts on mortality that may result from behavioural and lifestyle changes. The mortality impacts of climate change scenarios are impossible to predict accurately and will depend on several climate and non-climate related factors and the complex interactions between them. Non-climate related factors include the geographical composition of members, medical breakthroughs, lifestyle choices and the increased rates of diseases associated with these, reduced prosperity, and cuts to health services, e.g. due to the long-term consequences of COVID-19.

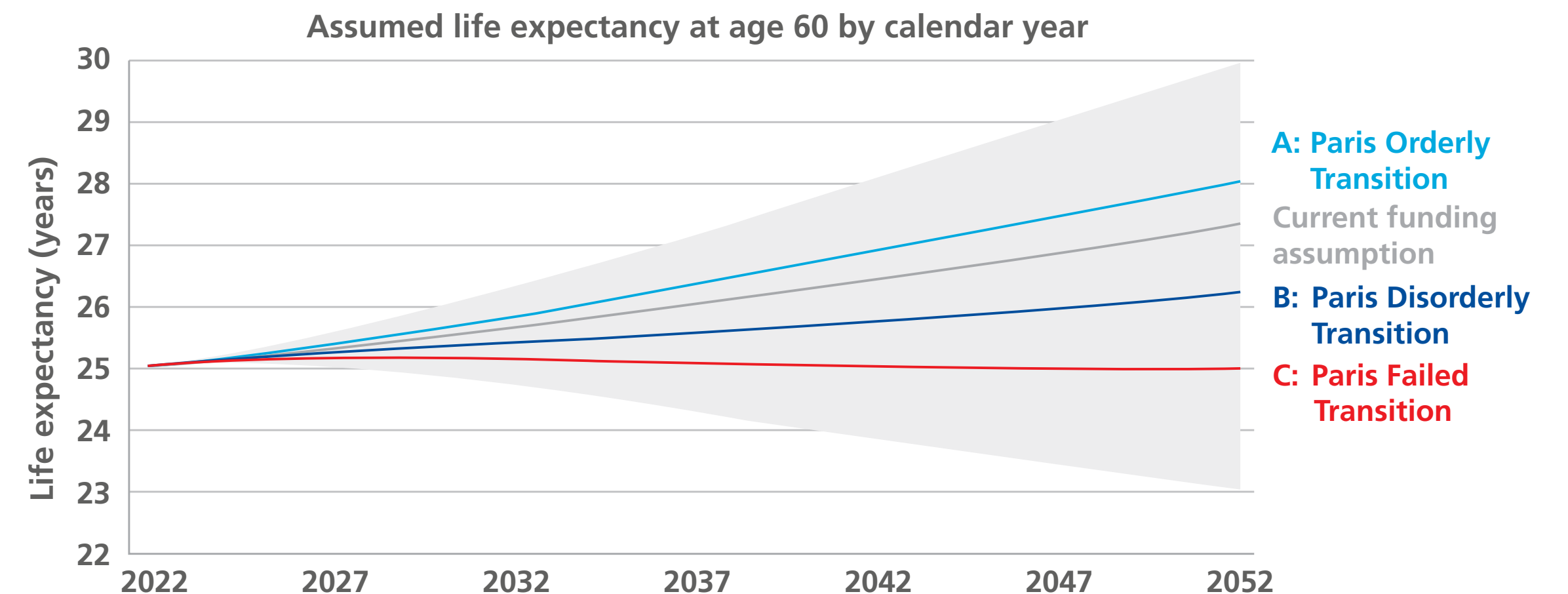
When considering the potential impact of climate change on the mortality rates for the RPS and the BTPFSF, unlike the assets, the country of interest is almost exclusively the UK. The Met Office's UK Climate Projections (UKCP18) provide estimates of probable UK climate outcomes for a range of global warming scenarios.

Under these projections, global warming is expected to lead to both warmer UK winters and summers. The

most obvious direct consequences are a reduction in cold-related winter deaths and an increase in heat-related summer deaths. Translating climate-induced mortality changes in our three scenarios, WTW assumes the following:

- The Paris Orderly Transition leads to a high to very high improvement in longevity
- The Paris Disorderly Transition leads to a moderate improvement in longevity
- The Paris Failed Transition leads to a moderate deterioration in longevity

Figure 5.3.1.1: Projected changes to life expectancies in different climate scenarios for the DB Shared Cost sections of the RPS and the BTPFSF.



²⁵ I.e. including DB arrangements, but excluding DC arrangements.

5.3.2 Climate scenario analysis of overall scheme liabilities and assets

The impact of life expectancy changes on scheme liabilities in the three climate scenarios is shown in figure 5.3.2.1. The data represents the cumulative climate impact on scheme liabilities over 40 years in each climate scenario, summed and discounted into a present value. The annualised impact on liabilities would be far smaller. The mortality of the RPS and BTPFSF membership (and hence the liabilities of the schemes) will change over a 40-year period for non-climate reasons. The numbers in figure 5.3.2.1 represent the difference that climate change makes, given hypothetical scenarios, to the way in which liabilities would evolve for non-climate reasons. For example, if in 40 years' time, the RPS's liabilities turn out to be 5% greater for non-climate demographic reasons, WTW's climate modelling suggests that a Paris Orderly scenario would increase this by a further 1.6% (this is the first number in figure 5.3.2.1).

Figure 5.3.2.1: Impacts of climate change on scheme liabilities in selected climate scenarios

Scenario	Indicative change in value of the overall liabilities for the:			
	RPS (overall)	Shared Cost sections	1994 Pensioners	BTPFSF
Paris Orderly	+1.6%	+1.7%	+0.7%	+1.2%
Paris Disorderly	-2.6%	-2.8%	-1.2%	-2.4%
Failed Transition	-5.4%	-5.8%	-2.4%	-4.8%

The scenario analysis suggests that climate change has a low to moderate impact on the schemes' liabilities over the long term. In a Failed Transition scenario, climate change is assumed to diminish liabilities and improve the funding level. Within the RPS, in this analysis the impacts to the liabilities of the 1994 Pensioners section are more muted than the Shared Cost sections owing to the members of the 1994 Pensioners section being older. Overall, the analysis suggests that from a liabilities perspective, climate impacts on mortality do not pose a significant challenge to the resilience of the schemes' funding positions.

For comparison, the modelled impacts on asset values over 40 years are shown in figure 5.3.2.2. The analysis uses the assumed changes to future expected returns provided by Ortec Finance (further described in [section 5.4](#)) to apply a one-off shock to the assets under each scenario. The data in figure 5.3.2.2 represent the cumulative climate impact on asset values over 40 years in each climate scenario, summed and discounted into a present value. The annualised impact on asset values would be far smaller. The value of the RPS and BTPFSF assets will change over the next 40 years for non-climate reasons. The numbers in figure 5.3.2.2 represent the difference that climate change makes, given hypothetical scenarios, to the growth in asset value for non-climate reasons. For example, if the RPS's total scheme asset value in 40 years' time turns out to be 150% greater for non-climate reasons, WTW's and Ortec Finance's modelling suggests that a Paris Orderly scenario would decrease this by 5.9% (this is the first number in figure 5.3.2.2).

Figure 5.3.2.2: Impacts of climate change on assets in selected climate scenarios

Scenario	Indicative change in value of the overall liabilities for the:			
	RPS (overall)	Shared Cost sections	1994 Pensioners	BTPFSF
Paris Orderly	-5.9%	-5.9%	-5.3%	-5.8%
Paris Disorderly	-12.3%	-12.4%	-12.1%	-11.7%
Failed Transition	-19.1%	-19.1%	-18.5%	-18.1%

In the climate scenarios analysed, the impacts to asset values are not significantly different between the Shared Cost sections and the 1994 Pensioners section of the RPS. It is noteworthy that climate impacts are always negative for asset values, regardless of climate scenario. This is explored in more detail in [section 5.4](#).

For the RPS Shared Cost Arrangement (the largest in the RPS), around 75% of the DB sections remain open, while 25% have closed. Over time, the closed sections might be expected to 'de-risk' and develop somewhat different investment strategies compared to open sections. For example, the closed Shared Cost sections might be expected to gradually invest in more defensive asset classes over time. WTW considered what would happen if we were to assume that, in 20 years' time, there had been a shift of 40% of closed section assets from the Growth Pooled Fund to defensive pooled funds. Based on the analysis provided by Ortec Finance and WTW, the negative impacts on asset values would reduce only modestly: by less than 0.5% for the Paris Orderly scenario, around 1% for the Paris Disorderly scenario and around 1.5% for the Failed Transition scenario.

5.3.3 Combined impact on scheme funding

Combining the impacts to investment returns and liabilities, the hypothetical funding levels for the RPS in the three climate scenarios are shown in figure 5.3.3.1, and for BTPFSF in figure 5.3.3.2. Similarly to figures 5.3.2.1 and 5.3.2.2, the numbers in the table represent the difference climate makes over 40 years to the ways in which assets, liabilities, and funding levels change for non-climate reasons.

Figure 5.3.3.1: RPS, combination of impacts to asset returns and scheme liabilities and resulting impacts to scheme funding level

Scenario	Indicative change in value of the RPS:		
	Assets	Liabilities	Funding level
Paris Orderly	-5.9%	+1.6%	-7.3%
Paris Disorderly	-12.3%	-2.6%	-10.0%
Failed Transition	-19.1%	-5.4%	-14.4%

Figure 5.3.3.2: BTPFSF, combination of impacts to asset returns and scheme liabilities and resulting impacts to scheme funding level

Scenario	Indicative change in value of the BTPFSF:		
	Assets	Liabilities	Funding level
Paris Orderly	-5.8%	+1.2%	-6.9%
Paris Disorderly	-11.7%	-2.4%	-9.5%
Failed Transition	-18.1%	-4.8%	-13.9%

The scenario analysis suggests that a Failed Transition scenario is worst for the schemes’ funding levels, even accounting for reduced liabilities. From a pensions perspective as well as a societal perspective, scheme members appear to be better off in the long term in a scenario where the Paris Agreement on climate change is implemented.

The analysis suggests that asset impacts are likely to be greater than impacts to scheme liabilities. This finding is consistent with the prioritisation of the Trustee’s climate governance activities to date, which have focused on the investment portfolio over scheme liabilities.

WTW (the RPS Scheme Actuary) believes climate change represents a demographic risk that should be managed by pension schemes and their sponsors. The Trustee’s Integrated Funding Committee, which agrees integrated funding plans for each scheme and/or section, has not to date included the outputs of the quantitative scenario analysis in specific integrated funding plans, though this is subject to review based on advice from Railpen and the Scheme Actuary (the Scheme Actuary for BTPFSF is XPS Pensions Group).





5.4 Climate risks to investment returns

5.4.1 Scenario analysis and investment strategy

This part of the report describes:

- The climate-related risks and opportunities relevant to the schemes over the time periods that the Trustee has identified
- The potential impacts on the schemes' assets which the Trustee has identified in its selected climate scenarios
- The resilience of the schemes' investment strategies

From an investment perspective, the Trustee uses a pooled-fund lens when reviewing the results of climate scenario analysis. The sections within the schemes, including DB and DC arrangements, invest in a discrete set of pooled funds permitted by the Statement of Investment Offering which is approved by the Trustee. Each section allocates assets to pooled funds as required to meet its own investment strategy.

Adopting a pooled-fund lens, rather than a section-by-section lens, has the following advantages:

- Simpler to produce, understand, and communicate
- Less costly in terms of fees paid to third parties
- Reduced complexity in determining risk management activities and ongoing monitoring

Ortec Finance generates scenario analysis at the asset-class level, and these are then translated to the pooled-fund level based on individual asset class allocation within each pooled fund (see section 5.4.1.1). The scheme-level climate impacts are then determined based on the pooled fund allocations across the RPS and the BTPFSF.

In order to model impacts on investment returns in different climate scenarios, Railpen's investment portfolio as of 31 December 2021 was mapped to chosen proxy benchmarks (for common asset classes and regions) in Ortec Finance's climate scenario analysis (MAPS) model. While Ortec Finance is a well-established specialist in climate scenario analysis, it is possible that the proxies used in a model are imperfect representations of the RPS or BTPFSF investment portfolio. This might affect the validity of analysis for unlisted asset classes like private equity, infrastructure, and property, which might be proxied using publicly listed benchmarks such as a listed equity index.

For the purposes of this analysis, Ortec Finance assumed no changes to the RPS or BTPFSF allocations to asset classes, sectors and geographies over time. Although this is a necessary assumption to make, it is unlikely that asset allocation will remain constant for decades to come.

5.4.1.1 Supplementary data on asset allocation²⁶

The overall asset allocations of the RPS and the BTPFSF reflect the fact that the majority of the assets are within non-maturing sections. Their long investment horizons and ability to tolerate relatively high levels of investment risk leads to asset allocations with significant public and private equity exposures, followed by real assets and bond exposures. These assets are invested globally.

The Growth Pooled Fund is the largest pooled fund in the schemes' portfolios and is a multi-asset fund with exposures (as at year end 2021) across public equities 67%, real estate 10%, credit 7%, total return 5%, and other 11%. The Illiquid Growth Pooled Fund is invested in private markets investments, primarily in private equity and private debt.

²⁶ As at year end 2021, unless otherwise stated. We provide 2021 data as these were the data used for the scenario analysis whose results are reported in this TCFD report.



Figure 5.4.1.1.1: RPS asset values as at 31 December 2021

	AUM £m
Defined Benefit pooled funds	
Growth	22,731
Private Equity	2,557
Illiquid Growth	2,442
Government Bond	1,429
Passive Equity	1,075
Long-Term Income	1,181
Short Duration Index-linked Bond	809
Global Equity	660
Non-government Bond	375
Infrastructure	123
Long Duration Index-linked Bond	195
Cash	66
	33,643
Defined Contribution Arrangements and other assets	
BRASS and other AVCs	1,851
Substitution orders	830
Annuities	45
Cash and other assets	110
	36,479

Figure 5.4.1.1.2: RPS asset allocation by asset class, 31 December 2021

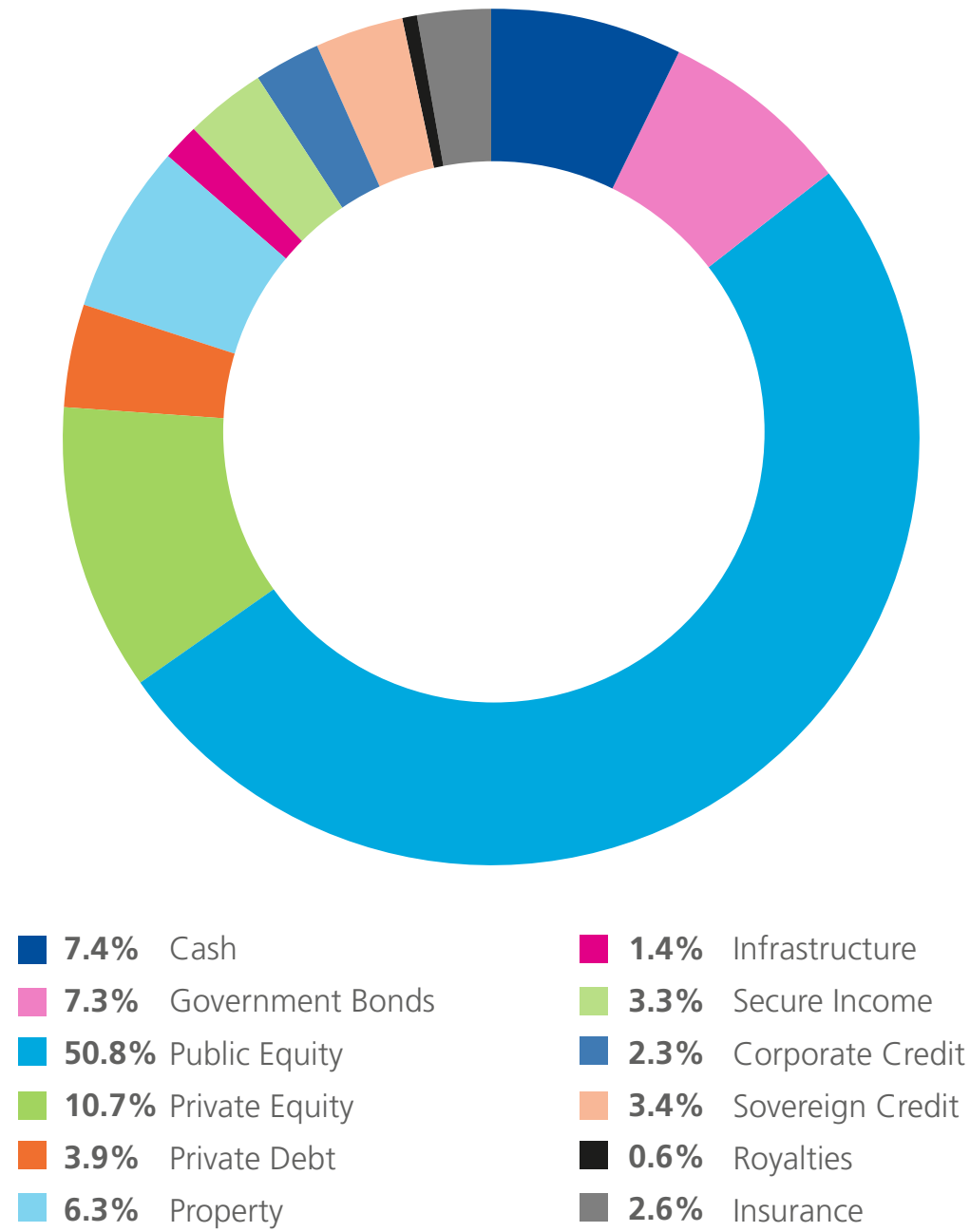


Figure 5.4.1.1.3: RPS asset allocation by geography, 31 December 2021

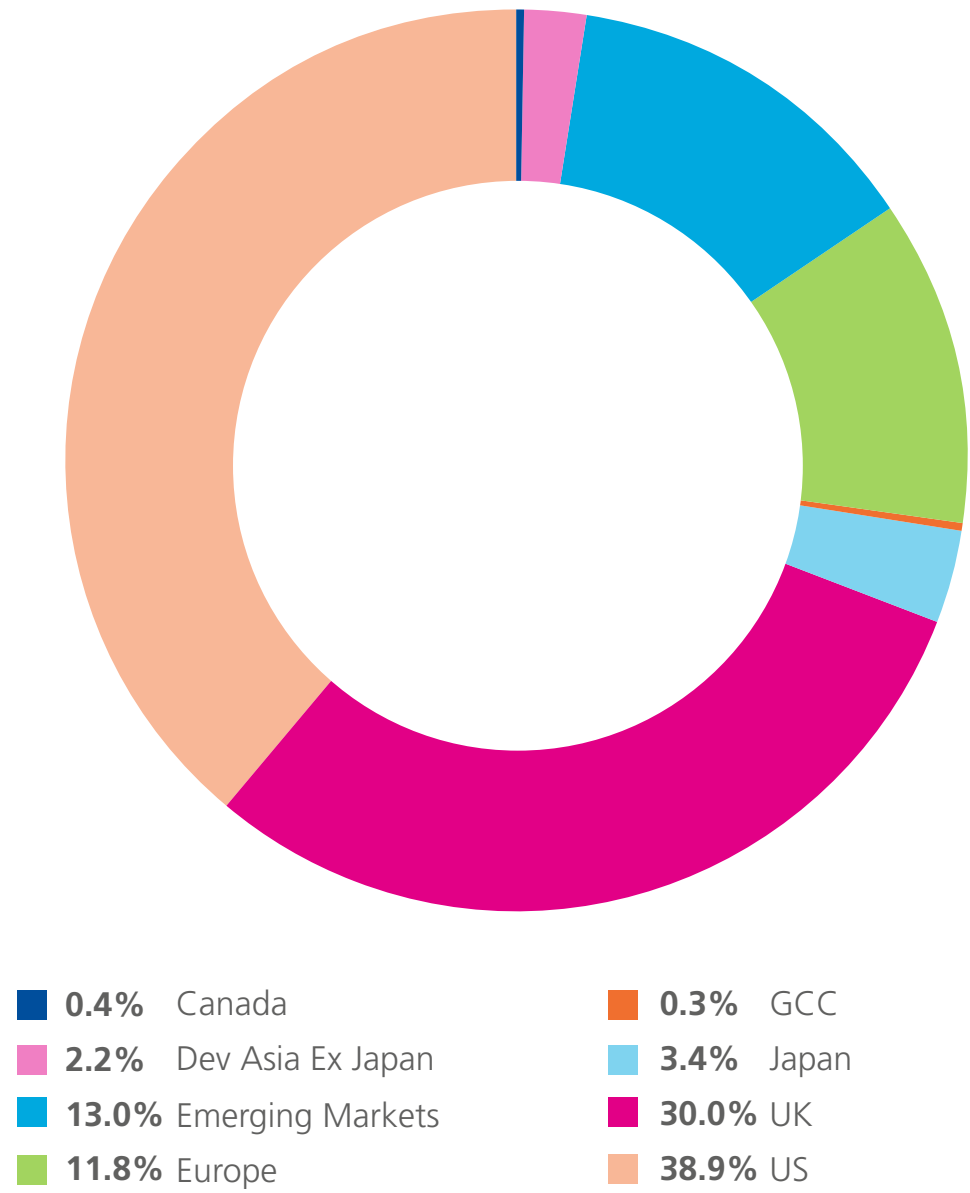


Figure 5.4.1.1.4: RPS asset allocation by pooled fund, 31 December 2021

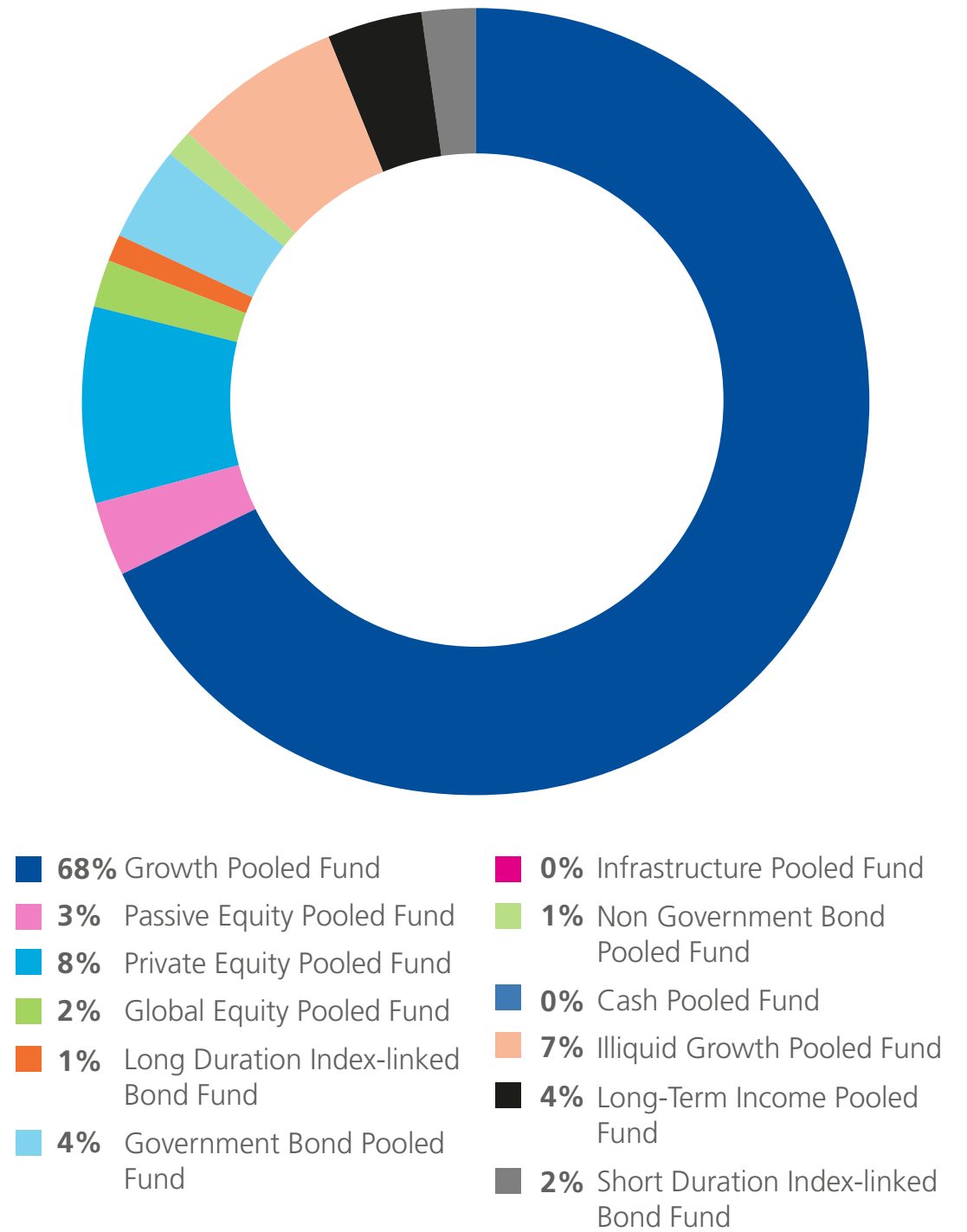


Figure 5.4.1.1.5: BTPFSF asset allocation by asset class, 31 December 2021

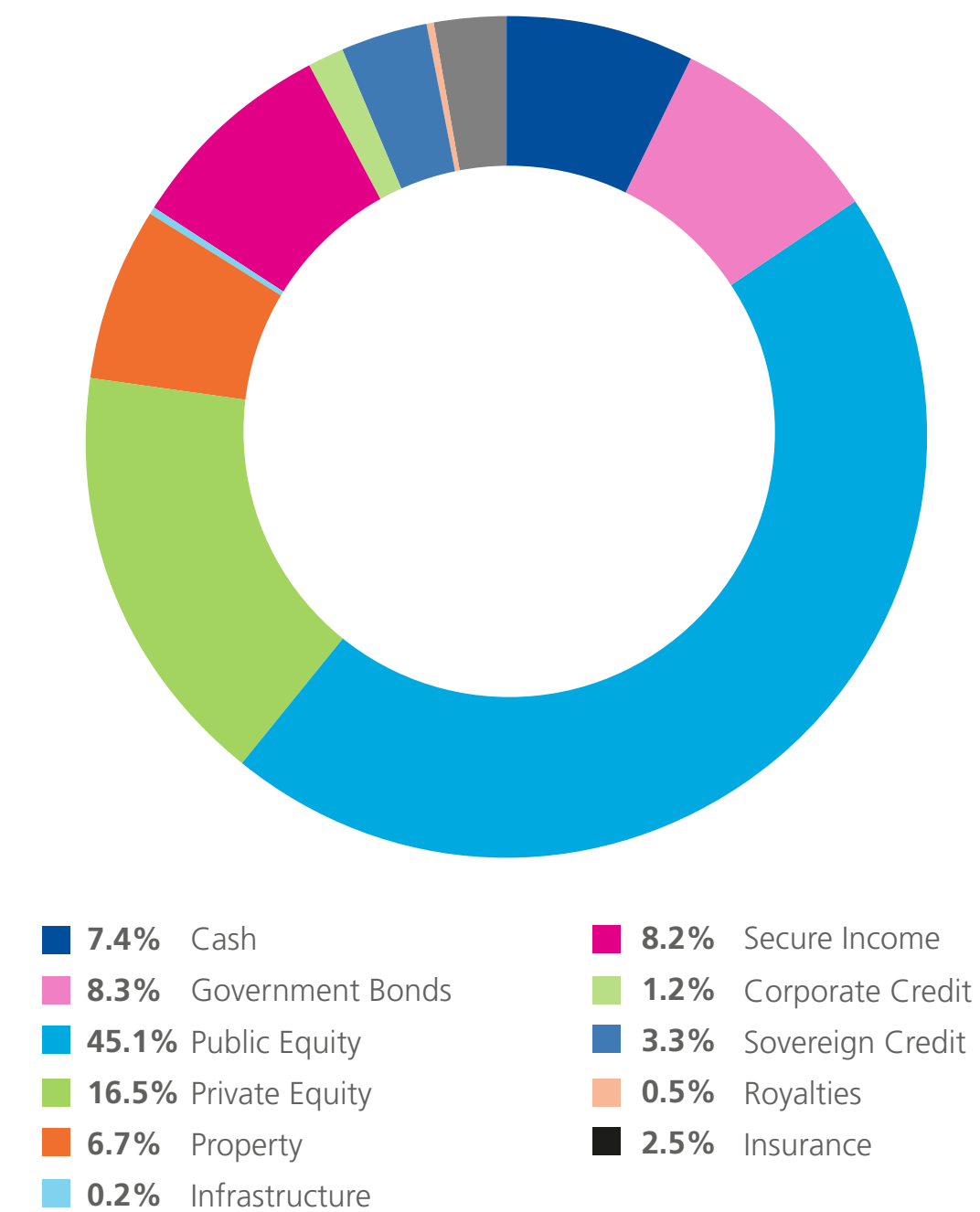


Figure 5.4.1.1.6: BTPFSF asset allocation by geography, 31 December 2021

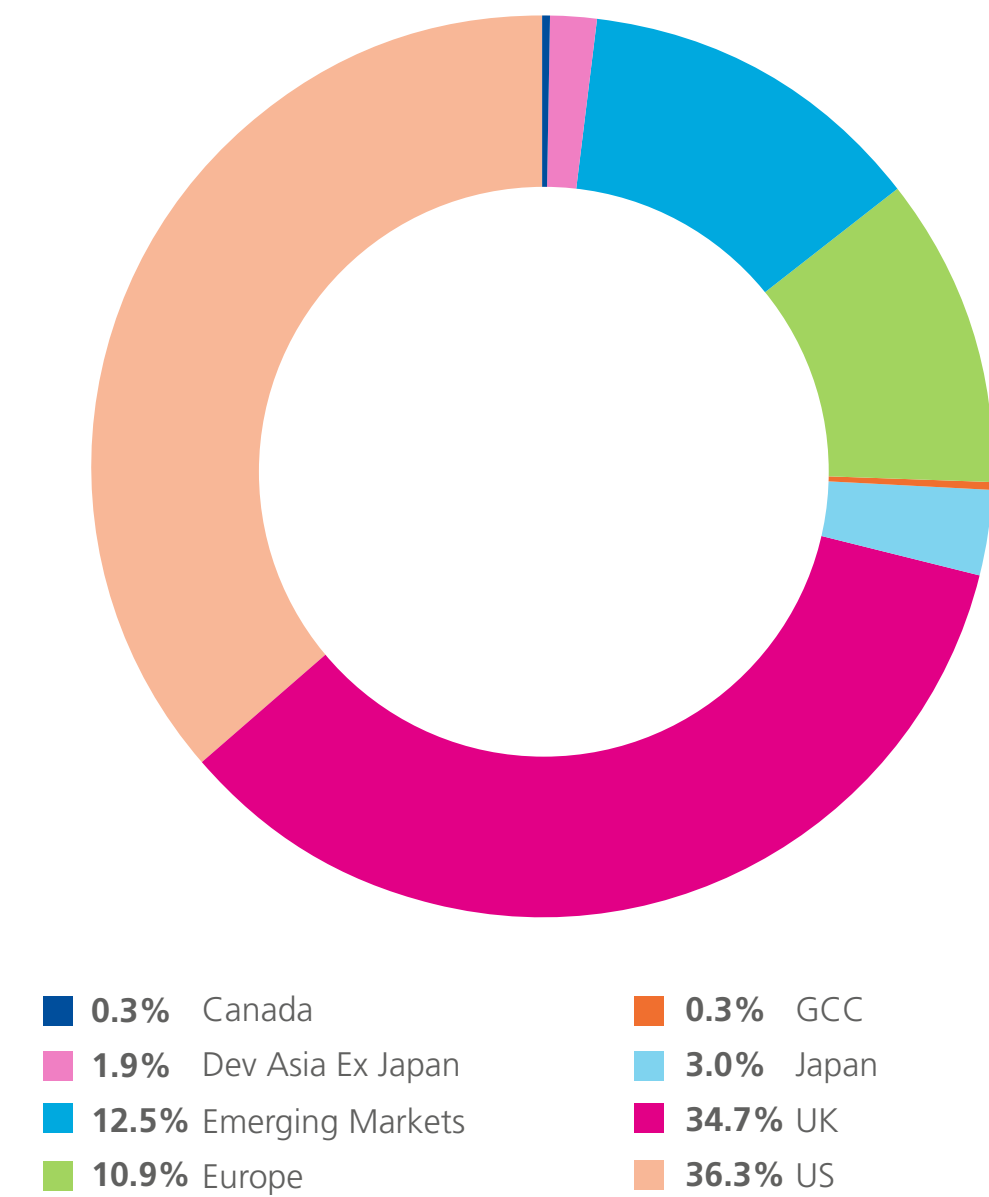
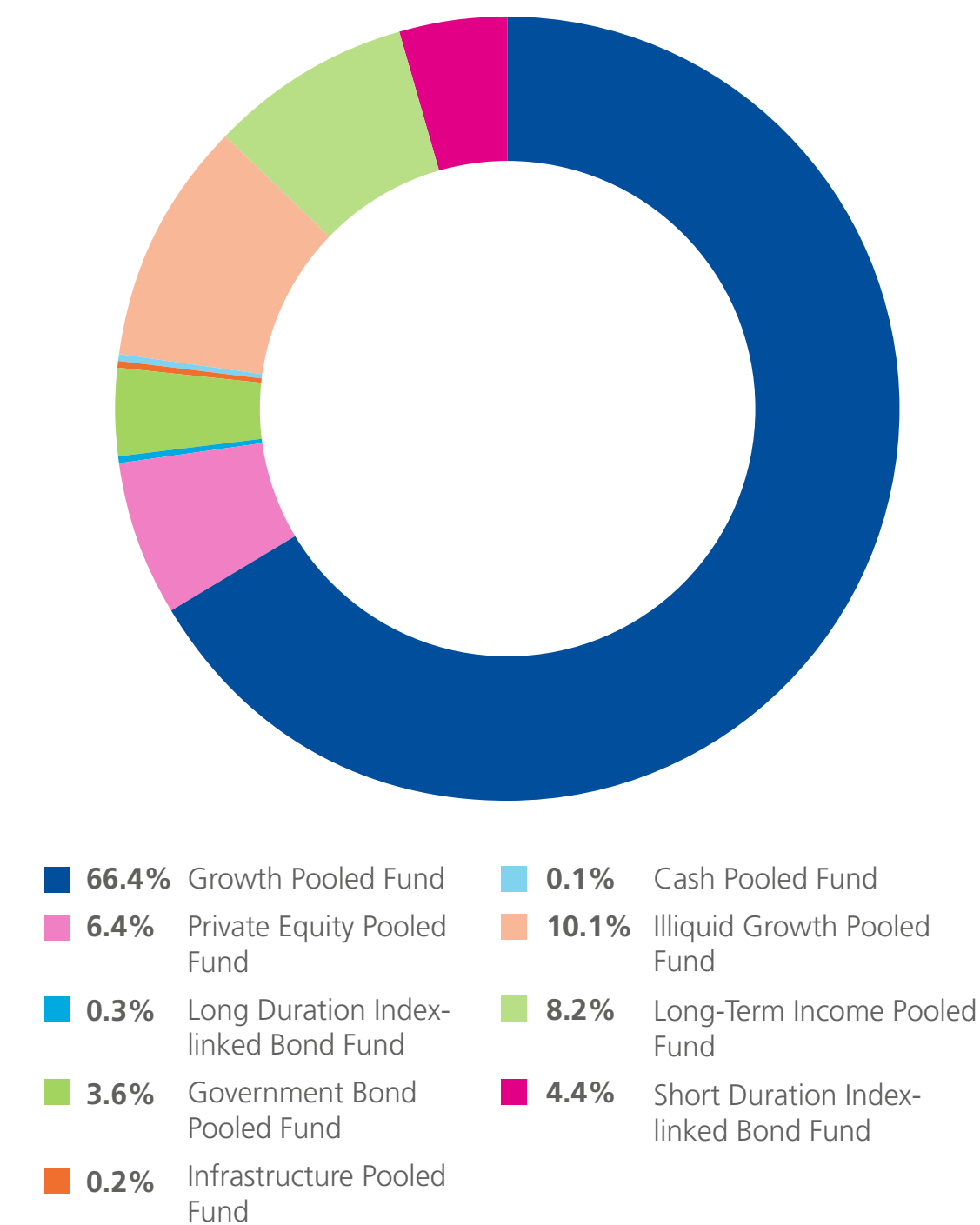


Figure 5.4.1.1.7: BTPFSF asset allocation by pooled fund, 31 December 2021





5.4.2 Climate scenario analysis in DB pooled funds and resilience of the investment strategy

Impacts on investment returns at a ‘scheme-wide’ level are discussed in [section 5.3.2](#). This section dives deeper into the drivers of these results.

Figure 5.4.2.1 displays the climate scenario analysis results at a pooled fund level²⁷.

The data in the table represent the difference in annualised real returns, for some given scenario and time horizon, that climate impacts have on a climate-unadjusted baseline. For example, if your expectation of the Growth Pooled Fund is that its annualised real return over the next years will be 10%, the climate scenario analysis results in figure 5.4.2.1 suggest this return should be adjusted by -0.4% in a Paris Orderly climate scenario over years 1-10 (see the first column, first row under ‘Paris Orderly’ in the table).

Figure 5.4.2.1: Modelled impacts on future investment returns in the three selected climate scenarios

	Paris Orderly			Paris Disorderly			Failed Transition		
Pooled Fund	Years 1-10	Years 1-20	Years 1-40	Years 1-10	Years 1-20	Years 1-40	Years 1-10	Years 1-20	Years 1-40
Growth	-0.4%	-0.3%	-0.2%	-1.4%	-0.8%	-0.5%	-0.4%	-1.6%	-1.1%
Long Duration Index-linked Bond	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Illiquid Growth	-0.6%	-0.3%	-0.3%	-0.7%	-0.4%	-0.4%	-0.4%	-1.4%	-0.9%
Long-Term Income	-0.1%	-0.1%	-0.1%	-0.3%	-0.2%	-0.2%	-0.2%	-0.6%	-0.4%
Private Equity	-1.2%	-0.7%	-0.6%	-1.9%	-1.1%	-0.8%	-0.8%	-3.3%	-2.2%
Government Bond	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Non-government Bond	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Infrastructure	-0.3%	-0.3%	-0.4%	-1.1%	-0.7%	-0.6%	-0.5%	-1.8%	-1.4%
Passive Equity Pooled Fund*	-0.4%	-0.3%	-0.2%	-1.4%	-0.8%	-0.5%	-0.4%	-1.6%	-1.1%
Global Equity Pooled Fund*	-0.4%	-0.3%	-0.2%	-1.4%	-0.8%	-0.5%	-0.4%	-1.6%	-1.1%
Short Duration Index-linked Fund*	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%

* In order to protect the intellectual property of Ortec Finance, we do not display the actual modelled impacts for these pooled funds, but instead use the return impacts for the Growth Pooled Fund as a proxy for the impacts in the Passive Equity Fund and Global Equity Pooled Fund, and we use the return impacts to the Long Duration Index-linked Pooled Fund as a proxy for the impacts in the Short Duration Index-linked Fund. The actual treatment of these pooled funds in the model differs from the proxied values displayed in this public report.

²⁷ The climate scenario analysis is conducted at the underlying investment asset class level first and the results are then translated to the pooled fund level based on the pooled funds’ allocations to the individual asset classes.



The climate scenario analysis on the investment portfolio suggests the following conclusions in respect of the resilience of the scheme-wide investment strategy:

- Expected returns are affected negatively versus baseline across all pooled funds and in every time horizon over the next 40 years. The failed transition has the most negative impacts, suggesting that long-term investors have an economic incentive to support a Paris-aligned transition.
- The greatest climate-related risks relevant to the schemes over the time periods that the Trustee has identified are:
 - Physical climate risk in scenarios, particularly when the transition to a greener economy fails. The regions most affected by the financial impacts of physical climate risk are Asia (South Asia, East Asia, South-East Asia), North America, and Australasia. In terms of sectors, consumer discretionary, industrials, and consumer staples are the most affected by physical risk in the climate modelling used in this analysis. Ortec Finance's analysis suggests the RPS and BTPFSF should be more concerned about potential physical risks than potential transition risks.
 - Transition climate risk when global climate policy is uncoordinated and market reactions are more sudden. Regions like North America, Australasia, and China, are most vulnerable to the risk of a disorderly transition. The RPS and the BTPFSF have significant exposure to the US, in particular to US equities. The US

economy, given its position as a net fossil fuel exporter, with low energy efficiency, low carbon pricing and high sensitivity to market sentiment shocks make it exposed to transition risks and this is reflected in the scenario analysis results.

- In terms of strategic asset allocation, growth assets (notably listed equities and private equity) are modelled to be less resilient across climate scenarios than defensive assets (such as fixed income). However, growth assets are expected to deliver a higher rate of return than defensive assets, even accounting for climate-related impacts in the different scenarios. This suggests that growth investors ought to continue to monitor portfolio risks and take risk reduction actions (including investment stewardship) where beneficial to risk-adjusted investment outcomes. According to the analysis, maintaining a diversified portfolio helps to soften the magnitude of climate risks in different scenarios. Investors should consider the merits of incorporating climate impacts on investment returns in asset-liability modelling.
- On sector allocations, as might be expected, oil and gas, fossil fuel utilities, road, air and sea transportation, and consumer discretionary sectors, are impacted the most across all three climate scenarios. At the time of analysis, the RPS and the BTPFSF had very low exposure to oil & gas (suggesting the investment strategy might exhibit resilience to Paris-aligned scenarios), but a significant allocation to consumer discretionary (which

could undermine investment strategy resilience in the longer term in a Failed Transition scenario). As a result, the RPS and BTPFSF investments in private equity (which are exposed to the consumer discretionary and industrial manufacturing sectors) are modelled as having the greatest impacts to returns (driven primarily by physical risks), followed by public equities. Given the dispersion of climate-related return impacts across sectors and regions, investors and investment risk professionals ought to monitor sector and region exposure.

- The greatest climate-related opportunities relevant to the schemes over the time periods that the Trustee has identified are:
 - Regions such as Europe and the UK that could prove to be 'winners' in scenarios where the Paris Agreement is achieved
 - Stewarding high-emitting companies in which the RPS or BTPFSF have significant investments could enable these companies to realise the opportunities that come with aligning their business models to a lower risk pathway, and could thereby reduce risk at scheme-level (see [section 6.4](#) for more information)
- The timing of risk realisation is scenario dependent. Scenarios that align with the Paris Agreement experience greater impacts in the short term, but the Failed Transition scenario has greater impacts in the medium and long term. This suggests investors should monitor the global policy response to climate change to attempt to understand which scenario has the greatest likelihood of playing

out, and whether action is required in the short or longer term. Investors should also review their selection of scenarios as a scenario not considered in their analysis might unfold.

Ultimately, climate scenario analysis is useful for modelling a direction of travel, rather than pin-pointing accuracy. The most interesting findings lie, not in the average performance for portfolios or asset classes, but rather in identifying the outliers (such as certain sectors or certain positions), which improves the efficiency of ongoing risk management.

As a result of climate scenario analysis and other analysis conducted from time to time, the Trustee (or Railpen acting on the Trustee's behalf) intends to:

- Continue to analyse, monitor, manage the highest emitting portfolio companies for transition and physical risks, building on work done to date
- Conduct further analysis of physical risks, and review potential enhancements to analytical capabilities
- Consider the merits of incorporating climate impacts on investment returns in asset-liability modelling
- Continue to identify climate-related investment opportunities
- Review the selection of climate scenarios as appropriate

5.4.3 Climate scenario analysis in DC pooled funds

RPTCL is responsible for three DC arrangements; BRASS, AVC Extra and the IWDC section.

- BRASS, the main Additional Voluntary Contributions (AVC) arrangement, is open to all contributing members of the DB sections of the RPS. Within the BTPFSF, however, BRASS is open only to members of the 1970 sections
- AVC Extra is the second contribution top-up arrangement for contributing members of the DB Sections (other than the Network Rail Section) of the RPS. Within the BTPFSF, AVC Extra is open to 2007 and CARE members, and to 1970 members who want to pay AVCs above their BRASS limit.
 - At 31 December 2021, AUM in the BRASS and AVC Extra arrangements was approximately £2bn for the RPS and £8.5m for the BTPFSF
- The IWDC Section is the authorised DC master trust of the RPS for rail industry employees and, other than AVCs, it is the only section in the RPS which provides money purchase benefits.
 - AUM in the IWDC section of the RPS was approximately £228m at 31 December 2021

Climate governance, strategy, and risk management within DC arrangements are described in [sections 4](#) and [5](#) of this report.

In assessing, monitoring, and managing climate-related risks in the DC pooled funds we are primarily interested in physical and transition risks to asset returns. The purpose of this section of the report is to describe the climate scenario analysis impact on investment returns in the DC arrangements. The same service providers (Ortec Finance and WTW) are used to produce climate scenario analysis results. The same scenarios and time horizons are selected. The same methodological limitations described above apply to the climate scenario analysis for the DC arrangements.

A consistent DC pooled fund range is used by BRASS, AVC Extra and the IWDC section of the RPS. These pooled funds are also used as the building blocks of the various default and alternative lifestyle strategies. On a look-through basis, the allocations to each of the DC pooled funds as of 31 December 2021 is shown in figure 5.4.3.1 for the RPS and figure 5.4.3.2 for the BTPFSF.

^{28,29} For the purposes of conducting climate scenario analysis, the DC pooled funds are modelled using a mapping to DB pooled funds that share suitably similar asset classes and risk characteristics. The DC Deposit Fund is not mapped as it primarily invests in money market funds and UK government treasury bills which exhibit close to zero climate risk in commonly used climate scenario analysis models.

Figure 5.4.3.1: DC section allocations to pooled funds (RPS) as of 31 December 2021

DC pooled fund allocations	BRASS	AVC Extra	IWDC	Total RPS DC	Mapping ²⁸
DC Long-Term Growth Fund	62%	17%	45%	59%	Growth Pooled Fund
DC Global Equity Fund	14%	48%	38%	17%	Growth Pooled Fund
DC Index-linked & Global Bond Fund	1%	3%	1%	1%	Long Duration Inflation-linked Bond Fund
DC Aggregate Bond Fund	1%	22%	12%	2%	n/a
DC Deposit Fund	23%	11%	3%	20%	n/a

Figure 5.4.3.2: DC section allocations to pooled funds (BTPFSF) as of 31 December 2021

DC Pooled Fund Allocations	BRASS	AVC Extra	Total BTPFSF DC	Mapping ²⁹
DC Long-Term Growth Fund	38.7%	2.9%	41.6%	Growth Pooled Fund
DC Global Equity Fund	14.3%	15.2%	29.5%	Growth Pooled Fund
DC Index-linked & Global Bond Fund	1.9%	1.6%	3.3%	Long Duration Inflation-linked Bond Fund
DC Aggregate Bond Fund	5.4%	0.6%	6.0%	n/a
DC Deposit Fund	16.5%	3.2%	19.6%	n/a



Figures 5.4.3.3 and 5.4.3.4 show respectively the modelled impacts of climate risk on the RPS and BTPFSF DC arrangements for the three selected climate scenarios. The data in the tables represent the difference in annualised real returns, for some given scenario and time horizon, that climate impacts have on a climate-unadjusted baseline. For example, if your expectations of the overall DC arrangement are that its annualised real return over the next 20 years will be 10%, the climate scenario analysis results in figure 5.4.3.3 suggest this return should be adjusted by -0.24% in a Paris Orderly climate scenario over years 1-20 (see figures 5.4.3.3, first column, first row).

Given the similarities in investment strategy between the DC pooled funds and the DB pooled funds, the same findings as laid out in [section 5.4.2](#) apply here. In addition, the activities taken to manage the risks identified in climate scenario analysis of DC pooled funds are the same as those laid out in [section 5.4.4](#) and elsewhere. Rather than duplicate the content, we refer readers to the content on the previous and following pages.

Figure 5.4.3.3: Impacts of climate change on DC assets (RPS) in selected climate scenarios

Scenario	Indicative change in value of the overall assets for the:							
	DC (overall)		BRASS		AVC Extra		IWDC	
	Years 1-20	Years 1-40	Years 1-20	Years 1-40	Years 1-20	Years 1-40	Years 1-20	Years 1-40
Paris Orderly	-0.24%	-0.17%	-0.21%	-0.15%	0.00%	0.00%	-0.03%	-0.02%
Paris Disorderly	-0.60%	-0.37%	-0.53%	-0.33%	-0.01%	0.00%	-0.07%	-0.04%
Failed Transition	-1.21%	-0.86%	-1.06%	-0.75%	-0.01%	-0.01%	-0.14%	-0.10%

Figure 5.4.3.4: Impacts of climate change on DC assets (BTPFSF) in selected climate scenarios

Scenario	Indicative change in value of the overall assets for the:					
	DC (overall)		BRASS		AVC Extra	
	Years 1-20	Years 1-40	Years 1-20	Years 1-40	Years 1-20	Years 1-40
Paris Orderly	-0.22%	-0.16%	-0.17%	-0.12%	-0.06%	-0.04%
Paris Disorderly	-0.56%	-0.35%	-0.542%	-0.26%	-0.14%	-0.09%
Failed Transition	-1.13%	-0.81%	-0.84%	-0.60%	-0.29%	-0.21%

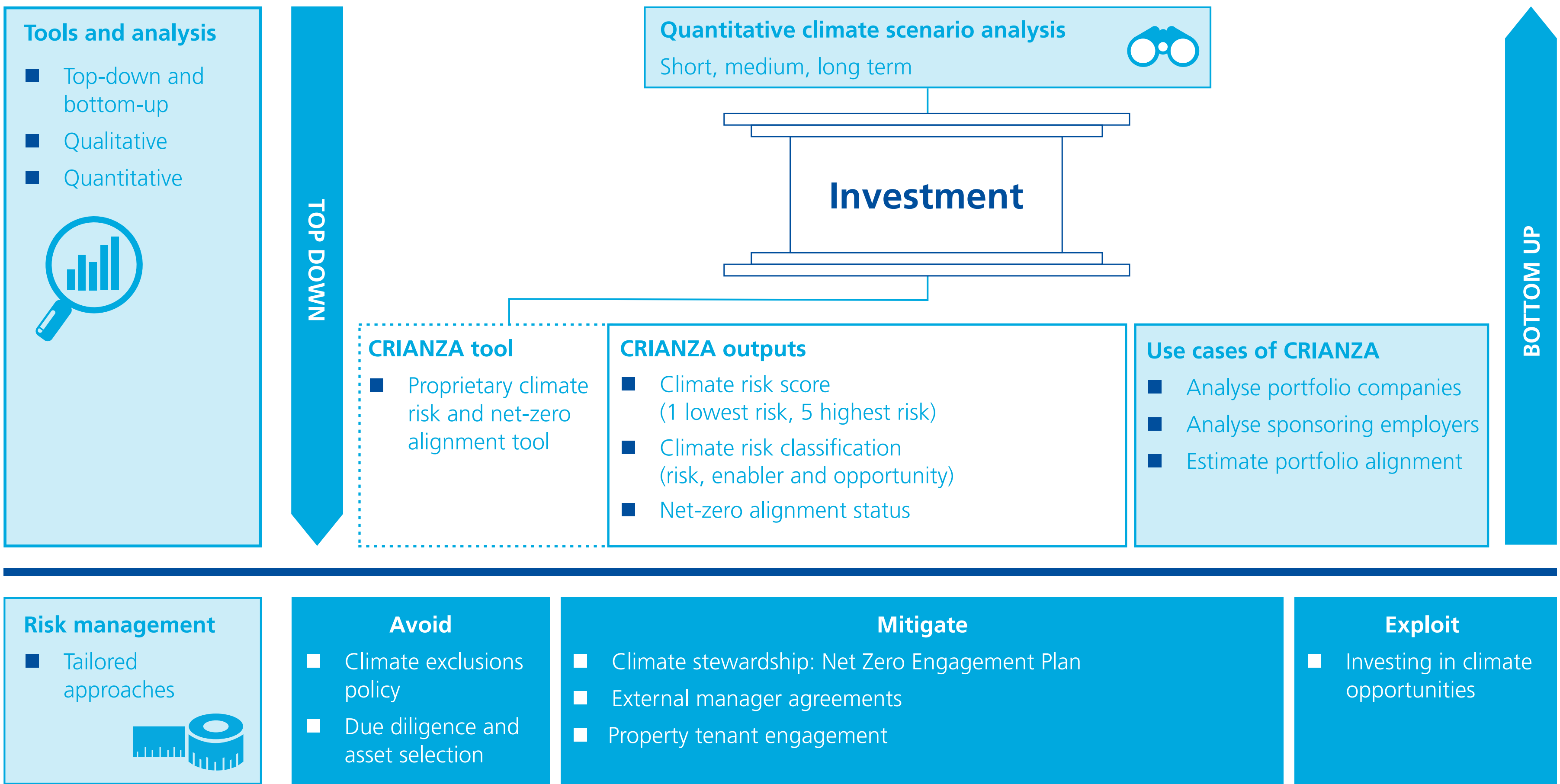
5.4.4 Climate risk integration

This section of the report describes how climate risks are identified and assessed within the investment process, and describes the risk tools the Trustee uses, and the outputs and outcomes of using those particular tools.

Transition and physical risks are identified and assessed using quantitative and qualitative approaches. Once risks have been identified and assessed, their management is achieved through a variety of activities, the nature of which (typically risks are avoided, mitigated, or exploited) depends on the context. Although the focus of this report is on the management of scheme-wide climate risks, the Trustee believes that a bottom-up perspective is important for the purposes of analysing and managing physical and transition risks in an investment decision making-context.

As explained in [section 4](#), day-to-day operation of the schemes is delegated to Railpen, with regular reporting to, and oversight by, the Trustee. Railpen's approach to climate risk integration is documented in the ESG Risk Directive, which is part of the Investment Risk Governance Framework. Railpen's Net Zero Plan goes beyond the Directive and sets goals for the investment portfolio to align with net zero by 2050 or sooner. Figure 5.4.4.1 provides an overview of climate risk integration at the schemes, with a focus on the Investment pillar; explanations are provided in the subsections that follow.

Figure 5.4.4.1: Schematic depicting CRIANZA and scenario analysis for climate risk integration in the investment portfolio





5.4.4.1 Climate risk management in the investment process

Risk identification and assessment are powered by quantitative scenario analysis (explained in [section 5.4.4](#)), qualitative analysis (for example, in assessing the way climate risks could threaten employer covenant strength), and the use of Railpen's proprietary CRIANZA framework and tool, which we explain in [section 5.4.4.2](#). The rest of this subsection describes climate risk management in the investment process.

Climate change presents various types of investment risks that could present challenges and opportunities for the investment portfolio in a number of ways. Depending on the type of risk, we typically take actions to avoid, mitigate, or exploit the risk:

- **Avoid** the risk – for example, we have reduced the schemes' exposure to stranded asset risk by excluding companies with substantial exposure to thermal coal and tar sands.
- **Mitigate** the risk – either mitigating climate risk as a systemic risk, or as an idiosyncratic (or individual asset-specific) risk. Mitigating climate risk as a systemic risk includes taking measures to align the investment portfolio to net zero by 2050 or sooner, engage policy makers to encourage measures that support a 1.5°C temperature outcome, and collaborate with peer investors to help drive down GHG emissions in the real economy. These measures could mitigate the level of systemic risk by reducing the likelihood of a harmful temperature outcome. Mitigating climate risk as an idiosyncratic risk involves analysing potential investments for climate risk, monitoring, and

engaging companies to encourage them to adopt business plans that manage against physical and transition climate risks, and setting agreements for external managers to mitigate climate risk when managing money on the Trustee's behalf. These measures could mitigate the level of idiosyncratic risk by ensuring companies in our portfolio are more robust to the risks posed by climate change.

- **Exploit** the risk – for example by investing in climate opportunities, as described in [section 5.4.5](#).

As described in [section 4](#), the ESG Risk Directive (where ESG includes climate risks) makes specifications across asset classes regarding how ESG risks must be measured and managed. The Directive notes that different asset classes vary in respect of (i) the nature and materiality of climate and ESG risk and (ii) the availability of ESG risk information. Climate risk in particular, varies by asset class, sector, business model, and geography of the underlying holdings. As a result, the approaches for identifying and assessing ESG (and climate risk) vary across asset classes (and in some cases, across sectors, business models, and geographies). The selection of approach is driven by factors including expected climate impact on returns of the asset class, vulnerability to physical and transition risk, availability and quality of data, specific stewardship and engagement mechanisms that are available, and potential pathways to net-zero alignment. [Figure 5.4.4.1.1](#), which is adapted from a table in the Risk Directive, shows the climate risk management techniques used across different asset classes.

Idiosyncratic ESG risk is managed by a wide range of actions, including climate-related and other portfolio exclusions, ESG risk analysis, securing ownership rights, negotiating contracts and terms, engagement, monitoring, improving asset quality, and supporting value at exit. Systematic ESG risk is managed primarily by engagement (with policymakers, peer investors, and portfolio companies) and shareholder voting.



Figure 5.4.4.1.1: Techniques used to identify and assess climate risks in the investment portfolio³⁰

Pooled Fund	Portfolio(s)	Pre-investment	Asset management	Divestment / exit
Growth Fund	Quantitative equities	a	e, f, g, h, j	
	Fundamental equities	a, b	e, f, g, h, j	l
	External managers	a, c, d	e, j	
	Property	b, d	j	l
Illiquid Growth Fund	Co-investments (private equity, private debt, venture)	a, b, d	e, f, g, i, j	l
	External managers	c, d	j	
Long-Term Income Fund	Directs	a, b, d	e, f, g, i, j	l
	External managers	c, d	j	
Equity funds	External managers (global equity; passive equity)	a, c, d	e, g, h, j	
DC funds	Global equity	As per Equity pooled funds above		
	Long-term growth	As per Growth Pooled Fund above		

Avoid		Mitigate		Exploit	
a	Climate risk exclusions	d	Legals & contracts	j	Value creation plan
b	Climate and ESG analysis / due diligence	e	Ownership rights	l	Value at exit
c	External manager due diligence	f	Dialogue		
		g	Escalation		
		h	Collaboration		
		i	Monitoring and re-measuring		

³⁰ Note: not every technique is applied for every investment transaction; rather, the techniques most appropriate for the investment in question are identified and executed accordingly.

From an investment perspective, the priority focus to date has been on public markets portfolios because (i) this is the largest allocation across the schemes, (ii) climate data is of greater quality and completeness, and (iii) quantitative scenario analysis suggests public equities is one of the asset classes most likely to face the higher climate-related impact on returns. As set out in [figure 5.4.4.1.1](#), climate-related exclusions (companies with significant revenues from thermal coal and tar sands) are applied where practicable to quantitative equities, fundamental equities, external managers, equity pooled funds and DC pooled funds. Each fundamental equity investment requires that ESG risk (including climate risk) analysis, and large emitters in public markets portfolios, have been additionally analysed using a climate risk assessment framework and tool. We provide detail on risk management in public markets portfolios in [section 6.4](#). We comment briefly below on activities undertaken within private markets and real assets.

5.4.4.2 CRIANZA Framework and Tool

CRIANZA (**C**limate **R**isk **A**nd **N**et **Z**ero **A**lignment) is a proprietary framework and tool developed by Railpen to assess and score the extent of climate risk and net-zero alignment at individual companies. During 2023, CRIANZA was used to assess companies within the scope of Railpen's Net Zero Plan (which covers c.70% of financed emissions in material sectors in public markets). The framework incorporates sector-specific features for alignment assessment and can be used for risk management, regulatory reporting, and for climate stewardship activities (for example, by identifying gaps in a company's current practice, which forms a basis for discussion with a company and can suggest how to direct votes at the company AGM).

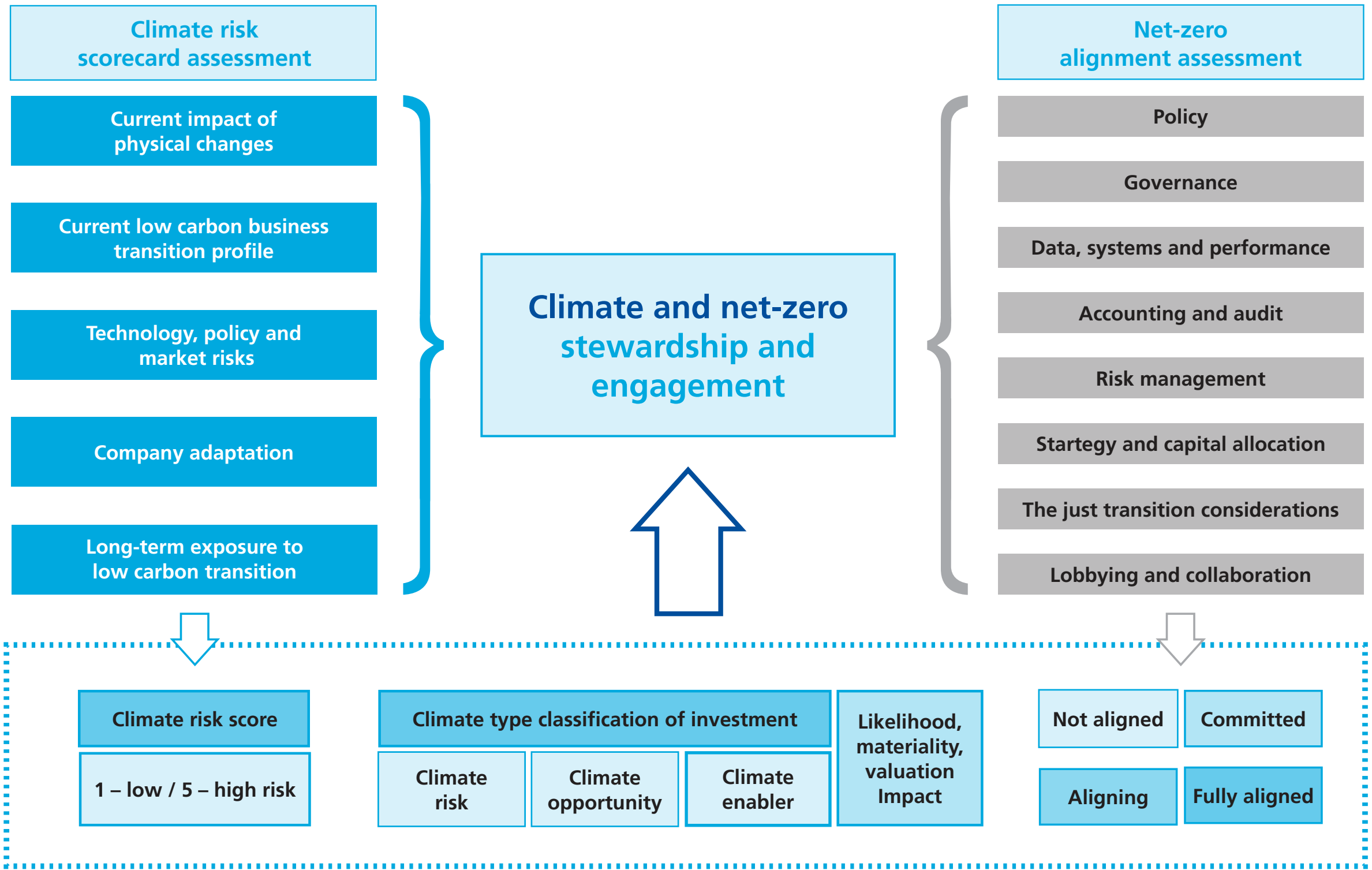
CRIANZA produces two types of score for each company. First, a risk score (companies are scored between 1 and 5, and given a classification as a 'climate risk', 'climate enabler', or 'climate opportunity'), and second, a net-zero alignment status (companies are assessed as being 'not aligned', 'committed to aligning', 'aligning', or 'fully aligned').

For the risk scores, a combination of third-party data and proprietary methodology are used within the CRIANZA Framework and Tool. The assessments are updated after learning more about a company during company engagement.

For the alignment scores, the tool uses a milestone-based approach to assess and score a company's alignment with a net-zero pathway. This means that companies are expected to do more – i.e. they are expected to reach additional alignment milestones – each year following the baseline assessment. This approach is consistent with the Institutional Investor Group on Climate Change (IIGCC) Net Zero Stewardship Toolkit, which Railpen co-authored. The assessment framework also draws on the Climate Action 100+ Benchmark and the Transition Pathway Initiative (TPI) scoring, with additional proprietary inputs from Railpen.

The objective of the portfolio alignment assessment is to enable a feedback loop between company analysis and company engagement, i.e. the insights from the analysis feeds into climate stewardship, which ultimately should improve company alignment over time. The Trustee has adopted a target to increase the proportion of portfolio companies rated as 'aligning' and 'fully aligned' (see [section 6](#)).

Figure 5.4.4.2.1: Overview of the CRIANZA assessment methodology





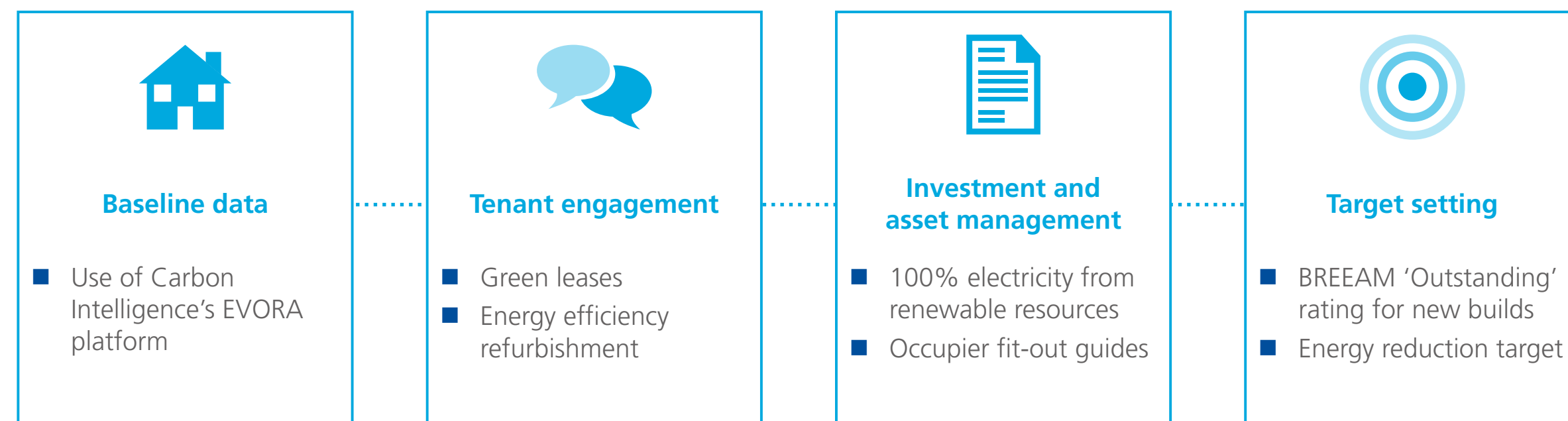
5.4.4.3 Climate risk integration in private markets and real assets

Private markets represented c.15% of scheme assets at December 2023. Private markets investors are beset by a lower level of climate-related information compared to public markets. In addition, private markets have been a little slower to develop net-zero methodologies. Railpen has sought to work with industry peers to develop a private markets methodology for net zero and, to that end, Railpen has contributed to the Paris Aligned Investing Initiative’s Private Equity Working Group, whose new methodology was published in May 2023.

Our investments in real assets consist mainly of property and infrastructure assets located in the UK. The portfolio is therefore impacted by trends in UK climate data. The UK climate data indicate that there has been, and will continue to be, a shift to a hotter and more unstable climate. The most recent assessment from the UK government and the Climate Change Committee (CCC) provides strong evidence that even under low warming scenarios, the UK will be subject to a range of significant and costly impacts unless significant further policy action is taken in the near term.

Real assets can be vulnerable to physical climate risks. These risks can be event-driven and acute, like heatwaves, bushfires or floods, or longer-term shifts, such as rising sea levels. Financial implications include direct damage to assets, business disruption and indirect impacts from supply chain disruption. Real assets can also be vulnerable to transition climate risks, for example, if increasingly stringent climate policy measures affect an asset’s ability to generate income or requires unanticipated capital expenditure. Railpen, acting for the Trustee, takes a number of risk management activities to reduce, mitigate, or exploit physical and transition risks within real assets investing. [Figure 5.4.4.3.1](#) outlines some of these activities in the property portfolio (c.£2bn scheme assets at December 2023).

Figure 5.4.4.3.1: Climate risk management activities in the property portfolio

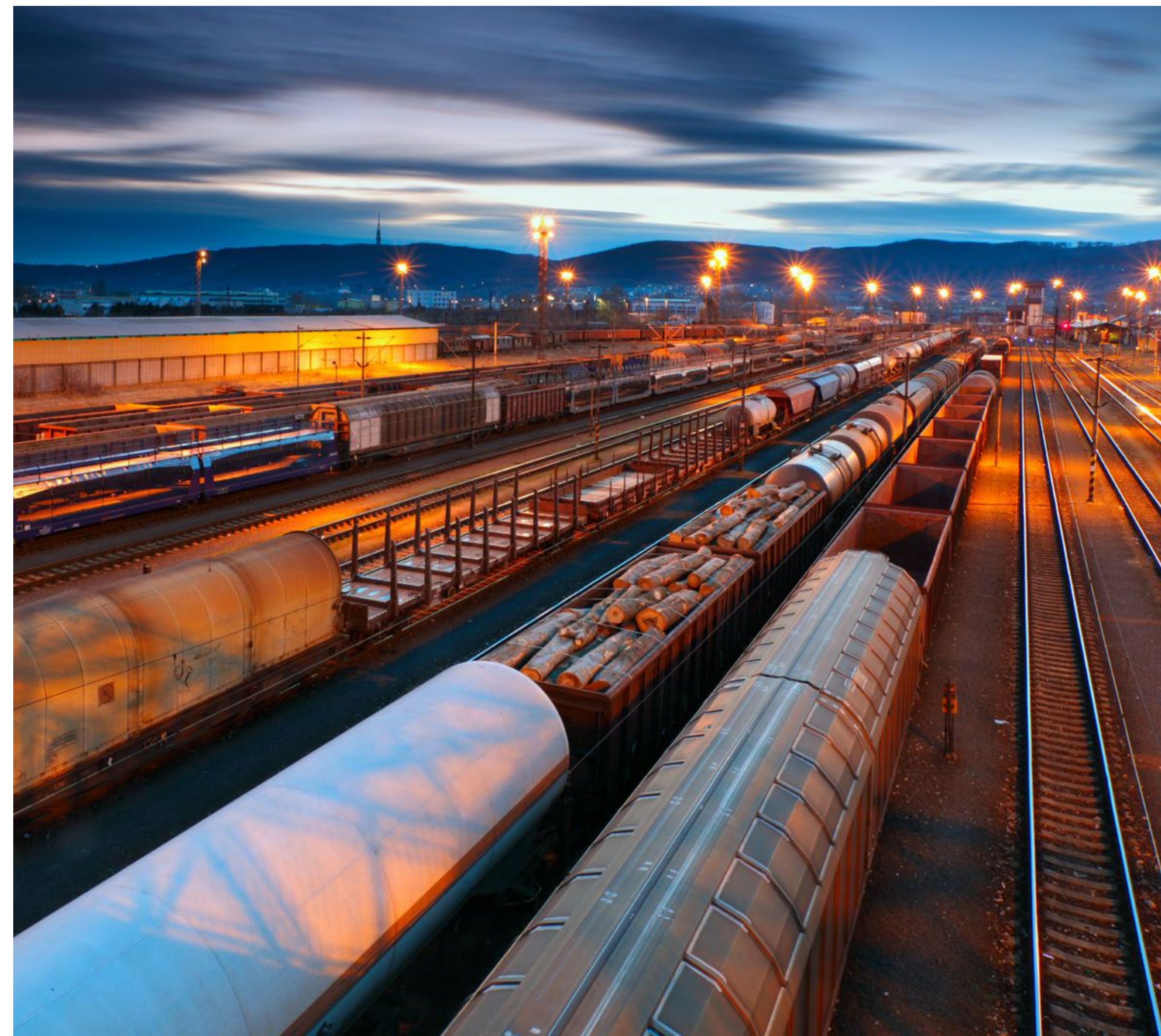


5.4.4.4 External managers and climate risk integration

Scheme assets are managed by a mixture of internal and external investment managers, although we have significantly reduced the number of external managers over the last few years. Railpen oversees the selection, appointment, and monitoring of external fund managers. Prior to appointment, an assessment of the external manager's approach to climate risk is conducted using Railpen's Manager Assessment Framework (MAF). External managers are expected to align with the schemes' climate exclusion lists, to factor climate risk into investment decision-making, and report to Railpen on portfolio climate risks. Additionally, if the external manager is managing assets within scope of the Net Zero Plan, the manager is asked to report on the portfolio's alignment to net zero³¹. These expectations are set out in Investment Management Agreements (IMAs), with the Trustee's Statement of Investment Principles (SIP) being appended to all IMAs.

The output of the MAF is an ESG risk score (ESG risk includes climate risk). To produce the score, Railpen sends a due diligence questionnaire to the external manager. Following review of the questionnaire response and additional analytics, a meeting is arranged to close information gaps and explore areas of concern. Railpen's External Manager team and Sustainable Ownership team members then assign an ESG score, using the assessment criteria in the MAF. A list of actions for follow-up and review is also created. Issues identified in the MAF process might lead to particular clauses in the IMA or side letter. Although many of our external managers score well in the MAF, we have noted some areas for improvement in the climate stewardship processes and objective-setting of some managers. We are in regular contact with those managers to close the remaining gaps.

³¹ Relevant external managers are signatories to the Net Zero Asset Managers (NZAM) initiative.



5.4.5 Climate opportunities

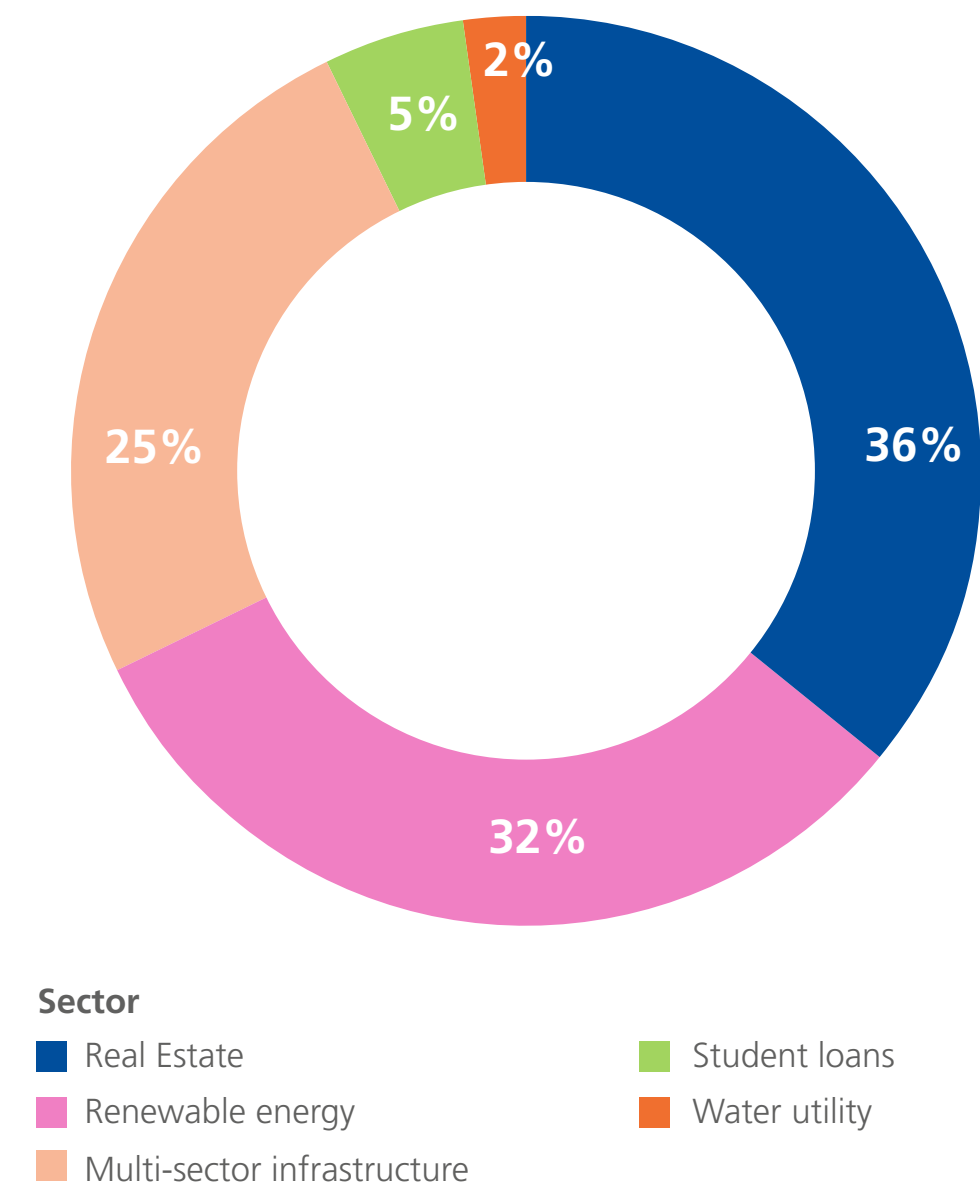
This section discloses information about how climate-related opportunities are identified, assessed and managed.

Climate change is likely to present new investment opportunities. These can include technologies that address climate mitigation (such as clean energy, energy efficiency, natural carbon stores), and climate adaptation (improved infrastructure resilience, and health, wellbeing and productivity solutions). The UK government's independent 2022 Climate Change Risk Assessment concluded that early adaptation investments deliver high value for money with benefit-cost ratios typically from 2:1 to 10:1 (i.e. every £1 invested in adaptation could result in £2 to £10 in net economic benefits^{32,33}). A 2022 government policy paper on British energy security strategy aims for 95% of UK electricity to be from low-carbon sources by 2030, and has relaxed some aspects of planning for renewable energy deployment³⁴. In identifying climate transition investment opportunities, investors need to attend to valuations to prevent investing beneficiaries' capital in a 'green bubble'.

Railpen's investment teams have been sourcing and investing in the climate transition for several years. Investment ideas are sourced within each individual teams' investment process, as best suits the particular asset class in question. The Long-Term Income Fund, for example, sources direct and indirect infrastructure investments into sectors likely to benefit from the UK's climate transition. As shown in figure 5.4.5.1, about 32% of the fund's investments are in renewable energy.

To date, given the importance of asset valuations noted above, Railpen's (and by association the Trustee's) approach to identifying climate opportunities has been bottom-up, as opposed to setting a top-down target for such investments. Further work on climate solutions is ongoing at Railpen, for example exploring the opportunity set for climate solutions within private markets, and being lead authors on the IIGCC's Climate Solutions Guidance for Listed Equity and Corporate Fixed Income, which was published in November 2023. There might also be investment opportunities arising in relation to biodiversity and natural capital and, to support this work, Railpen has become a member of the Taskforce for Nature-Related Financial Disclosure (TNFD) forum.

Figure 5.4.5.1: Investments in the Long-Term Income Fund by sector (as of December 2023)



³² [HM Government UK Climate Change Risk Assessment 2022](#)

³³ *For the avoidance of doubt, this is not an expectation about investment return.*

³⁴ [Policy paper: British Energy Security Strategy 2022](#)

6. Metrics, targets and the transition to net zero

6.1 Selection of metrics and targets, data availability and limitations

Pension schemes are required by Regulation to select certain climate metrics for the purposes of monitoring and reporting on climate-related risks. In addition, the Trustee is required to set at least one target in relation to at least one of the selected climate metrics. The Trustee has selected the metrics and targets indicated in figure 6.1.1. The Trustee's selection of climate metrics and targets will be reviewed from time to time, as appropriate. Further information on the metrics is available in [Appendix B](#). Since the publication of the previous TCFD report, the Trustee reviewed its metrics and resolved to retain the same metrics. We are also continuing to report this year on section-by-section climate metrics³⁵ (see [Appendix E](#)).

Figure 6.1.1: Trustee's selection of climate metrics

	Description	Selection rationale	Target
Total GHG emissions³⁶ (tCO₂e)	This is an absolute emissions metric that measures the total greenhouse gas emissions attributable to a portfolio	Recommended by statutory guidance	-
Carbon footprint (tCO₂e/ £m invested)	Also referred to as Financed Emissions , this is a common measure of emissions intensity and is interpreted as "the amount of GHGs emitted for each £m invested in the portfolio"	Recommended by statutory guidance By dividing emissions by the £m invested in the fund, the metric can be used to compare portfolios	25-30% reduction by 2025 50% reduction by 2030
Portfolio alignment (%)	Proportion of the portfolio ³⁷ , measured by AUM, aligned to a net-zero pathway. Defined in the statutory guidance as a ' binary target measurement '	<ul style="list-style-type: none">■ Forward-looking metric■ Simple to understand■ Linked to industry frameworks such as the Net Zero Investment Framework³⁸■ Conducive to investment stewardship activities, e.g. engaging portfolio companies for net-zero alignment	100% of the AUM in material sectors to be rated as 'aligning' or 'fully aligned' by 2040
Company engagement (%)	Proportion of the portfolio ³⁷ , weighted by financed emissions, being engaged	PCRIG's ³⁹ definition of best practice recommends disclosing a 'process-based' metric	70% of financed emissions under engagement (or already aligned to net zero) by 2020, rising to 90% by 2030

³⁵ For the avoidance of doubt, the Trustee's selection of metrics and targets apply to the railways pension schemes overall, and are the same for the underlying RPS and BTPFSF schemes and relevant DC arrangements.

³⁶ Scopes 1 and 2, as explained in this section.

³⁷ Considering companies that are the biggest contributors to the schemes' financed emissions in relevant investment portfolios, as still detailed below.

³⁸ Authored by the Paris Aligned Investing Initiative.

³⁹ Pensions Climate Risk Industry Group.



Data we have been able and unable to gather:

For the purposes of the 2023 TCFD report, the Trustee has obtained Scope 1 and Scope 2 GHG emissions data as far as able to do so⁴⁰. In addition, the Trustee has obtained Scope 3 GHG emissions data although, for Scope 3, data availability is lower, reliability is uncertain, and the risk of double-counting is significantly increased compared to Scopes 1 and 2. The total GHG emissions and carbon footprint metrics cover the schemes' investments in public equities and corporate fixed income, unless otherwise stated.

Whilst Railpen, on behalf of the Trustee, has begun to gather GHG data for property and private markets, we believe that the quality and availability of GHG data in these asset classes is, unfortunately not sufficiently mature for the production of useful metrics at this time. Unlike public markets, gathering GHG data for other asset classes remains time-consuming and costly and is not a good use of scheme members' money.

By way of example, property as an asset class suffers from missing data in tenant electricity and gas consumption, leading to a lack of tenant emissions data (tenant emissions often comprise the vast majority of a building's GHG emissions, so excluding tenant emissions from property metrics would undermine their usefulness). Similarly, private equity suffers from persistent data gaps as private companies are usually not required to publish GHG data. Whilst commercial GHG data providers offer estimations or proxies, these are challenged by the varying quality of estimation models, cost, and reliance on company financial data that might not be easily accessible.

This year, we have reported some data for the schemes' infrastructure assets ([see section 6.2.1](#)), covering five assets worth £388.5m in committed capital. We have been unable to gather GHG data for the remainder of the assets held in this pooled fund for a mixture of three reasons, which are (i) the data are too costly or time-consuming to derive, (ii) we are awaiting the result of commissioned analysis, or (iii) we have no right to access the GHG data for that asset. We hope to be able to report increased coverage in future TCFD reports.

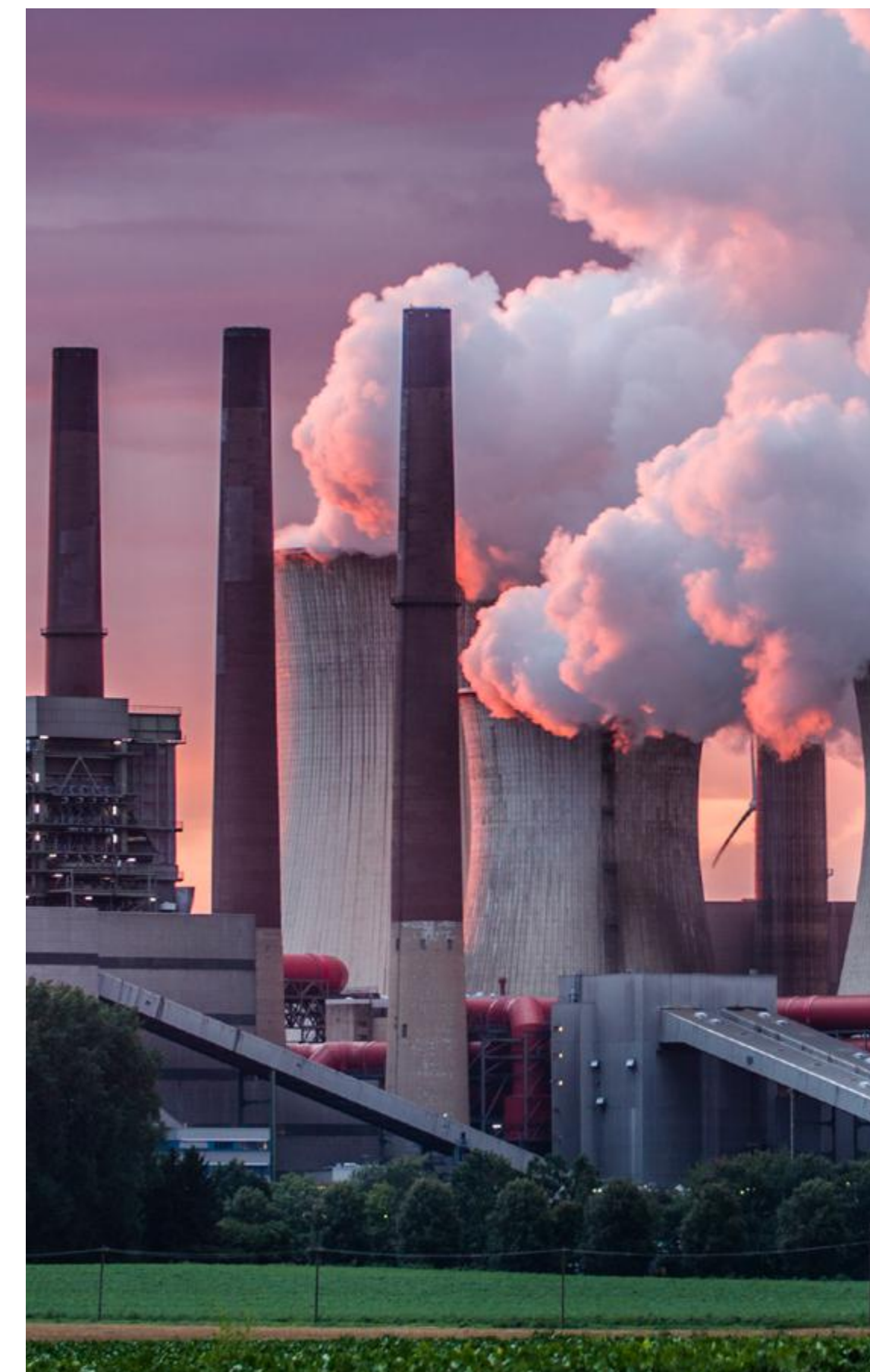
Despite the lack of available GHG data, the Trustee, and those acting on the Trustee's behalf, monitor and manage climate risks in property, private equity, and infrastructure portfolios, as detailed above. Railpen is a member of several initiatives and working groups with a remit to improve sustainability disclosure⁴¹. To the extent that they are able to do so, the Trustee aims to report GHG data for additional relevant asset classes in future TCFD reports.

We have reported some information in [section 6.2.2](#) in relation to the schemes' investments in sovereign bonds, and the associated GHG emissions and alignment status. Emissions data are sourced from what was the Department for Business Energy & Industrial Strategy. Gross Domestic Product (GDP) data are sourced from the Office for National Statistics (ONS). For methodological reasons, GHG emissions and alignment metrics associated with government bonds cannot be easily aggregated to public equities and corporate fixed income, and the information is therefore reported separately.

Methodology: For the total GHG emissions and carbon footprint metrics, emissions are apportioned to our portfolio based on the proportion of each portfolio company's enterprise value (including cash) owned by our portfolio. Using enterprise value (which comprises both equity and debt) to apportion emissions legitimises the aggregation of apportioned emissions across listed equity and corporate fixed-income investments. Further information on the metrics is available in [Appendix B](#).

Most of the reported GHG data relate to investments managed internally by Railpen, though several portfolios managed externally are also included in the analysis. The climate metrics for both internally and externally managed investments are calculated by Railpen using a consistent methodology and a consistent set of climate data service providers (i.e. it has not been necessary to combine distinct GHG data from several fund managers based on divergent methodologies).

Data quality and proportion of assets for which data was available (and on which we are reporting): Around three-quarters of the schemes' assets have some GHG data used and reported in this TCFD report. We have reported the data coverage and quality below; however, since our two data providers have different ways of reporting 'data quality', we are unable to report the proportion of the data that are 'verified' (as opposed to merely 'reported'). In addition, the Scope 3 dataset does not allow us to break down the data quality of Scope 3 data into 'verified', 'reported', and 'estimated'.



⁴⁰ GHG emission scopes are defined in the [Glossary](#). See category 15 emissions (investment emissions) in the GHG Protocol Technical Guidance for more information.

⁴¹ See [section 6.4.3](#)



Coverage and methodology of the alignment

metric: Consistent with last year’s TCFD report, the Trustee’s chosen alignment metric is a ‘binary target measurement’, calculated through company-specific analysis conducted by Railpen’s Sustainable Ownership team, using a proprietary CRIANZA assessment framework, explained in [section 5.4](#). This framework sets a high bar for a company to be described as ‘Aligning’ to net zero. The assessment is such that a company cannot be described as being aligned to the Paris Agreement merely by virtue of having set a quantitative target: any targets should be backed by a credible implementation plan and a demonstrable track record of executing the plan. Over-reliance on a target could lead to an under-appreciation of the level of risk faced by a company.

The Trustee’s alignment metric aims to cover portfolio companies constituting at least 70% of the financed emissions in material sectors across equities and corporate fixed-income portfolios⁴² (by stating coverage in terms of financed emissions rather than AUM, we prioritise assessing the largest emitters rather than simply the largest holdings by market value). Whilst we have commented on the alignment status of our investments in sovereign bonds in [section 6.2.2](#), this information is reported separately in that section given the different methodology used. We have not produced alignment metrics for unlisted asset classes because there is limited data available⁴³.

Methodology used to measure performance

against targets: The Trustee has selected climate targets as noted in [figure 6.1](#). These targets are consistent with Railpen’s targets in its Net Zero Plan (see [section 6.3](#)). Performance against the targets is explained below. The same methodology used in generating climate metrics is used to assess performance against targets. For example, to measure progress on the carbon footprint target, the same methodology is used to calculate the carbon footprint metric in the base year and in the current year, facilitating an observation of the rate of improvement. Measuring performance against targets is subject to the same degree of estimation as is present in the generation of climate metrics.

During 2023, two new strategies were implemented as part of the Growth Pooled Fund. In April 2023, the Energy Transition Portfolio (ETP) was established, which is an actively managed, concentrated public equity strategy. The portfolio invests in companies predominantly in the energy, utilities and materials sectors. Our Portfolio Management and Sustainable Ownership teams work closely together to assess and engage with each company, focused on credible climate transition plans and meaningful investor-investee dialogue.

In July 2023, Railpen announced that it had awarded a £2bn mandate to manage a liquid multi-asset credit strategy to Neuberger Berman – a private, independent, and employee-owned investment manager. The mandate establishes a strategic partnership between the two firms and will focus on investments across a broad range of credit sectors, covering both the investment grade and non-

investment grade space. The strategy aims to deliver attractive risk-adjusted returns, utilising Neuberger Berman’s extensive expertise in fixed income investing, and ESG proficiency.

Both of these strategies are likely to cause the overall sectoral and regional weights of the Growth Pooled Fund to change. Given the concentration of Scope 1 and Scope 2 emissions in certain sectors and regions – including the energy, utilities and materials sectors, for example – this will likely increase the GHG footprint of the Growth Pooled Fund in the near term. For both strategies, detailed climate and wider ESG analysis, combined with active ownership and corporate engagement, are central elements of the investment approach. This is to help ensure that the particular climate risks and opportunities of each strategy are well understood and effectively stewarded over time, with the goal that the emissions profile of these strategies fall in due course (noting performance amongst other performance indicators is also targeted and tracked).

The 2023 TCFD report produces climate metrics for investment holdings as of 31 December 2023⁴⁴. The base year is, however, December 2020 and the base year metrics are provided in [section 6.2](#).

Given the two significant and new strategies established in 2023, a comparison of performance against the targets and baseline year is difficult. In line with the industry guidance around re-baselining, including where sectoral and regional allocations have changed during the period under measurement, Railpen will develop a re-baselining framework that enables improved comparison over time, aiding transparency and accountability. In the interim, we

have shown 2023 metrics in [figure 6.2.1](#) both with, and without, the two strategies established in 2023. The first column shows performance on a ‘comparative basis to the base year’ (i.e. excluding the two strategies introduced in 2023), and the second column shows performance with those two new strategies included. The fourth column shows performance against both configurations, emphasising the former, which we believe to be a more reasonable comparison. In [figures 6.2.2](#) and [6.2.3](#), as well as [Appendix E](#), we have included the two strategies introduced in 2023 in all the metrics presented.

⁴² Following guidance from the Paris Aligned Investing Initiative’s Net Zero Investment Framework.

⁴³ As noted in the Statutory Guidance, “It is not meaningful for trustees to try to measure alignment for sections of the portfolio they do not have data for”.

⁴⁴ The company engagement coverage metric was in part calculated based on holdings as at 1 January 2023 given the engagement programme of focus companies is decided at the start of the year. In addition, the ETP holdings have been added to this metric as these holdings were added to the engagement plan when the portfolio was introduced in April 2023. Exact engagement coverage will vary throughout the year in part due to changes in holdings and underlying emissions.



6.2 Metrics and targets: 2023 data

The metrics and their values as of 31 December 2023 and the base year (December 2020) are as indicated in figure 6.2.1 (below).

Metric	2023 on comparative basis to the base year (A)	2023 including strategies incepted in 2023 (B)	Base year	Performance vs. A (vs.B)	Target
Total GHG emissions ⁴⁵ (tCO ₂ e)	632,481	951,711	1,191,915	-47% (-20%)	-
Carbon footprint (tCO ₂ e/ £m invested)	43	60	70	-38% (-14%)	25-30% reduction by 2025
Portfolio alignment (%)	3%	4%	1% ⁴⁶	+203% (+275%)	100% by 2040
Company engagement (%)	71% ⁴⁷		70%	+1%	70% today, rising to 90% by 2030

Figure 6.2.1: Total schemes’ climate metrics and targets, 2023

The 38% reduction in carbon footprint (excluding new strategies established during 2023) is suggestive of being on track to meet the 2025 target. The drivers of this rate of reduction are various, and not always due to actual, real-world emissions reductions in our underlying investments. We also note that carbon footprint can be a volatile measure, particularly over short time periods, and therefore, we try not to draw definitive conclusions when assessing over a relatively short time horizon. Including the new strategies introduced in 2023 leads to a 14% decrease in carbon footprint relative to the base year. The smaller decrease is materially driven by the sectoral and regional exposures in those new strategies, as described in

[section 6.1](#). As also highlighted in that section, in order to aid comparability with the base year, we plan to develop a re-baselining methodology in line with industry guidance.

The Trustee believes it is important that investors’ emissions reductions targets are driven as far as possible by activities that lead to emissions reductions in the real world (as opposed to changes in portfolio emissions driven by the act of one investor selling investments to another investor). The steps taken to achieve the climate targets are motivated by this belief. These steps are outlined in [section 6.4](#).

The portfolio alignment metric was calculated through a company-specific analysis conducted by Railpen’s Sustainable Ownership team, using the proprietary CRIANZA assessment framework explained in [section 5.4](#). This framework sets a high bar for a company to be described as ‘aligning’ to net zero, and the data shown in figure 6.2.1 reflects this. We note there has been some progress versus the prior year, however, the absolute level of alignment remains low.

⁴⁵ The Scopes 1 and 2 GHG emissions. Data Source: Bloomberg, MSCI (Disclaimer in [Appendix C](#)).

⁴⁶ The Alignment Metric was first computed in February 2022.

⁴⁷ Given the engagement programme of focus companies is decided at the start of the year, the holdings in the newly established portfolios were not necessary included in that initial plan. However, all of the companies within the ETP were subject to engagement during 2023, and the IMA for the Neuberger Berman strategy includes engagement requirements aligned to the above metrics and targets, including the minimum threshold of securities contributing 70% of financed emissions from material sectors in the strategy being either aligned to net zero or subject to engagement on an ongoing basis. The disclosed metric has been calculated to include all holdings including in the engagement plan at the start of 2023 (using their respective financed emissions at that time) together with the ETP holdings (using their respective financed emissions as at the end of 2023, in line with the other ETP-related disclosures in this report). The denominator used is a simple average of the total emissions at the start and end of 2023.



Figure 6.2.2: Climate metrics by pooled fund (as of 31 December 2023)⁴⁸

		Total GHG emissions ⁴⁹ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Portfolio alignment (%)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)	Scope 3 data quality: unavailable GHG data (%)
Defined Benefit Pooled Funds	Growth Pooled Fund ⁵⁰ <small>int, eq</small>	820,778	59	4	48	21	31	6,242,886	462	67	33
	Passive Equity Pooled Fund <small>ext, eq</small>	11,754	52	n/a	62	26	13	110,443	500	85	15
	Global Equity Pooled Fund <small>ext, eq</small>	46,807	91	n/a	73	22	5	381,628	770	91	9
	Non-government Bond Pooled Fund <small>ext, fi</small>	19,977	63	n/a	73	19	8	198,924	642	90	10
Defined Contribution Pooled Funds	DC Long-Term Growth Fund <small>int, eq</small>	37,661	59	4	48	21	31	286,448	462	67	33
	DC Global Equity Pooled Fund <small>ext, eq</small>	10,267	52	n/a	62	26	13	96,478	500	85	15
	DC Corporate Bond <small>ext, fi</small>	4,472	63	n/a	73	19	8	44,534	642	90	10

int internally managed portfolios

eq listed equity portfolios

ext externally managed portfolios

fi corporate fixed income portfolio

⁴⁸ As per explanation in [section 6.1](#), these data include the two strategies incepted in 2023.

⁴⁹ GHG scopes 1 and 2; Source: Bloomberg; MSCI (please see [Appendix C](#) for disclaimer).

⁵⁰ Includes listed equity investments in the Growth Pooled Fund only.

For the pooled funds, the data in figure 6.2.2 suggest that:

- The Global Equity Pooled Fund (an index-tracking strategy) is more emissions-intensive than the other equity pooled funds – whether managed on an alternate index-tracking, active or quantitative basis – potentially due to more emerging markets concentration
- The pooled funds investing in corporate fixed-income assets (Non-government Bond Pooled Fund and DC Corporate Bond Fund) are about as emissions-intensive as the pooled funds investing in listed equity, suggesting that asset class is not a driver of corporate carbon intensity in listed markets on this occasion
- There is the least data coverage for the Growth Pooled Fund, driven primarily by the allocations to asset classes outside the scope of current GHG emissions data collection, as explained in [section 6.1](#)
- There have been some material year-on-year movements, which highlights that GHG emissions-related metrics can be volatile measures and therefore it may be more reasonable to draw inferences on longer-term trends rather than short-term variations



Figure 6.2.3: Climate metrics by scheme (as of 31 December 2023)⁵¹

	Total GHG emissions ⁵² (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)	Scope 3 data quality: unavailable GHG data (%)
RPS	908,882	60	49	21	30	7,034,146	478	68	32
Of which DB sections	856,633	60	49	21	30	6,607,953	478	68	32
Of which BRASS	41,821	58	52	22	26	340,917	483	72	28
Of which AVC Extra	972	57	57	22	21	8,517	515	77	23
Of which IWDC	9,456	59	52	21	27	76,759	488	71	29
BTPFSF	38,384	59	48	21	31	292,123	463	67	33
Of which DB sections	38,177	59	48	21	31	290,380	462	67	33
Of which BRASS	115	57	53	22	25	959	489	73	27
Of which AVC Extra	91	59	56	21	23	784	519	75	25
BRSF	4,497	72	56	21	22	35,473	588	75	25
Of which DB sections	4,497	72	56	21	22	35,473	588	75	25

⁵¹ As per explanation in [section 6.1](#), these data include the two strategies incepted in 2023.

⁵² GHG scopes 1 and 2; Source: Bloomberg; MSCI (please see [Appendix C](#) for disclaimer).



6.2.1 Metrics: 2022 data – supplement on the Long-Term Income Pooled Fund

This year we have been able to gather GHG data for some infrastructure investments held in the Long-Term Income Pooled Fund. We have been able to include five assets covering £388.5m in committed capital. The data are shown in figure 6.2.1.1 (below).

Figure 6.2.1.1: Climate metrics for the Long-Term Income Pooled Fund (as of 31 December 2023)

	Total GHG emissions (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Portfolio alignment (%)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)	Scope 3 data quality: unavailable GHG data (%)
Long-Term Income Pooled Fund ⁵³	83,858	216	n/a	31%	0%	69%	14,494	68	17%	83%

Many of the assets in this fund are involved in the climate transition. As such they will create a net GHG ‘saving’ during their lifecycle (for example as renewable energy production (from our assets) displaces fossil fuel-based generation (from the grid)). However, such data are not reporting requirements and are not displayed in figure 6.2.1.1. In our view such assets represent significant climate opportunities.

⁵³ Two of the assets covered in Figure 6.2.1.1 are renewable biomass energy assets. The production of energy at these assets produces biogenic CO₂ emissions. These emissions are considered out of scope as the direct CO₂ emissions from these fuels are not included in the Scope 1 emissions factors (DEFRA, 2009).

6.2.2 Metrics: 2023 data – supplement on sovereign bonds

The schemes invest in UK government bonds. In 2022 (the most recent year for which the UK has reported 'final' GHG data), net territorial UK GHG emissions were 406m tCO₂e ^{54, 55}. GHG emissions in 2022 were around 9% lower than in 2019 (most recent pre-pandemic year), and have decreased by about 50% since 1990. It is interesting to note that domestic transport was the largest emitting sector, with the greatest contribution to those emissions coming from road-based travel. Rail travel represents one of the most carbon-efficient forms of transport based on carbon footprint of travel per distance⁵⁶.

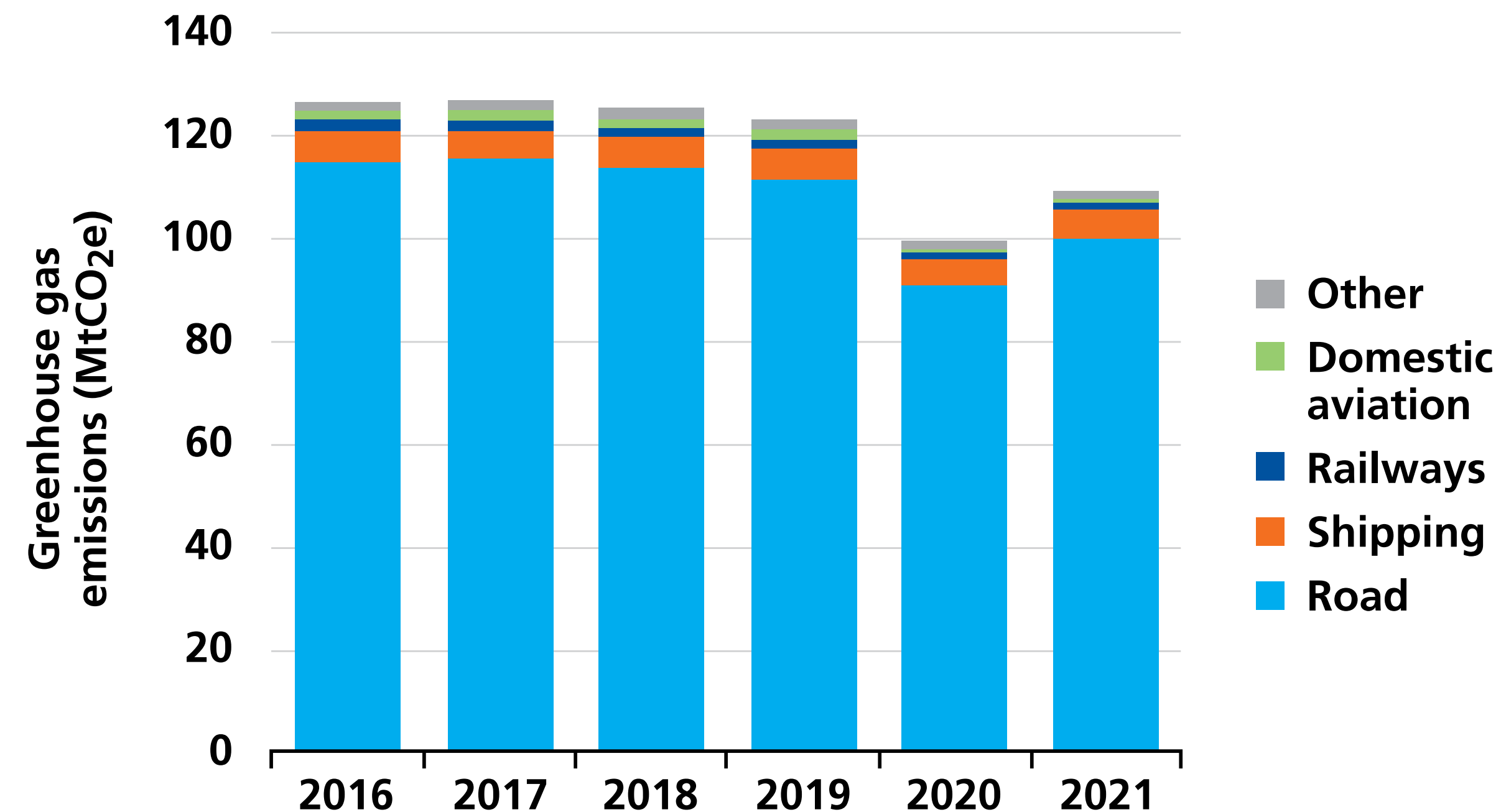
The 'carbon footprint' of the UK in 2022 was 190 tCO₂e per £m of UK economic activity on a residence basis⁵⁷.

In terms of an alignment metric, the UK has a target to be net zero by 2050, which the government states is consistent with its commitment under the Paris Agreement. The UK ranks 20th in the Climate Change Performance Index (CCPI) 2024⁵⁸, achieving a 'Medium' rating. CCPI assesses individual countries' climate protection efforts and performance. CCPI ranks the UK high in the GHG emissions and energy use categories, but low in renewable energy and climate policy. The authors of the CCPI state that no countries achieve their highest (i.e. best) rating, and on a global basis governments are not doing enough to prevent warming in excess of the ambitions laid out in the Paris Agreement.

The Trustee does not believe it is meaningful to combine data relating to sovereign bond investments with data for other asset classes. Climate scenario analysis suggests that the yields on UK gilts are unlikely to be significantly affected by climate change, suggesting that disclosure and action on other asset classes ought to take priority.

In line with its Net Zero Plan, Railpen engages with climate policymakers in the UK with the aim of supporting a just transition in line with the goals of the Paris Agreement. Some highlights of recent policy engagement are included in [section 6.4.2](#).

Figure 6.2.2.1: UK GHG emissions from domestic transport, 2016-2021



⁵⁴ [2022 UK Greenhouse Gas Emissions, Final Figures](#)

⁵⁵ [At the end of 2023 the RPS had £3.6bn invested in various types of UK government bonds.](#)

⁵⁶ [Which form of transport has the smallest carbon footprint? - Our World in Data, 2023, based on UK Government's Department for Energy Security and Net Zero.](#)

⁵⁷ [Greenhouse gas emissions, UK: provisional estimates, 2022](#) [Greenhouse gas emissions, UK - Office for National Statistics](#)

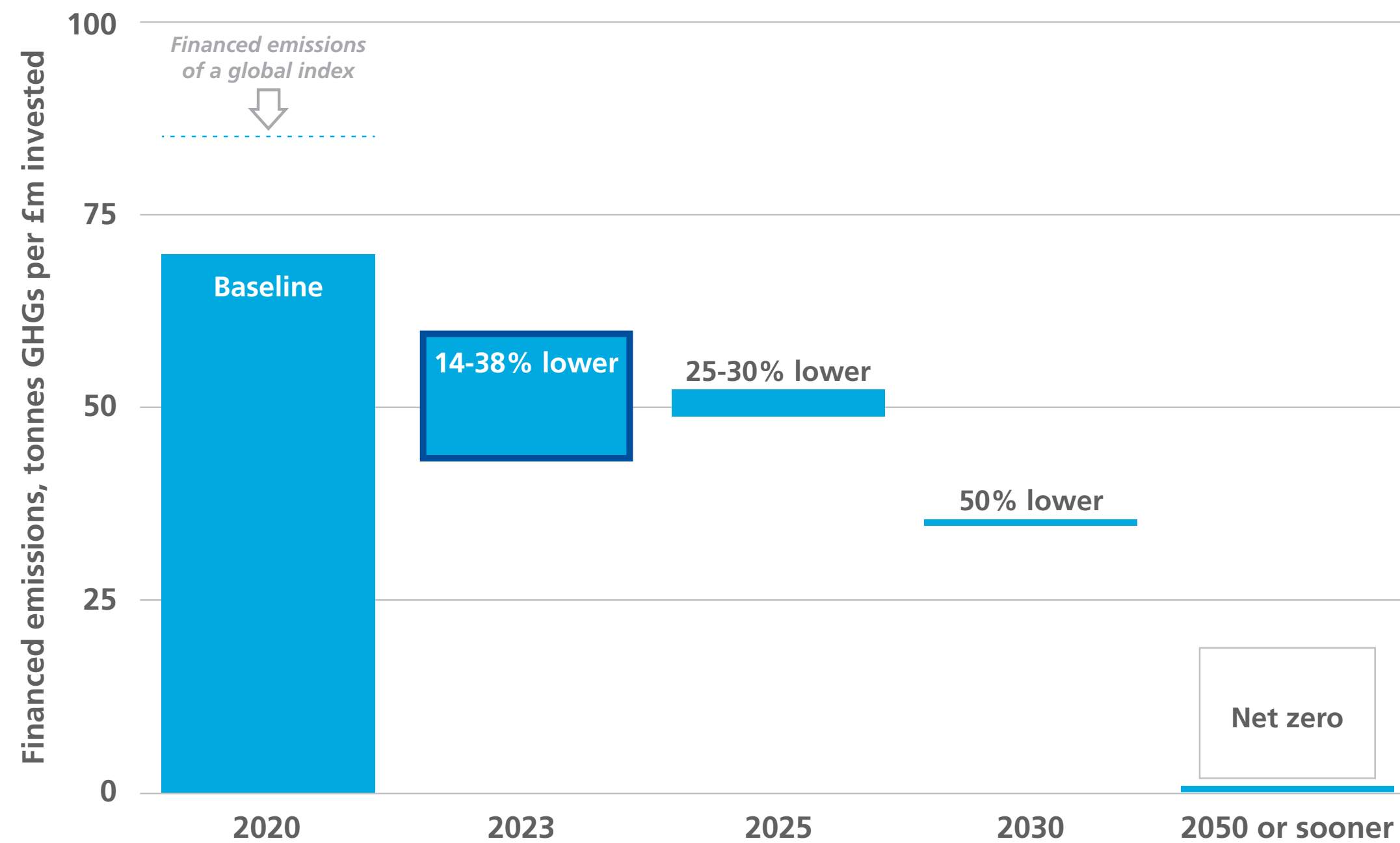
⁵⁸ [CCPI 2024 Country Ranking United Kingdom](#)



6.3 Net Zero Plan

The climate targets selected by the Trustee are consistent with those in Railpen's Net Zero Plan. The targets were developed by drawing on the Paris Aligned Investing Initiative's Net Zero Investment Framework, and other practitioner resources, including Partnership for Carbon Accounting Financials (PCAF) and the Institute for Sustainable Futures (ISF). For further information please refer to Railpen's Net Zero Plan⁵⁹.

Figure 6.3.1: Railpen's GHG reduction reference target⁶⁰



6.4. Net-zero stewardship

Whilst the ways in which climate-related risks play out is highly uncertain, the Trustee believes it is important to take actions that reduce climate-related risks, including through investment stewardship. Climate stewardship activities are taken on the Trustee's behalf, primarily by Railpen. Certain service providers and external fund managers also carry out investment stewardship activities for the Trustee. Done well, climate stewardship can, for example, help to manage the climate risks and opportunities faced by companies in the schemes' investment portfolios.

Further, as noted above, the Trustee believes it is important that investors' emissions reductions targets are driven as far as possible by activities – including stewardship activities – that lead to emissions reductions in the real world (as opposed to changes in portfolio emissions driven by the act of one investor selling investments to another investor). There is a causal connection between engaging companies for improved alignment, and reducing the carbon footprint

of the portfolio. Referring to the Trustee's targets set out in [section 6.1](#), the company engagement target supports the alignment target, which in turn supports the carbon footprint target (figure 6.4.1). At the present time, company engagement is the main step the Trustee is taking to achieve its climate targets.

If engagement proves unsuccessful, disinvestment will be considered. Any potential disinvestments will be weighed in the context of the broader mandate objectives.

Other steps available to the Trustee to achieve its climate targets include asset allocation changes, tightening the existing climate-related exclusions policies (for example lowering the threshold for the exclusion of thermal coal and tar sands companies from 30% of revenue), or updating mandates and re-negotiating investment management agreements to include climate targets alongside existing mandate objectives.

Figure 6.4.1: Relationship between climate targets



⁵⁹ [Railpen's Net Zero Plan](#)

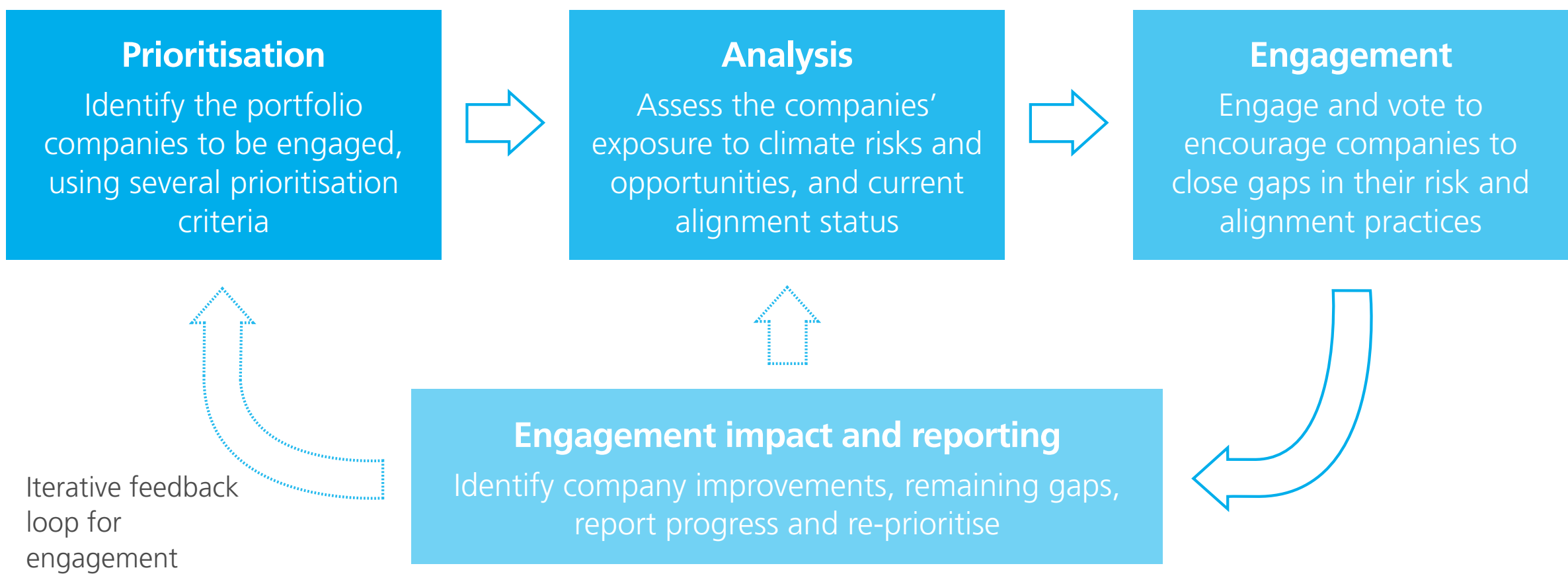
⁶⁰ Please refer to [sections 6.1](#) and [6.2.1](#) for detail around 2023 progress.

6.4.1 Net Zero Engagement Plan (NZEP)

Railpen has set out a Net Zero Engagement Plan (NZEP), the purpose of which is to deliver against the reference targets outlined in the Net Zero Plan (these targets are consistent with the Trustee's targets in [section 6.1](#)). By executing on the NZEP, Railpen is taking steps that support the achievement of the Trustee's climate targets.

The NZEP uses a four-step approach of prioritisation, analysis, engagement and voting, and reporting of the decarbonisation impact on portfolio companies (figure 6.4.1.1). This approach draws heavily on the Institutional Investor Group on Climate Change's (IIGCC) Net Zero Stewardship Toolkit, which provides investors with a foundational process to enhance their stewardship practices to deliver the rapid acceleration in decarbonisation required to achieve net zero by 2050⁶¹.

Figure 6.4.1.1: Four-step approach in Railpen's NZEP



The initial prioritisation of companies for engagement was based on priority portfolios, holding amounts, and financed emissions. However, prioritisation can be enhanced following analysis and/or engagement, so the NZEP operates an iterative feedback loop, as depicted in figure 6.4.1.1. Analysis and/or engagement can improve prioritisation through more informed

consideration of aspects such as the expected duration of the holding in Railpen portfolios, expected level of company access, and likelihood of achieving change. The prioritisation used in 2023 is summarised in figure 6.4.1.2 (below).

Figure 6.4.1.2: Prioritisation of companies within the NZEP

As a start of 2023:

	Tier 1	Tier 2	Total
Companies in scope for engagement (#)	30	18	48
Financed emissions (% of total in material sectors)	29%	21%	50%

After Energy Transition Portfolio inception:

	Tier 1	Tier 2	Total
Companies in scope for engagement (#)	39	18	57
Financed emissions (% of total in material sectors)	50%	21%	71%

As noted above, given the engagement programme of focus companies is established at the start of the year, the holdings in the newly-formed Energy Transition Portfolio (ETP) and Neuberger Berman mandate were not necessarily included in that initial plan. However, all of the companies within the ETP were subject to engagement during 2023, which led to an additional nine companies being targeted for Tier 1 engagement. In addition, the Investment Management Agreement

(IMA) for the Neuberger Berman mandate includes engagement requirements aligned to the above metrics and targets, including the minimum threshold of securities contributing 70% of financed emissions from material sectors in the strategy being either aligned to net zero or subject to engagement on an ongoing basis.

⁶¹ Railpen co-chaired the working group and co-authored the Net Zero Stewardship Toolkit.

The aim of the engagement phase of the NZEP is to align key emitters to a net-zero trajectory, adopt interim and long-term targets, and improve climate risk management. This is intended to be achieved through a combination of collaborative engagements (for example, via Climate Action 100+), direct engagements with companies, and public policy engagement.

Companies are allocated to tiers based on the form and substance of the engagement activity:

- **Tier 1** companies are subject to collaborative and/or direct engagement, including (as appropriate) meetings, calls, and written contact with management, investor relations and the company board. Shares are actively voted for all resolutions.
- **Tier 2** companies are analysed, monitored, and shares are actively voted. Climate policy engagements targeted on certain jurisdictions may be carried out.

The Net Zero Engagement Plan was introduced in 2022. As with last year's TCFD report, we present some early-stage engagement case studies in figures 6.4.1.3 (right) and [6.4.1.4](#).

Figure 6.4.1.3: A direct engagement case study for a US steel producer and US electric utility held in Railpen's quantitative equities portfolio

Background

We use our climate assessment framework to help us understand which climate issues could be most material to a portfolio company, and how well they're being addressed.

Within our Net Zero Engagement Plan, we engaged with companies such as Nucor, a large US-based steel producer, due to its high emissions footprint and intensity, and WEC Energy, a large US electric utility, due to its reliance on coal-fired generation.

Objective

We think companies should set clear, measurable targets and disclose the detailed plans they have in place to meet those targets. As proactive shareholders, we work hard to engage with the companies in our portfolio that are most exposed to material issues and risk. We also share the experiences and insights we've gained from other engagements we've had.

We aimed for both companies to adopt climate targets and to engage with them as they developed strategies to reach those targets.

Approach

Despite being a large contributor to our financed emissions, Nucor is also North America's largest recycler of scrap metal and a leading scrap broker. Significant use of electric arc furnace technology and a very prudent management team also

counterbalance its emissions footprint and intensity. We originally assessed the company as 'not aligned' to net zero in February 2022.

We focused our engagement with Nucor on areas including:

- Setting science-based interim and long-term net-zero targets for Scope 1, 2 and 3 emissions
- Improving climate disclosures, TCFD reporting and adopting the SASB framework
- Developing a decarbonisation strategy

WEC Energy has a strong management team committed to long-term emissions reduction and transitioning to a mix of renewables, nuclear and gas-fired power generation. This contributed to our assessment of it in 2022 as 'committed' to net zero.

We focused our engagement on areas including:

- Accelerating the phase-out of coal for power generation
- Setting net-zero targets, a decarbonisation strategy and increasing investment in renewables
- Improving climate governance

Outcome

During 2022-2023, both companies made good progress.

Nucor lowered the emissions intensity of its

steelmaking operations by:

- Gradually increasing its use of micro mills
- Reducing Scope 2 intensity by focusing on renewables power purchase agreements (PPAs) for electricity use
- Increasing recycling
- Investing in carbon sequestration
- Partnering on nuclear fusion technology

Along with other initiatives, these actions spurred us to upgrade our assessment of the company to 'committed'. Its Transition Pathway Initiative (TPI) management quality score has also improved from 2 to 3. And its TPI carbon performance assessment has improved as well.

WEC Energy made rapid progress on its climate disclosures, including TCFD reporting and scenario analysis. It has also:

- Accelerated targets for coal phase-out from 2035 to 2030
- Increased renewables investments from 2022 to 2026
- Improved Board oversight on climate

Next steps

Across both companies, our next steps include encouraging continued improvements in areas such as governance, climate links to pay, just transition considerations and capital allocation.



Figure 6.4.1.4: Collaborative engagement case study for a US-based utilities business held in Railpen's fundamental equities portfolio

Background

US-based NextEra is one of the world's largest electric utilities and is significantly exposed to the risks of the climate transition. However, if it can also seize the opportunities, we believe it can be part of the solution. Therefore we wanted to engage with the company to better understand its approach and highlight our concerns on specific issues.

Given its climate profile and material positioning in our portfolios, NextEra is one of our Net Zero Engagement Plan priority companies. In 2022, it announced its plan for 'Real Zero', which included emissions reduction targets, and committed to significantly increasing its use of renewable energy. We've identified climate lobbying as a key thematic priority across our portfolios, and also a priority issue for NextEra, in particular. In addition, we're part of the climate lobbying working group, a thematic activity within the Climate Action 100+ initiative. Accordingly, a focus of our engagement with NextEra has been on disclosure around climate policy and lobbying.

Objective

We aimed to highlight the importance of climate lobbying disclosure, especially in a US context, and encourage improved practices. At the same time, we wanted to direct NextEra to best practice guidelines and resources on the topic.

Approach

Together with the other CA100+ participants, we raised climate lobbying with the company. This included using the lever of co-filing a shareholder resolution at the end of 2022 to request a public disclosure report.

By engaging constructively, we were able to highlight examples of peer disclosures, including the utilities companies Dominion and NRG. We shared Ceres guidance on responsible lobbying standards and the global standard on responsible climate lobbying. We also connected NextEra with InfluenceMap, who assess corporate climate lobbying practices and disclosures.

NextEra responded well to our engagement.

The company indicated it was happy to provide the disclosures we requested, allowing the lead resolution filer to withdraw ahead of the AGM. The company committed to liaising with the co-filers in the summer of 2023.

Outcome and next steps

Our engagement with NextEra has continued, but slowed partly because of personnel changes at the company. To escalate engagement and reflect concerns at the lack of progress, we co-filed a second resolution in 2023.

We continue to have constructive dialogue on lobbying and wider ESG issues and hope to see improved disclosure soon.



6.4.2 Climate policy engagement

Successful climate policy is crucial to support companies, investors, and consumers in transitioning to a low-carbon economy. Railpen continued its policy advocacy activities in 2023, promoting progressive climate action towards a goal of net zero by 2050, or sooner.

Railpen focuses its policy engagement activities on an assessment of the importance of the topics to Railpen's overall Net Zero Plan and its Net Zero Engagement Plan, and in recognition of our greater likelihood of influencing domestic policymakers given our relationships with UK policymakers as a UK pension scheme.

Following on from policy engagement conducted in prior years, Railpen's 2023 policy work and interventions were focused on:

- Simple and consistent disclosure of climate change information
- Disclosure of climate lobbying activities – both direct and indirect – and alignment of those activities with the goals of the Paris Agreement
- The development and disclosure of credible climate transition plans
- Taking a holistic approach to climate risk, including 'just transition' considerations

In 2023, Railpen submitted written responses to select climate-related consultations and calls for evidence or information, including:

- Financial Reporting Council (FRC) call for evidence on the UK endorsement of IFRS S1 and S2
- International Sustainability Standards Board (ISSB) request for information on agenda priorities
- Principles of Responsible Investment (PRI) in a Changing World signatory consultation
- Assessing of Sovereign Climate-related Opportunities and Risks (ASCOR) framework indicators and assessments

Railpen's consultation responses are published on the Railpen website⁶².

Railpen was also involved in the writing of several industry guidance documents and frameworks, including:

- UK Transition Plan Taskforce (TPT) Disclosure Framework and Asset Owners Sector Guidance
- Institutional Investor Group on Climate Change (IIGCC) Climate Solutions Guidance
- IIGCC Net Zero Bondholder Stewardship Guidance

Through 2024, Railpen intends to continue its policy engagement in existing priority areas.

6.4.3 Industry initiatives

RPTCL and Railpen are members of a range of industry initiatives. This supports our ambitions to have a positive influence on the climate policy agenda, advance Railpen's aims in its Net Zero Plan, and promote good practice in the investment industry.

In 2023, RPTCL and Railpen have collaborated closely with peer asset owners and industry initiatives in support of the finance industry's push towards net zero. Amongst other activities, we:

- Continued to co-Chair the Investor Practices Programme within the Institutional Investor Group on Climate Change (IIGCC)
- Continued to be a member of the Global Steering Group of the Paris Aligned Investing Initiative (PAII)
- Participated as a member of the Steering and Advisory Committee for the Transition Pathway Initiative (TPI)
- Participated in the UK Transition Plan Taskforce (TPT) Delivery Group
- Participated in the Climate Financial Risk Forum (CFRF)
- Co-chaired the IIGCC's Climate Solutions Working Group
- Chaired and helped launch the IIGCC's Bondholder Stewardship Working Group
- Contributed to conferences, webinars, and articles supporting investors looking to set and deliver against net-zero targets

Industry collaborations



⁶² [Railpen - Engagement](#)



Glossary

- **Aligned to Net Zero.** A company which, though it might currently be an emitter of GHGs, has a credible commitment to be net zero by 2050 or sooner.
- **Asset class.** A category of financial instruments, constituents of which share similar characteristics. Examples of asset classes include equities (stocks), bonds (fixed income), private equity, infrastructure, and property.
- **AUM.** Assets under management – an amount of money managed or invested.
- **CA100+.** Climate Action 100+, a global investor engagement initiative, seeking improved climate disclosure and practice by c.170 of the most systemically important GHG emitters.
- **Carbon footprint.** In this report, carbon footprint refers to greenhouse gases (GHG) associated with some particular investment portfolio, measured in terms of the amount of GHGs emitted per £m invested. See [Appendix B](#) for more information.
- **Climate solutions.** Goods and services involved either in mitigating the harmful effects of climate change or in providing climate resilience.
- **Engagement.** Communicating with a person or organisation with the aim of raising an issue or achieving change.
- **ESG.** The collective term for referring to 'environmental, social and governance' issues.
- **Financed emissions.** GHG emissions that result from activities in the real economy financed by an investor's lending and investment portfolios. In our Net Zero Plan, Railpen's financed emissions are normalised relative to the amount of capital invested, and expressed as tCO₂e/£m invested. This is referred to by PCAF (a global partnership of financial institutions that work together to develop and implement a harmonised approach to assess and disclose the greenhouse gas (GHG) emissions associated with their loans and investments) as 'Economic Emissions Intensity', (see PCAF (2020), The Global GHG Accounting and Reporting Standard for the Financial Industry).
- **GHG emissions.** 'Greenhouse gas' emissions relate to the emissions of gases that are capable of absorbing infrared radiation and thereby trapping within the atmosphere. The 1997 Kyoto Protocol defines six gases as GHGs: Carbon dioxide, Methane, Nitrous Oxide, Hydrofluorocarbons, Perfluorocarbons, and Sulphur Hexafluoride.
- **IIGCC.** Institutional Investors Group on Climate Change.
- **Material sectors.** Sectors defined as material according to the Paris Aligned Investing Initiative's Net Zero Investment Framework. They are sectors with 'NACE' codes A-H and J-L, where NACE is the European statistical classification of economic activities. Please also refer to [Appendix E](#) to Railpen's Net Zero Plan.
- **Net zero.** A state in which the GHG emissions put into the atmosphere are approximately equal to the GHG emissions taken out of the atmosphere. In this document, 'net zero' typically refers to the emissions associated with companies in Railpen's investment portfolio.
- **Paris Agreement.** The Paris Agreement on climate change is a 2015 global accord seeking to keep the rise in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C. As of 2021, the Paris Agreement has been signed by 191 countries, and ratified by 186 countries.
- **Physical risks.** Physical risks are those that pertain to the physical impacts that occur as the global average temperature rises. For example, the rise in sea levels could have impacts such as flooding and mass migration. Extreme weather events, such as flooding and fires, could become more frequent and severe, and these incidents could threaten physical assets and disrupt supply chains.



- **Regulations.** Occupational Pension Schemes (Climate Change Governance and Reporting) Regulations 2021, Occupational Pension Schemes (Climate Change Governance and Reporting) (Miscellaneous Provisions and Amendments) Regulations 2021, and Occupational Pension Schemes (Climate Change Governance and Reporting) (Amendment, Modification and Transitional Provision) Regulations 2022.
- **RPTCL.** Railways Pension Trustee Company Limited, the corporate trustee of the railways pension schemes.
- **Scope 1 GHG emissions.** An organisation's direct GHG emissions. These might be created as an organisation combusts fossil fuels, or uses fuel in transportation.
- **Scope 2 GHG emissions.** An organisation's emissions associated with the generation of purchased electricity, heating / cooling, or steam for own consumption.
- **Scope 3 GHG emissions.** An organisation's indirect emissions other than those covered in Scope 2. This includes the emissions associated with an organisation's supply chain and its customers.
- **SO.** Sustainable Ownership. The term Railpen uses to describe the incorporation of sustainability factors (including climate change) into the way it invests members' money.

- **Statutory guidance.** Guidance issued by the Department for Work and Pensions named 'Governance and reporting of climate change risk: guidance for trustees of occupational schemes'.
- **Stewardship.** Stewardship involves using tools such as engagement, voting and advocacy as ways to shape corporate behaviour.
- **Transition risks.** Transition risks arise as we seek to realign our economic system towards low-carbon, climate-resilient solutions. Changes in industry regulation, consumer preferences and technology will take place and impact on current and future investments.
- **Trustee.** Railways Pension Trustee Company Limited (RPTCL), the corporate trustee of the railways pension schemes.
- **Voting, a vote.** Being a shareholder in a company (usually) gives the opportunity to vote on company matters at meetings such as an Annual General Meeting (AGM). The issues we can vote on include executive pay, the election of board directors, a climate change plan, and the financial report and accounts.



Appendix A: Index of statutory reporting requirements



DWP statutory guidance reference	Reporting requirement	Report section
Governance		
33	In relation to the governance disclosure requirements, trustees must describe in their TCFD report:	
	■ how they maintain oversight of climate-related risks and opportunities which are relevant to the scheme;	4.2
	■ the roles of those undertaking scheme governance activities in identifying, assessing and managing climate-related risks and opportunities relevant to those activities;	4.5
	■ the processes the trustees have established to satisfy themselves that those undertaking scheme governance activities take adequate steps to identify, assess and manage those risks and opportunities;	4.2; 4.4; 4.6; 4.7
	■ the role of those advising or assisting the trustees with scheme governance activities; and	4.5
	■ the processes the trustees have established to satisfy themselves that the person advising or assisting takes adequate steps to identify and assess any climate-related risks and opportunities which are relevant to the matters on which they are advising or assisting.	4.2; 4.4; 4.6; 4.7



DWP statutory guidance reference	Reporting requirement	Report section
Governance		
34	To help contextualise these disclosures, trustees should concisely describe: <ul style="list-style-type: none">how the board and any relevant sub-committees are informed about, assess and manage climate-related risks and opportunities and the frequency at which these discussions take place;	4.7
	<ul style="list-style-type: none">whether they questioned and, where appropriate, challenged the information provided to them by others undertaking governance activities – or advising and assisting with governance; and,	4.2; 4.6; 4.7
	<ul style="list-style-type: none">the rationale for the time and resources they spent on the governance of climate-related risks and opportunities.	4.7
35	Trustees should also concisely describe, in relation to those who undertake governance activities, or advise or assist with governance of the scheme: <ul style="list-style-type: none">the kind of information provided to them by those persons about their consideration of climate-related risks and opportunities faced by the Scheme; and,	4.5; 4.7
	<ul style="list-style-type: none">the frequency with which this information is provided.	4.5; 4.7
	Trustees should describe the training opportunities they provided for their employees in relation to climate change risks and opportunities. Where trustees identified skills gaps, they may also describe whether they encouraged external advisers to provide training opportunities.	4.6
37	Trustees may wish to provide an organogram or structural diagram in their TCFD report, showing which groups / individual roles have responsibilities for governance of climate-related risks and opportunities. This may include executive officers, in-house teams and / or third parties engaged by the trustees. For the avoidance of doubt, there is no expectation that this would involve disclosing personal data of individuals.	4.5

DWP statutory guidance reference	Reporting requirement	Report section
Strategy		
92	Trustees must describe in their TCFD report: <ul style="list-style-type: none">the time periods which the trustees have determined should comprise the short term, medium term and long term;	5.1.2
	<ul style="list-style-type: none">the climate-related risks and opportunities relevant to the scheme over the time periods that the trustees have identified and the impact of these on the scheme's investment strategy and, where the scheme has a funding strategy, the funding strategy;	5.2, 5.3, 5.4
	<ul style="list-style-type: none">the most recent scenarios the trustees have used in their scenario analysis;	5.1.1
	<ul style="list-style-type: none">the potential impacts on the scheme's assets and liabilities which the trustees have identified in those scenarios and, if the trustees have not been able to obtain data to identify the potential impacts for all of the assets of the scheme, why this is the case;	5.3, 5.4
	<ul style="list-style-type: none">the resilience of the Scheme's investment strategy and, where the scheme has a funding strategy, the funding strategy, in the most recent scenarios the trustees have analysed; and	5.3, 5.4
	<ul style="list-style-type: none">where trustees have concluded that it is not necessary to undertake new scenario analysis outside the mandatory cycle, the reasons for this determination.	5.1



DWP statutory guidance reference	Reporting requirement	Report section
Strategy		
93	Trustees should also describe in their TCFD report: <ul style="list-style-type: none">■ their reasons for choosing the scenarios they have used; and	5.1.1
	<ul style="list-style-type: none">■ the key assumptions for the scenarios used and the key limitations of the modelling (for example, material simplifications or known under/over estimations); and	5.1.1, 5.3, 5.4
	<ul style="list-style-type: none">■ any issues with the data or its analysis which have limited the comprehensiveness of their assessment (see section on “as far as they are able” at Part 2 of the Statutory Guidance, paragraphs 1 to 11 above)	5.1.1, 5.3, 5.4.2, 5.4.3
94	Trustees may include information in their TCFD report on any other aspects of the assessment of their investment strategy and, if they have one, funding strategy and scenario analysis that they consider would be helpful to disclose.	n/a

DWP statutory guidance reference	Reporting requirement	Report section
Risk management		
113	Trustees must describe in their TCFD report the processes they have established for identifying, assessing and managing climate-related risks in relation to the scheme, and how the processes are integrated within the trustees’ overall risk management of the scheme.	4, 5.1-5.4
114	The report should also include concise information on the following: <ul style="list-style-type: none">■ the risk tools the trustees used and the outputs / outcomes of using those particular tools;	4, 5.1, 5.4.4.2
	<ul style="list-style-type: none">■ how the trustees have identified, assessed and managed both transition and physical risks for the scheme, and	5.1-5.4
	<ul style="list-style-type: none">■ how the trustees’ assessment of climate-related risks has impacted the scheme’s prioritisation and management of risks which pose the most significant potential for loss and are most likely to occur.	4, 5.3.2, 5.4.4.1
115	Trustees should include information on how, if at all, they have used stewardship to help manage climate-related risks to the scheme. The TCFD provides brief supplemental guidance on engagement activity and risk.	6.4
116	Disclosing information about how climate-related opportunities are identified, assessed and managed is encouraged as this will add further insights for members and others into the Scheme’s overall approach to climate-related risk.	5.4.5



DWP statutory guidance reference	Reporting requirement	Report section
Metrics and targets		
175	Trustees must describe in their TCFD report the metrics which they have calculated – absolute emissions metric, emissions intensity metric, portfolio alignment metric and an additional climate change metric. If they have been unable to obtain data to calculate the metrics for all of the assets of their scheme, they must explain why this is the case.	6.1
176	When disclosing their portfolio alignment metric, trustees should describe the key components of the methodology (for example, key judgements, assumptions, data inputs and where relevant how the chosen methodology accounts for data gaps) used to calculate their chosen metric.	5.4, 6.1, 6.2
177	If the trustees have chosen to use a metric which is not recommended in this Guidance, they should explain why.	n/a
178	For all metrics, trustees should concisely explain their methodologies and those of any asset managers or third party service providers used, and their rationale for taking the approach that has been adopted.	6.1
179	When reporting total GHG emissions and Carbon Footprint, trustees should report the proportion of assets for which data was available. Trustees should concisely explain where data was estimated, and should indicate any assumptions that have been made that could impact significantly on the results. Where they have data of uncertain quality, trustees should again concisely explain this.	6.1
180	Where trustees report metrics on only a proportion of the portfolio, they should explain the proportion on which they are reporting.	6.1
181	When reporting total GHG emissions and Carbon Footprint, trustees should set out the Scope 1 and Scope 2 emissions of assets separately from the Scope 3 emissions of assets for each DB section and each popular DC arrangement. Trustees may additionally report the Scope 1 and Scope 2 emissions of assets separately. Emissions should be reported in amount of CO ² equivalent (CO ² e).	6.2

DWP statutory guidance reference	Reporting requirement	Report section
Metrics and targets		
182	If trustees believe that it is not meaningful, in relation to any metric, to aggregate data across certain asset classes, they should not do so, but should instead report at the most aggregated level which remains meaningful (for example at asset class level). If this approach is necessary, they should also report the proportions of the scheme assets associated with each reported metric (in the above example, the proportion of the portfolio represented by each asset class).	6.2
183	Trustees may choose to disclose some or all of their chosen metrics against a relevant benchmark to identify the relative performance of the portfolio.	n/a
193	Trustees must describe in their TCFD report the target they have set, and the performance of the scheme against the target.	6.1, 6.2
194	Trustees should report concisely on the steps they are taking to achieve the target or targets.	6.3, 6.4
195	Trustees should provide a concise description of the methodology used to measure performance against the target or targets, including any estimations relied upon in measuring progress.	6.1
196	Where trustees have replaced a target, they should briefly explain why. Similarly, where a target has been missed, trustees should offer a brief explanation. Such explanations could help savers and others understand the trustees' conclusions on the events or circumstances that made the target unachievable or not in members' interests.	n/a



Appendix B: Further information in relation to selected climate metrics

Total Greenhouse Gas Emissions (GHG)

What is it?

This metric measures the total greenhouse gas emissions attributable to a portfolio. Trustees are recommended to report this number, covering at least scopes 1 and 2 GHGs.

Equation

$$\sum_i^n \left(\frac{\text{value of investment}}{\text{enterprise value incl. cash}_i} * (\text{scope 1} + \text{scope 2 GHGs})_i \right)$$

Equation in plain English

To calculate this metric, you assess the proportion of a company you own, let’s say 1%. Then you work out the company’s annual GHG emissions, let’s say 100 tonnes of CO²e. Then you apportion yourself your share of the company’s emissions, in this case 1 tonne of CO²e. You repeat this exercise for all the companies in the portfolio, and add up all the apportioned emissions.

Advantages over other metrics	Potential drawbacks
Simple to calculate	No normalisation between funds. The larger the investor, the larger the total emissions figure
Easy to communicate	Difficult to translate into exposure to climate risk
Enables trustees to set a baseline for climate action and to understand the climate impact of their investments	Might not be decision-useful

Carbon footprint

What is it?

Also referred to as financed emissions, this is the most common measure of portfolio carbon footprint. The interpretation of the metric is ‘the amount of GHGs emitted for each £m invested in the portfolio’. Considering public equities and public fixed income, Railpen’s carbon footprint was c.70 tonnes GHGs per £m invested at the end of 2020. Trustees are recommended to report this metric.

Equation

$$\frac{\sum_i^n \left(\frac{\text{value of investment}}{\text{enterprise value incl. cash}_i} * (\text{scope 1} + \text{scope 2 GHGs})_i \right)}{\sum \text{Assets under management}}$$

Equation in plain English

To calculate this metric, you follow the same steps as for Total Greenhouse Gas Emissions (see left), then divide by your total AUM in £m.

Advantages over other metrics	Potential drawbacks
Can be used to compare asset classes and portfolios to one another and to a benchmark	Uses a scheme’s proportional share of equity and debt – an increase in share prices, all else equal, would result in a decrease in the scheme’s total emissions
Using the portfolio market value to normalise data is fairly intuitive to investors	Metric does not effectively account for differences in carbon efficiency across companies which are vastly different in size
Metric allows for portfolio decomposition and attribution analysis	

Portfolio alignment metric: Proportion of portfolio invested in companies aligned to net zero

What is it?

Portfolio alignment metrics provide a forward-looking metric that can be applied to a wide range of industries, companies and asset classes. Such metrics estimate expected future emissions associated with a given investment portfolio, fund or investment strategy. Portfolio alignment disclosure using binary targets can help trustees make a forward-looking assessment of an asset owner portfolio and overall investment strategy.

Equation

$$\sum \textit{Weight of portfolio companies assessed as ‘aligning’ or ‘fully aligned’}$$

Equation in plain English

To calculate this metric, you need to assess the ‘alignment’ status (i.e. alignment to a net-zero outcome) of each portfolio company. Then you need to add the weights of the companies categorised as either ‘aligning’ or ‘fully aligned’.

Advantages over other metrics	Potential drawbacks
Lack of widely available, high quality, historical climate-related information, creates the need for forward-looking metrics	Simple metric
Addressing the increasing regulatory expectations, looking to provide a forward-looking assessment	Further work will be needed to improve forward looking quality
Portfolio alignment metric allows for a simple representation of status across portfolios and incorporate ongoing changes in company alignment through engagement and climate data developments	

Proportion of portfolio where companies are being engaged on climate issues (process-based metric)

What is it?

Engagement is a key route through which trustees can reduce their exposure to climate change risk. The investments they make give them not just voting rights but significant influence over the direction of a company. Asset managers should be using this influence to manage the scheme’s exposure to climate change risks and opportunities, highlighting any concerns about the direction of a firm during engagement activity that they undertake. This metric allows a trustee to assess the extent to which an asset manager is prioritising engagement and/or voting on the topic of climate change. Selection of this metric is recommended in the Pensions Climate Risk Industry Group’s (PCRIG) definition of best practice.

Equation

$$\sum \textit{Weight of portfolio companies being engaged on climate change}$$

Equation in plain English

To calculate this metric, you need to identify all companies in the portfolio being engaged on climate change. Then you need to add the weights of the companies that are under engagement.

Advantages over other metrics	Potential drawbacks
Does not require company-disclosed climate data	Binary measure of engagement with no measure of influence on company direction
Useful for monitoring asset managers	Can be subject to ‘greenwashing’



Appendix C: MSCI disclaimer

This disclosure was developed using information from MSCI ESG Research LLC or its affiliates or information providers. Although Railpen's information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the 'ESG Parties'), obtain information (the 'Information') from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for your internal use, may not be reproduced or disseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Further, none of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.



Appendix D: Principles for effective disclosures

#	Principle
1	Disclosures should present relevant information specific to the potential impact of climate-related risks and opportunities on the scheme avoiding generic or boilerplate disclosures that do not add value to members' understanding of issues.
2	Disclosures should be specific and sufficiently complete to provide a thorough overview of the scheme's exposure to potential climate-related impacts and the trustees' governance, strategy and processes for managing climate-related risks and opportunities.
3	Disclosures should be clear and understandable showing an appropriate balance between qualitative and quantitative information.
4	Disclosures should be consistent over time to enable scheme members to understand the development and/or evolution of the impact of climate-related issues on the scheme.
5	Disclosures should ideally be comparable with other pension funds of a similar size and type.
6	Disclosures should be reliable, verifiable and objective.
7	Disclosures should be provided on a timely basis. The TCFD recommends annual disclosures for organisations.

Source: Adapted from the TCFD Final Report, Annex: Implementing the Recommendations of the TCFD (June 2017) *'Appendix 3: Fundamental Principles of Effective Disclosure'* (Page 51).

Appendix E: GHG metrics by section

	Total GHG emissions ⁶⁴ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 Data quality: reported + estimated GHG data (%)
RPS ⁶³								
1994 Pensioners	84,288	73	56	21	22	665,439	591	75
Abellio	582	59	48	21	31	4,427	462	67
Abellio East Midlands	14,197	59	48	21	31	107,986	462	67
AECOM	675	59	48	21	31	5,135	462	67
Alpha Trains	49	59	48	21	31	370	462	67
Alstom Railways	3,462	58	68	22	10	33,661	576	88
Alstom Signalling	700	59	48	21	31	5,327	462	67
Alstom UK	1,301	59	48	21	31	9,899	462	67
Alstom UK C2C	224	59	48	21	31	1,702	462	67
Alstom UK Signal	642	52	62	26	13	6,068	500	85
AMCO	13	59	48	21	31	96	462	67
Angel Trains	1,963	59	48	21	31	14,943	462	67
Anglia Railways	4,214	59	48	21	31	32,051	462	67
AtkinsRéalis	5,068	59	48	21	31	38,550	462	67
AtkinsRéalis Rail & Transit	1,569	59	48	21	31	11,932	462	67
ATOC Limited	1,822	59	48	21	31	13,860	462	67



	Total GHG emissions ⁶⁴ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS ⁶³								
Atos	7,018	61	57	20	23	60,544	538	75
Babcock Rail Ltd	3,237	59	48	21	31	24,617	462	67
Balfour Beatty	3,387	59	48	21	31	25,765	462	67
BAM Nuttall	6	59	48	21	31	43	462	67
BR	2,687	59	48	21	31	20,438	462	67
British Transport Police	7,073	59	48	21	31	53,798	462	67
BT	83	59	48	21	31	635	462	67
BUPA Occupational Health	96	59	48	21	31	730	462	67
Caledonian Sleeper	392	59	48	21	31	2,984	462	67
Carlisle Cleaning Services	13	59	48	21	31	97	462	67
Chiltern Railway Company Limited (Maintenance)	1,163	59	48	21	31	8,847	462	67
Clientlogic	18	59	48	21	31	137	462	67
Colas Rail	2,386	59	48	21	31	18,148	462	67
Crossrail	1,767	59	48	21	31	13,443	462	67
CSC Computer Sciences	17	59	48	21	31	133	462	67
DB Cargo (UK) Limited	25,939	59	63	21	16	241,124	561	82
East Coast Main Line	22,194	59	48	21	31	168,806	462	67
Eurostar	13,828	59	48	21	31	105,176	462	67
Eversholt Rail Limited	357	59	48	21	31	2,713	462	67



	Total GHG emissions ⁶⁴ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS ⁶³								
First Great Western	41,022	59	48	21	31	312,014	462	67
Freightliner	9,621	59	48	21	31	73,178	462	67
GB Railfreight	1,191	59	48	21	31	9,060	462	67
Gemini Rail Services	63	59	48	21	31	477	462	67
Global Crossing	607	59	48	21	31	4,615	462	67
Govia Thameslink Railway	19,197	59	48	21	31	146,015	462	67
Govia Thameslink Railway (Southern & Gatwick Express)	29,441	59	48	21	31	223,993	462	67
Great Eastern Railway	9,193	59	48	21	31	69,921	462	67
Hitachi Rail Europe	1,163	59	48	21	31	8,850	462	67
HS1	111	59	48	21	31	842	462	67
Hull Trains	324	59	48	21	31	2,467	462	67
Intelenet Global BPO (UK) Limited	1	59	48	21	31	11	462	67
Island Line	328	59	48	21	31	2,496	462	67
ISS Transport Services	32	59	48	21	31	241	462	67
Jacobs UK	817	59	48	21	31	6,216	462	67
London Eastern Railway (West Anglia)	4,308	59	48	21	31	32,766	462	67
London Overground	8,545	59	48	21	31	64,995	462	67
London Underground	46	59	48	21	31	348	462	67
MITIE Facilities Services	3	59	48	21	31	20	462	67

	Total GHG emissions ⁶⁴ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS ⁶³								
Merseyrail	7,815	59	48	21	31	59,440	462	67
MTR Elizabeth Line	3,476	59	48	21	31	26,442	462	67
National Express Services Limited	36	59	48	21	31	276	462	67
Network Rail	240,134	59	48	21	31	1,826,471	462	67
New Cross Country	16,722	59	48	21	31	127,190	462	67
Northern (ex North East)	22,624	59	48	21	31	172,080	462	67
Northern (ex North West)	19,850	59	48	21	31	150,983	462	67
Omnibus	184	63	70	19	11	1,789	624	87
Porterbrook	1,203	59	48	21	31	9,147	462	67
QJump	48	59	48	21	31	365	462	67
Rail Gourmet UK Limited	362	59	48	21	31	2,755	462	67
Railpen	2,419	59	48	21	31	18,399	462	67
Resonate Group (Link)	452	59	48	21	31	3,441	462	67
Resonate Group (Rail)	877	59	48	21	31	6,671	462	67
Resonate Group (TCI)	323	59	48	21	31	2,456	462	67
RSSB	2,618	59	48	21	31	19,914	462	67
Scotrail	30,667	59	48	21	31	233,258	462	67
SE Trains Limited	32,060	59	48	21	31	243,851	462	67
SERCO	762	59	48	21	31	5,794	462	67



	Total GHG emissions ⁶⁴ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS ⁶³								
Siemens	108	59	48	21	31	819	462	67
Socotec UK Limited	113	59	48	21	31	857	462	67
South Western Railway	36,475	59	48	21	31	277,431	462	67
Specialist Computer Centres	26	59	48	21	31	199	462	67
Stadler Greater Anglia	85	59	48	21	31	646	462	67
Stadler Rail	254	59	48	21	31	1,931	462	67
Swirl Service Group	1	63	73	19	8	10	642	90
Systra Ltd	1,321	59	48	21	31	10,051	462	67
Thales Information Systems	54	59	48	21	31	413	462	67
Thales Transport and Security	3,891	59	48	21	31	29,591	462	67
The Chiltern Railway Company Limited	6,147	59	48	21	31	46,755	462	67
The QSS Group Limited	146	59	48	21	31	1,110	462	67
Torrent Trackside Limited	15	59	48	21	31	111	462	67
TransPennine Express (Former Arriva Trains Northern)	4,610	59	48	21	31	35,063	462	67
TransPennine Express (Former North Western Trains)	2,823	59	48	21	31	21,470	462	67
Transport for Wales	81	59	48	21	31	616	462	67
Transport for Wales (Rail)	15,274	59	48	21	31	116,172	462	67
Trenitalia c2c	4,725	59	48	21	31	35,942	462	67
Unipart Rail – NRS	1,373	59	48	21	31	10,445	462	67

	Total GHG emissions ⁶⁴ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS ⁶³								
Unipart Rail – Railpart	1,094	59	48	21	31	8,324	462	67
Unisys	37	59	48	21	31	281	462	67
UPS	45	59	48	21	31	341	462	67
Voith	48	59	48	21	31	365	462	67
Wabtec Rail Limited	23	59	48	21	31	171	462	67
West Coast Partnership	27,699	59	48	21	31	210,680	462	67
West Coast Traincare	4,135	55	65	24	11	39,601	540	86
West Midlands Trains	20,752	59	48	21	31	157,839	462	67
Westinghouse Rail Systems	3,303	59	48	21	31	25,127	462	67
Worldline IT Services UK Limited	892	59	48	21	31	6,786	462	67

⁶³ As per explanation in [section 6.1](#), these data include the two strategies introduced in 2023. Some data may not sum to 100% given rounding.

⁶⁴ GHG scopes 1 and 2; Source: Bloomberg; MSCI (please see [Appendix C](#) for disclaimer)

	Total GHG emissions ⁶⁷ (tCO ₂ e)	Carbon footprint (tCO ₂ e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO ₂ e)	Scope 3 carbon footprint (tCO ₂ e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
BTPFSF ^{65, 66}								
BT Police 1970	38,177	59	48	21	31	290,380	462	67
BRSF ⁶⁸								
BR Superannuation Fund	4,497	72	56	21	22	35,473	588	75

⁶⁵ As per explanation in [section 6.1](#), these data include the two strategies introduced in 2023.

⁶⁶ The table does not include BT Police 1968 as they no longer invest in the Growth Pooled Fund and therefore the data coverage would be zero based on the scope of this report.

⁶⁷ GHG Scopes 1 and 2; Source: Bloomberg; MSCI (please see [Appendix C](#) for disclaimer).

⁶⁸ As per explanation in [section 6.1](#), these data include the two strategies introduced in 2023.

