Railways Pension Schemes Combined TCFD Report 2024

Contents

Chair's message to members

Dear Member,

This is the fourth 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 in line with 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 this is in line 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 reduce 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 shows 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 way. 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 among much global uncertainty and wider humanitarian crises, with the severe impacts of climate change already felt by many communities. We recognise that this makes our role in providing a good pension as important as ever, and we know that tackling climate change in a fair and equitable manner is crucial in this context.

The intricacies of the railways pension schemes, combined with the level of detail we have to use in TCFD reports, means that this report is, by necessity, very long and that some of the language we are required to use is technical in nature. With this in mind, we have provided a Summary for Members (Section 2) and a Glossary (page 82-83) 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 Disclosures[1] (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 sections[2]. 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 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 intricate 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 guidance[3] to group similar sections, with the current groupings shown in figure 1.1.

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)	Investment level Pooled Fund level Scheme level
Scenario analysis (liability side)	Scheme level Grouped-section level
Covenant	Sector level Employer level (in some cases)

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

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

1. Governance
2. Strategy
3. Risk management
4. 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 2024, 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 www.railpen.com and in Railpen's Net Zero Plan[4].

1 *https://www.fsb-tcfd.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 *Railpen's 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, and/or
- the potentially catastrophic consequences of uncontrolled climate change, like sea level rises and increasingly frequent extreme weather.

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. Dealing with 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 fourth TCFD[5] report, the effects of climate change could impact three key areas of a pension scheme like ours:

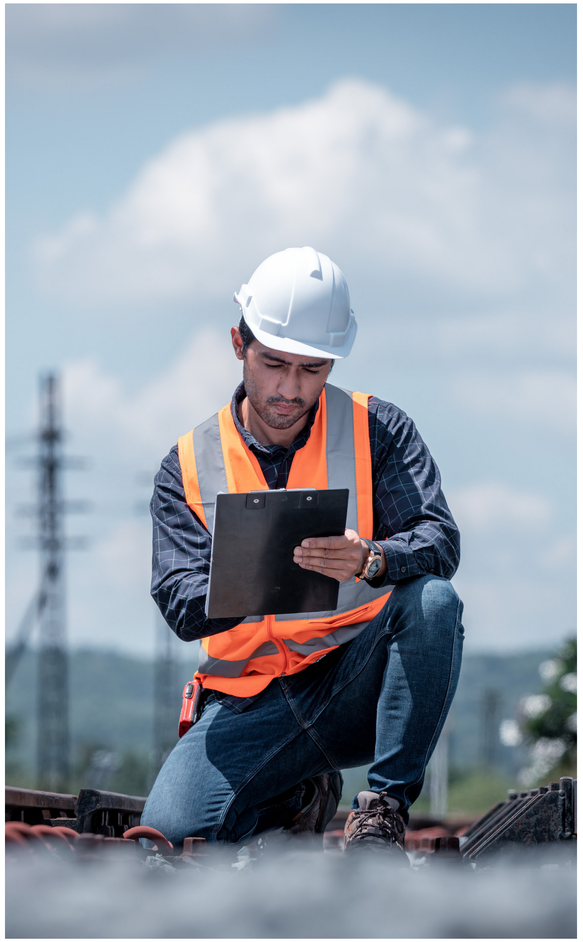
1. **Threats to the employer covenant:** the pension fund depends on ongoing contributions from employers. If those employers turn out to be vulnerable to climate risks, this could threaten their ability to contribute in the future.
2. **Threats to scheme liabilities:** the liabilities of the scheme – 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.
3. **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 members' 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 intricate schemes in the UK. Good governance is essential when managing complexity. The Trustee Board's Skills Matrix[6] includes 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 (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 are required to produce a report that complies with the recommendations of the TCFD.*

[6] *The Trustee Board's Skills Matrix is a tool used to assess the skills, experience, and qualifications of the Trustee Directors, as well as the overall Board composition. It maps the skills and experiences necessary for the Board to be effective against those present on the Board, and can inform activities like training and development for example.*



Covenant	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. You can read more about this in section 5.2.
Liabilities	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. You can read more about this in section 5.3.
Investments	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 the following: ■ Excluding companies we think might face higher risks of asset stranding[7], including those with significant revenues from thermal coal and tar sands. ■ Including assessments of climate risk and net-zero alignment into investment decisions ■ Engaging companies and voting at company AGMs around their 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. You can read more about this in section 5.4.

Figure 2.1: A framework for managing climate risks.

[7] *Asset stranding refers to the situation where assets lose their economic value prematurely due to various factors, such as climate change, technological advancements, or policy changes.*

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 as those companies and assets 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's focus is on the long-term direction 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.

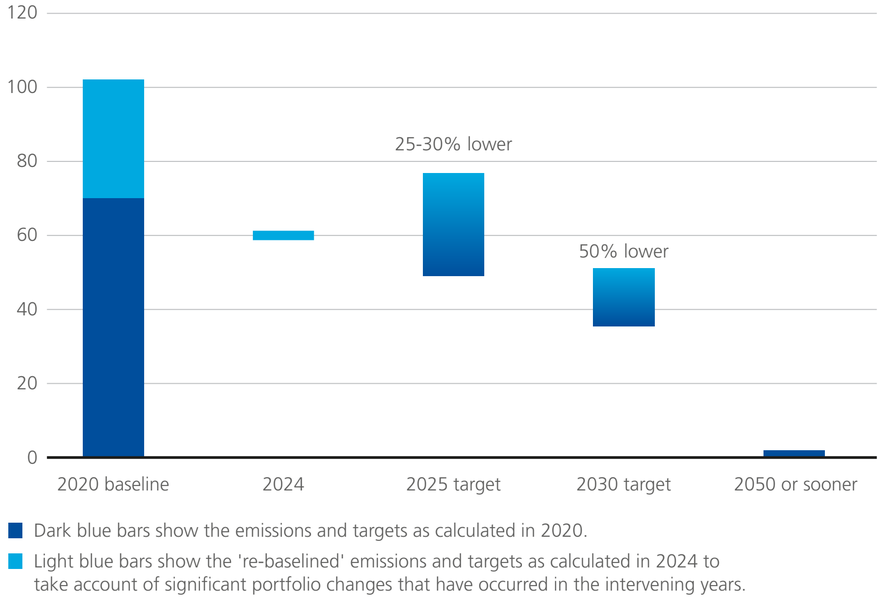


Figure 2.2: Carbon footprint targets and performance to date.

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. In 2024, Railpen acquired a 50% shareholding in AGR Power (AGR), a leading London-based renewable energy and sustainable infrastructure developer. This reflects our continued commitment to investing in essential infrastructure, with over £500 million invested into UK energy infrastructure projects since 2019. Railpen also committed to a private equity fund that invests in companies positively contribuing to the 'new energy economy'. This includes companies involved in grid modernisation, renewable and distributed generation, demand response, energy efficiency, and transportation electrification. 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 find 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 access to all relevant 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 on their 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 have provided on page 8 covers a significant majority of the investment portfolio of the railways pension schemes, but not all of them. 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 ensure our stakeholders – including our members – are 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 for members. Writing a report on climate change, and its complex connections with pensions, cannot be done without having to use 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 help make the report easier to read.

Members who wish to contact us, or learn more about the schemes' approach to climate change, can 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. Transition risks – those related to the transition to a lower-carbon economy
2. Physical risks – those related to the physical impacts of climate change

Transition risks	Physical risks
Transition risks arise as we seek to realign our economic system towards a net zero and resilient future. 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. Depending on the nature, speed, and focus of these changes, transition risks pose varying levels of financial and reputational risk to organisations.	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. Physical risks are event-driven (acute) or relate to longer-term shifts (chronic) in climate patterns. 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.

Figure 3.1.1: Definition of physical and transition risks.

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 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 (next page) depicts physical and transition climate risks, and their transmission into systemic risks.

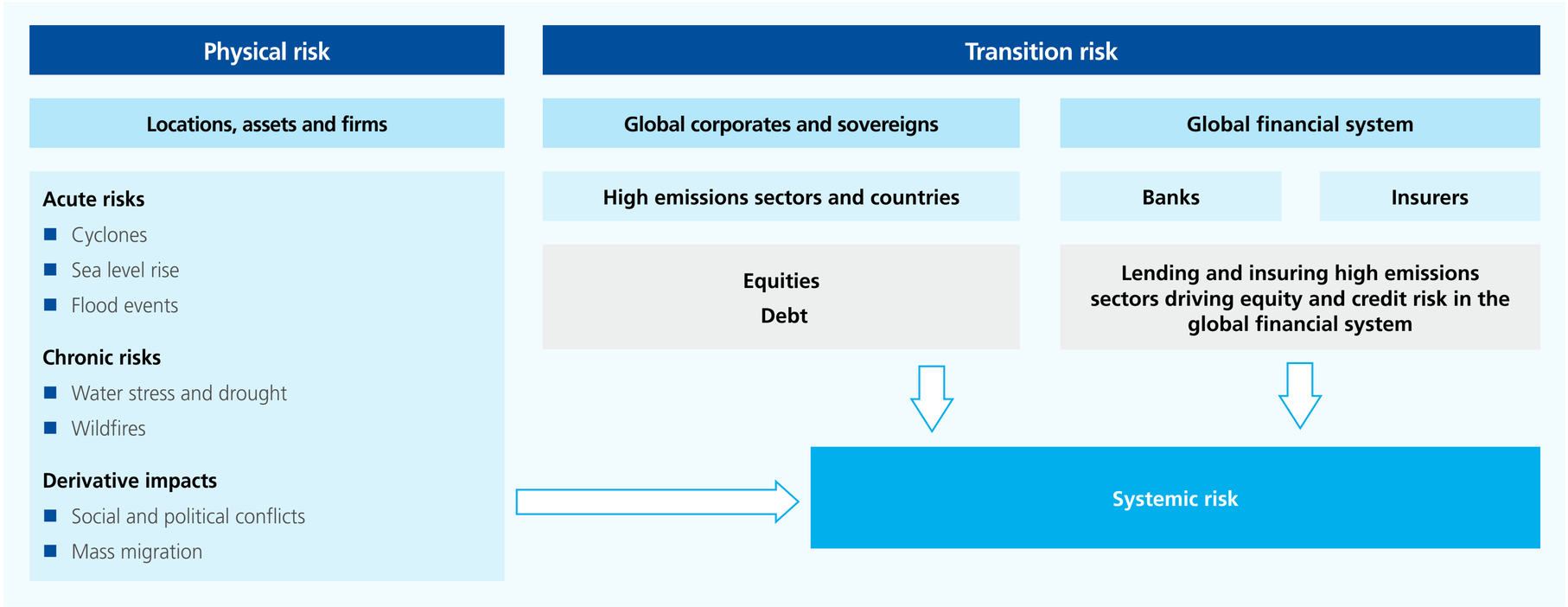


Figure 3.2.1: Climate risk and the global financial system.

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 DB 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 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

RPTCL is the corporate Trustee[8] of the railways pension schemes and for each individual 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 DB and 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.£34 billion of assets.

This structure helps ensure 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 2024 Annual Report and Audited Financial Statements[9].

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.

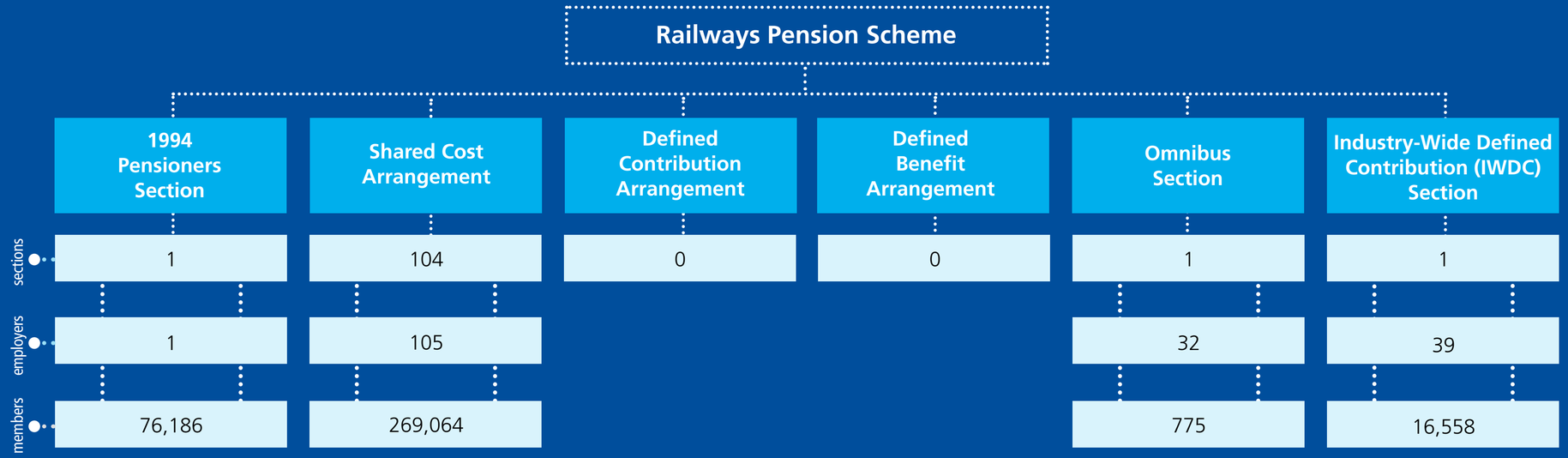


Figure 4.1.1: Overview of the Railways Pension Scheme.

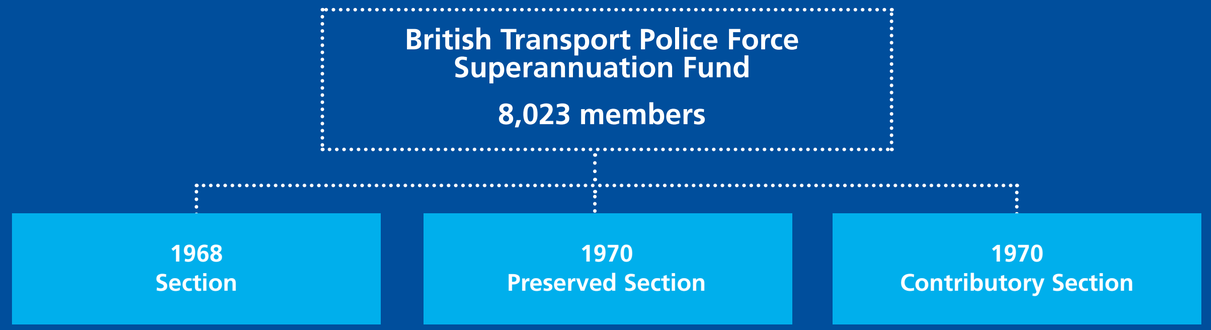
[8] *We use 'RPTCL' and 'Trustee' interchangeably in this report.*

[9] *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 and the 1970 Preserved Section, which are both historical sections 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 Fund invests in the pooled fund structure of the railways pension schemes.

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 8,023 as of 31 December 2024.



4.2 Climate governance overview

The Trustee places great emphasis on maintaining high standards of fiduciary governance[10]. Governance 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. Taken in aggregate, the six subsections shown (figure 4.2.1) 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 intricate in the UK. The day-to-day operation of the schemes is 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. 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 this, 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 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 how they engage 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.

[10] *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 these beliefs. These investment activities are overseen by the Investment Oversight Committee (IOC) 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 and Railpen made material updates to the Investment Beliefs in 2021. Previous Investment Beliefs referred to a link between ESG[11] factors and investment performance, and a duty to incorporate ESG into investment decision-making. The updated Investment Beliefs refer explicitly to climate risk, 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 risk.

Beliefs	Belief narrative
1. Managing asset-liability risk is integral to a scheme's long-term success.	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. 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.
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.	

Figure 4.3.1: The shared Trustee and Railpen Investment Beliefs, updated in 2021[12].

[11] *Environmental, social, and corporate governance investment factors.*

[12] *A video on our investment beliefs can be found on our website: Railpen - Investment Beliefs.*

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.

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

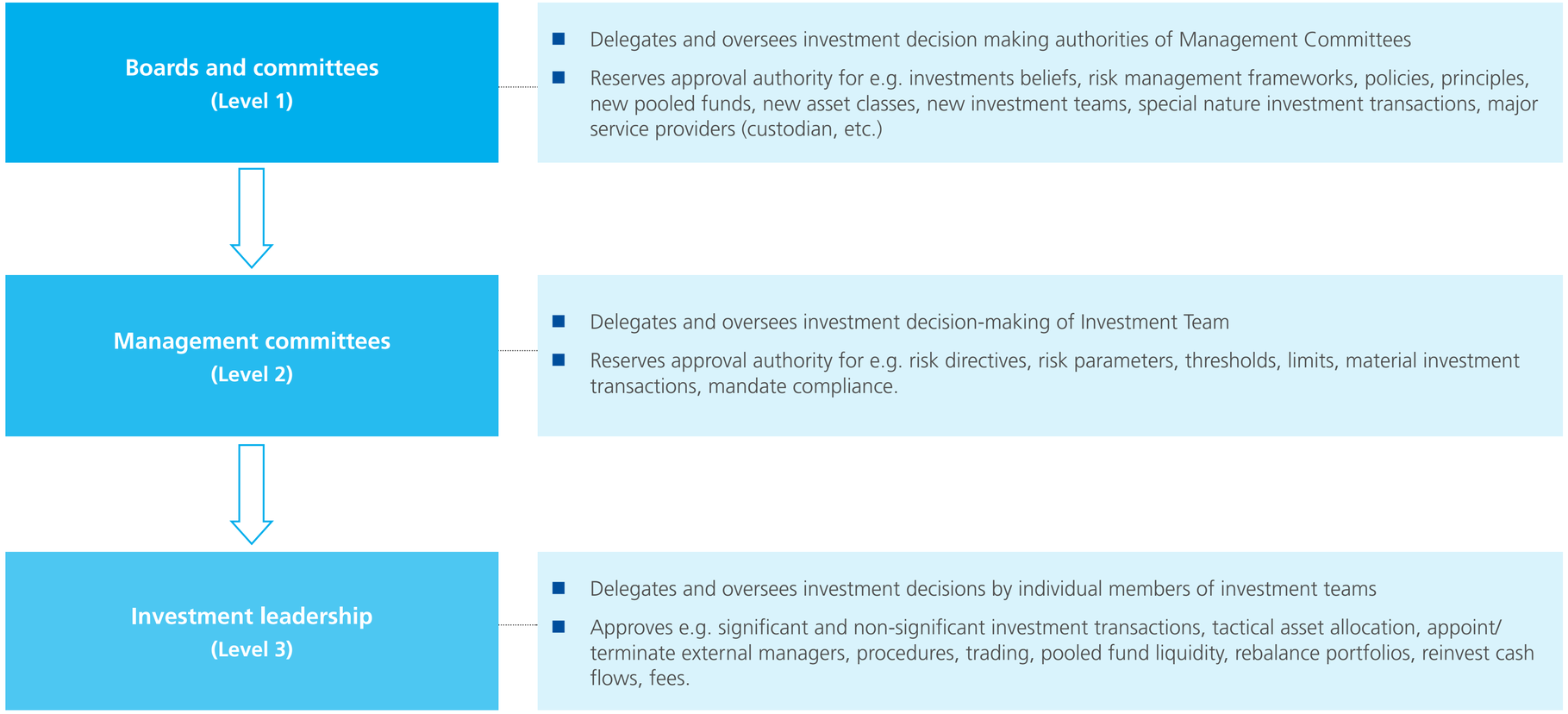


Figure 4.4.1: Three levels of risk authority.

A thorough, consistent and aligned set of governing documents forms the cornerstone of successful governance. The 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 Framework ensures a clear understanding of which governing documents are required and who owns them. The documents owned by the boards & 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 Framework also establishes a decision authority matrix with governing authorities and investment approval delegated authorities. Ultimately, the 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.

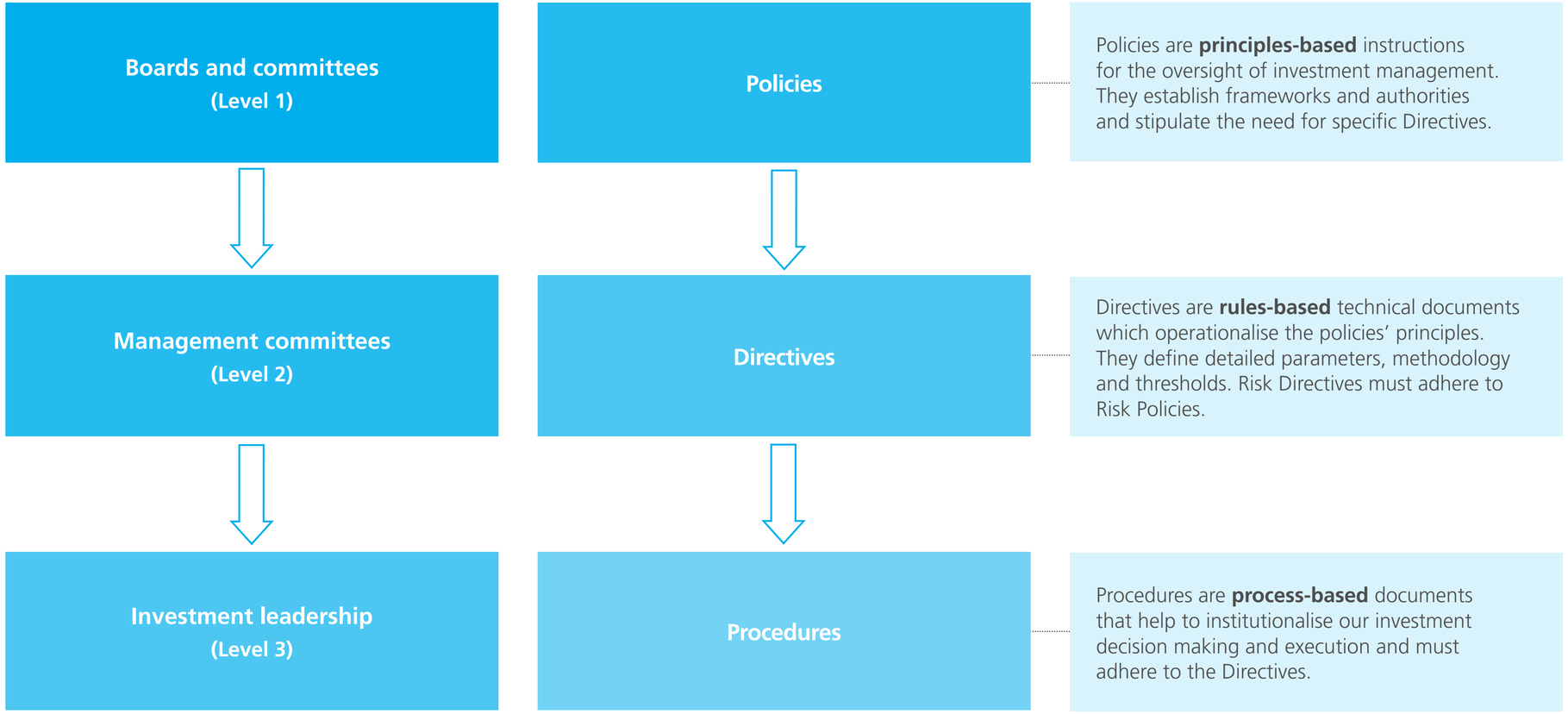


Figure 4.4.1.2: Document hierarchy in the Framework.

Figure 4.4.1.3 lists the key level 1, 2, and 3 documentation that relate 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. Key frameworks and policies were reviewed and re-approved in 2024.

	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 committee 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

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

Level 1 documents relating to climate change[13]

Investment Risk Governance Framework (The 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 Framework documents the following: ■ 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	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. The SIP was last updated in 2024.

[13] *Please note that the Investment Beliefs are described on page 15, and the Investment & Risk Report is described page 27.*

Statement of Investment Offering	
Purpose	This document defines the range of investment products to be used in investment strategy and, importantly, sets out the Trustee's expectation that the Investment Beliefs should be integrated into the investment process.
Relevance for climate governance	Our Investment Beliefs include explicit reference to climate risk (see figure 4.3.1 on page 15).

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 Investment Oversight Committee are approved by the Railpen Board and the ToR for the Investment and Risk Committee are approved by the Investment Oversight 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 Investment Management Agreement (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 services include climate-related data, proxy advice, climate scenarios, consultancy and so on. The service of Sustainable Ownership suppliers is reviewed and given a rating on an annual basis, based on the quality of service received, such that the Trustee, or Railpen acting on its behalf, can monitor 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 and responsibilities 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 Investment Oversight Committee (IOC) approval limit), and for example, would recommend to the IOC 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 levels 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 in the following pages.

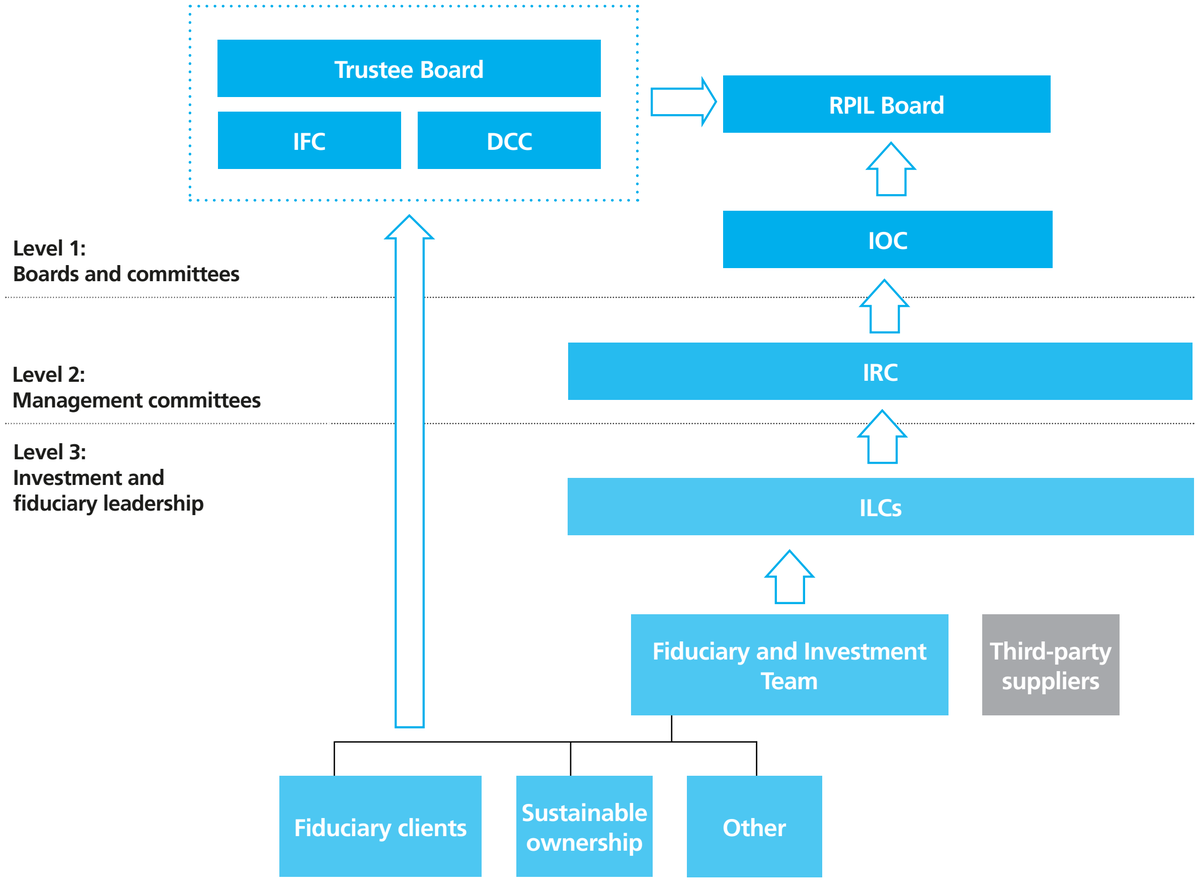


Figure 4.5.1: Summary of climate governance within the railways pension schemes and Railpen[14].

[14] *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 the nature of its 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.

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

Figure 4.5.2: Risk authorities for investment approvals.

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 (section 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 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 employees prior to appointment and on an ongoing basis through rigorous recruitment processes, performance assessments, and, where appropriate, through the 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 and 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 IOC.

Investment Oversight Committee (IOC)	
Composition	Chief Officer, Fiduciary & Investment Management (Chair), Chief Executive Officer, Chief Risk and Compliance Officer, General Counsel, Director of Investment Risk and Sustainable Ownership.
Relevance for climate governance	Oversees investment risk and investment performance of the pooled funds, fiduciary oversight reports, and the activities of the Investment and Risk Committee (IRC). IOC also oversees Investment Risk Management's annual review of the Trustee's Investment Risk Governance Framework, which is re-approved annually by the Trustee. IOC approves Railpen's Net Zero Plan, and reports to the Trustee Board at least annually, including a report containing KPIs relating to Railpen's performance. IOC 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 IOC. 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 intricacies 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 includes a 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 regularly. 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.

In 2024, the Trustee established the Trustee Sustainable Ownership Working Group (SOWG). The SOWG aims to facilitate deeper discussions on sustainable ownership topics, including climate change, and improve the overall effective working of the Trustee Board. The SOWG aims to further enhance two-way engagement between the Trustee and Railpen on sustainable ownership matters. The first informal meeting took place in Q2 2024, focused on defining the Group's scope and reviewing the Trustee TCFD report. The subsequent formal meeting of the Working Group in Q4 2024 addressed specific climate-related topics, including climate scenario analysis.

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. 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 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 logged in a system provided by a third-party supplier. 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 Investment Oversight Committee (IOC) receives an Investment and Risk Report, which includes Sustainable Ownership (including climate change) reporting on a quarterly basis. In addition, the IOC is able to request ad-hoc information on climate-related matters and provide challenge. In addition, the IOC 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 IOC Chair. The IOC 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 Sustainable Ownership 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.

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, comprising climate change. It also includes a link to the TCFD report.
Annual TCFD report	A report in accordance with 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 Member 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.

Figure 4.8.1: Key climate-related reporting. These are all available on www.railpen.com.

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 both employer covenant and 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 (see figure 5.1.1).

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. Accordingly this year, the Trustee has undertaken further climate scenario analysis to supplement that which was done previously.

Given the many possible approaches to climate scenario analysis, the benefit of combining data points and different perspectives when analysing climate risk, and the known limitations of individual climate scenario models and techniques, the Trustee has decided to conduct multiple scenario analyses as presented in this report. This includes retaining the scenario analysis done for previous years' TCFD reports.

Ahead of conducting further climate scenario analysis for this year's TCFD report, Railpen commissioned an independent industry expert to conduct a peer review of climate scenario practices by select asset owners. This involved research and interviews with 11 asset owners across North America, Europe and Australasia. The findings of this study helped inform the approach taken to the additional scenario analysis conducted for this year's TCFD report, with particular caution exercised around the usefulness and accuracy of many top-down macro scenario approaches. The study highlighted some peer instances of effective scenario analysis done at the level of individual assets, and this approach has been adopted for a material portion of the Growth Pooled Fund in section 5.4.2. The study also underlined the importance of scenario analysis being integrated into ongoing investment processes and discussions, across multiple investment teams, for it to be most valuable. This finding has also been reflected in the approach taken when working with expert third parties of scenario analysis, looking for an ongoing and engaged working partnership rather than an isolated piece of work or presentation deliverable.

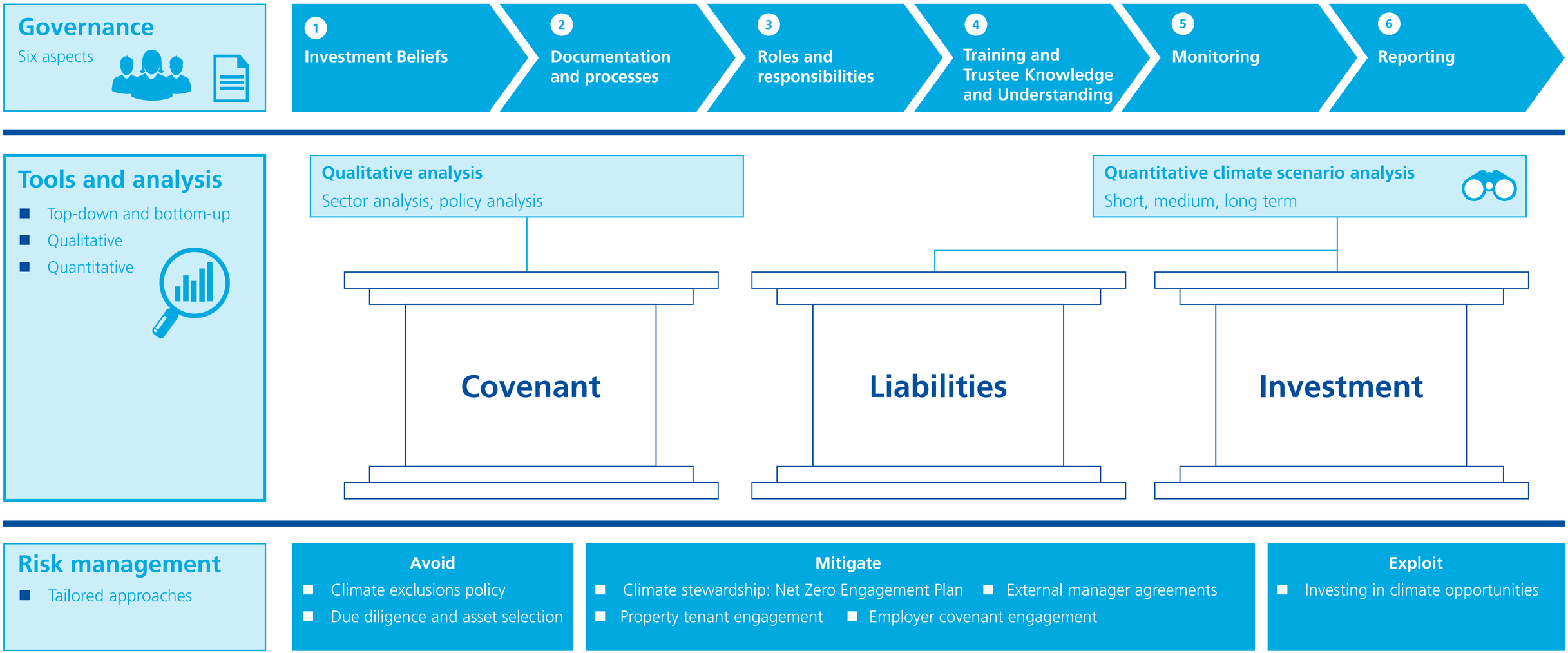


Figure 5.1.1: Governance, tools, analysis and management.

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.

This year, the Trustee decided to supplement previous scenario analysis by procuring services from WTW and Absolute Strategy Research (ASR), with a focus on climate risk for investment returns. This is detailed in Section 5.4. Information about scenario analysis in respect of employer covenant and scheme liabilities are the focus of Sections 5.2 and 5.3 respectively.

In previous years, 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 were developed by Ortec Finance as part of its Climate MAPS tool. The mortality impacts in different scenarios were inferred from modelling provided by WTW. The Trustee has decided to describe some of the previous scenario analysis undertaken, particularly that in respect of liabilities, as it believes the analysis around mortality impacts, and the high-level relationship between asset returns and liability impacts in the scenarios described, remains relevant.

The scenarios used by WTW and ASR in the latest analysis for investment returns are broadly aligned with the scenarios previously used by Ortec Finance (for investment returns) and WTW (in respect of liabilities). However, it is important to note that there has been significant developments in the intervening years, both in terms of climate science (and therefore the likely effects of different physical climate pathways) as well as economic and social transition (and therefore the potential future transition pathways that can plausibly transpire).

WTW's analysis, which focused on quantifying climate transition risk for listed equities, was based primarily on two scenarios, that together frame the maximum likely risk for the various companies in scope of their analysis:

- **Business as usual (BAU) scenario:** This 'market expectations' scenario most closely reflects what WTW currently observe in the valuation of most companies and financial assets. Generally, this scenario is developed based on industry level paths that include no additional climate action beyond current policies and expectations, leading to approximately 3°C of warming.
- **2 degrees scenario (2DS):** This aggregates a series of strong and consistent sector-level pathways that, on aggregate, produce an orderly transition in line with the Paris Agreement; that is, they limit global carbon emissions to a budget that the Intergovernmental Panel on Climate Change (IPCC) and others find consistent with limiting global temperature increases to well-below 2°C.

ASR's analysis, which covered a broader range of asset classes, used a number of scenarios including: 'current policies', 'fragmented world', 'below 2 degrees' and 'net zero by 2050'. ASR also developed an 'extreme damage scenario' to help show the possible implications of a scenario with material climate tipping points and feedback loops (to the extent possible). In particular, ASR focused on the impacts of their 'base-case scenario', 'fragmented world', which is a disorderly transition, with high regional policy variation and the fragmented rollout of clean technology.

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 1.5-2°C 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.

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 the following sections. 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 way the Trustee defines short, medium, and long term is explained in figure 5.1.2.1.

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

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

Given that a significant majority of assets in the RPS and the BTPFSF are in respect of open DB sections, the investment strategy is long term, and the shared Trustee and Railpen Investment Beliefs make explicit reference to the long term, 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.

Following review, the definition of short, medium, and long term has not been altered 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.

5.2 Climate risks to employer covenant

The Pensions Regulator (TPR) defines the employer covenant as "the extent to which an employer has a legal obligation and financial ability to support a scheme now and in the future, as well as any expected scheme support from suitable contingent assets". The strength of an employer covenant is, therefore, driven by a combination of the following:

- 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).

Appropriate covenant strength means support being available when needed. The covenant strength therefore focuses on the support available from the employer in the context of the funding needs and investment risk of the scheme.

Employer support characteristics

The employers who support the railways pension schemes and sections are split into two broad categories:

- **Public sector employers:** Those who are owned directly or indirectly by the UK Government or otherwise classified as public sector bodies, or are intrinsically linked to public sector bodies; and
- **Private sector employers:** Those whose covenant strength is derived from credit quality characteristics – profit and cash generation, balance sheet strength and access to ongoing liquidity.

Public sector employers derive their covenant strength from the UK Government. There is no experience, within rail or elsewhere, of a public sector body being allowed to fail such that its pension obligations are not met in full. Private sector employers can fail and without a sufficiently strong level of funding if such a failure occurs, their pension obligations can be transferred to the Pension Protection Fund (PPF).

Contextual funding needs and investment risk characteristics

The key differentiator which influences the funding needs and investment characteristics of rail schemes and sections is whether or not they remain open to new members. Schemes and sections that remain open to new members, and are expected to continue to admit new members indefinitely, are immature and have very long term time horizons. They are expected to carry inherent funding and investment risk over the medium to long term. The vast majority of rail schemes and sections that remain open to new members are supported by, or intrinsically linked to, public sector bodies.

There are 67 rail schemes and sections that are supported by private sector employers, 65 of which are closed to new members, are maturing, and are at various stages of their journey plan to substantially removing funding and investment risk and having a low dependency on their sponsoring employer. Under the new Funding and Investment Strategy (FIS) Regulations and TPR's new Funding Code, the Trustee is required to describe a "low dependency investment allocation" – a strategy under which liabilities are 'highly resilient' to short-term adverse changes in market conditions. A "low dependency funding basis" must also be described based on the "low dependency investment allocation" and set with an appropriate level of prudence where "it is expected that no further employer contributions would be required".

The Actuary is required to calculate for each section the date it is expected to reach 'significant maturity', by which time the low dependency funding basis should be achieved. For rail schemes and sections sponsored by private sector employers, that low dependency basis either has been reached (12 sections), or is expected to have been reached within the short (22 sections) to medium (29 sections) term. Whilst these sections are not immune to climate risk, as the relevant funding and investment risk is expected to be substantially removed in the short to medium term, their exposure to climate risk is significantly reduced.

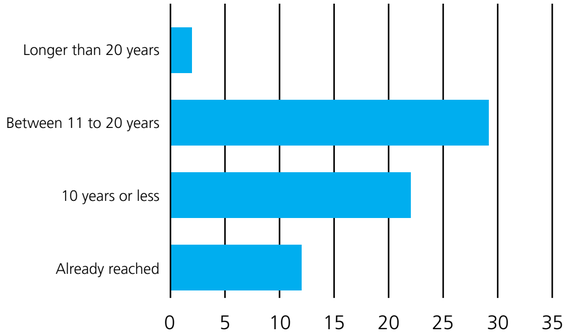


Figure 5.2.1: Summary of closed private sector sections by time to low dependency.

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 section-by-section basis. The Trustee takes the same approach to the separate BTPFSF scheme (noting that the BTPFSF is not a multi-employer scheme). At the present time, the Trustee does not utilise model-driven quantitative climate scenario analysis when reviewing information on employer covenant[15]. Short, medium, and long-term climate risks (and opportunities) are considered within an employer covenant context using the three tiers of assessment detailed in figure 5.2.1.1.

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

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

This report focuses on the UK policy and sector risks tiers noted 5.2.1.1 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 weakest[16]. 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 public sector ownership, legislative, contractual or other structural support from the rail industry or central, local and/or devolved government, and the contextual funding and investment risks inherent within each section, where appropriate. We intend to introduce employer-specific analysis in future reports, as appropriate, taking account of Trustee / employer confidentiality concerns.

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

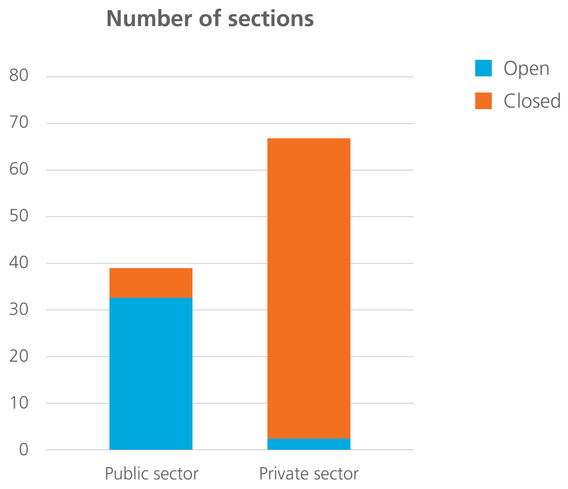
[16] *As a separate scheme, the BTPFSF is not captured within this 1-6 rating scale. The BTPFSF covenant strength is rated as 'strong', consistent with a '1' rating on the RPS scale.*

Rail in the UK is considered an environmentally friendly form of mass transport. Whilst there has been a reduction in new or updated climate-focused rail initiatives over the last few years, there remain a number of initiatives which are underway within the UK railways industry to decarbonise further and to encourage passenger and freight modal switch towards rail. Where climate factors are financially material to the employer and/or its sector and they could impact the employer's ability to support the section now and in 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 risk 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 the UK carbon tax. 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.

5.2.1.1 Supplemental data on RPS covenant

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



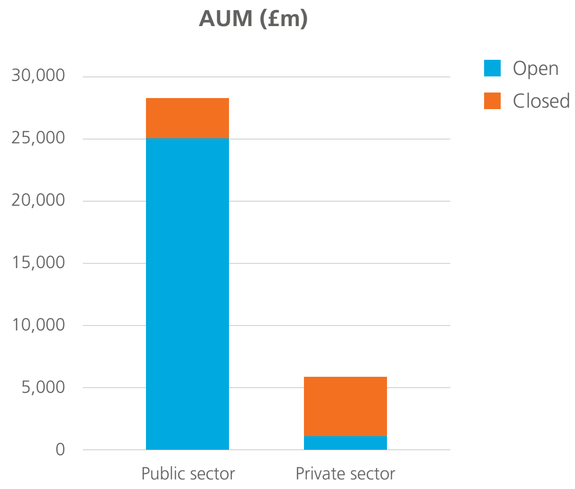


Figure 5.2.1.1.1: Summarises the split of sections of the RPS and BTPFSF, by section number and by assets under management (AUM), between public sector, private sector, open and closed sections.

As illustrated in figure 5.2.1.1.1, the majority of the AUM relate to sections sponsored by public sector-owned, 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. RSSB and British Transport Police. These also make up the vast majority of sections that remain open to new members and therefore are expected to be subject to ongoing investment and funding risk in the medium to long term. The aggregate of those sections remains the focus of this report.

The new UK Government took office in July 2024 and from the outset made clear its intention of effectively renationalising the central parts of the rail industry, including Network Rail and the TOCs. To date it has already passed one key piece of legislation – the Passenger Railway Service (Public Ownership) Act, which will bring about the transition of all Department for Transport (DfT)-authorised TOCs into public sector ownership. On 18 February 2025 the DfT opened its first consultation on the legislative impacts of creating Great British Railways (GBR): 'A Railway fit for Britain's future'. That consultation notes that GBR will include "Bringing together activities from more than 17 existing organisations – including Network Rail, the Rail Delivery Group, the DfT operator, parts of the DfT, and 14 separate TOCs [covering 21 RPS sections] – into a single organisation". Those organisations, together with the British Transport Police Authority (BTPA), make up the vast majority of the government-linked bodies and "open to new member" sections noted above.

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. Those relationships are strengthened via the Public Ownership Act and the creation of GBR.

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: (i) specific legislative provisions (ii) a Crown guarantee (iii) written correspondence from UK central or local government bodies, or devolved government bodies, or (iv) 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 29% in 2023[17]. As shown in figure 5.2.2.1, rail is one of the smallest contributors to domestic transport emissions.

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. Transport emissions fell by 1% between 2022 and 2023, and remain 10% lower than in 2019, the last pre-pandemic year[18]. To meet net zero by 2050, and the UK Government's carbon budgets on the way, the transport industry must continue to make rapid progress.

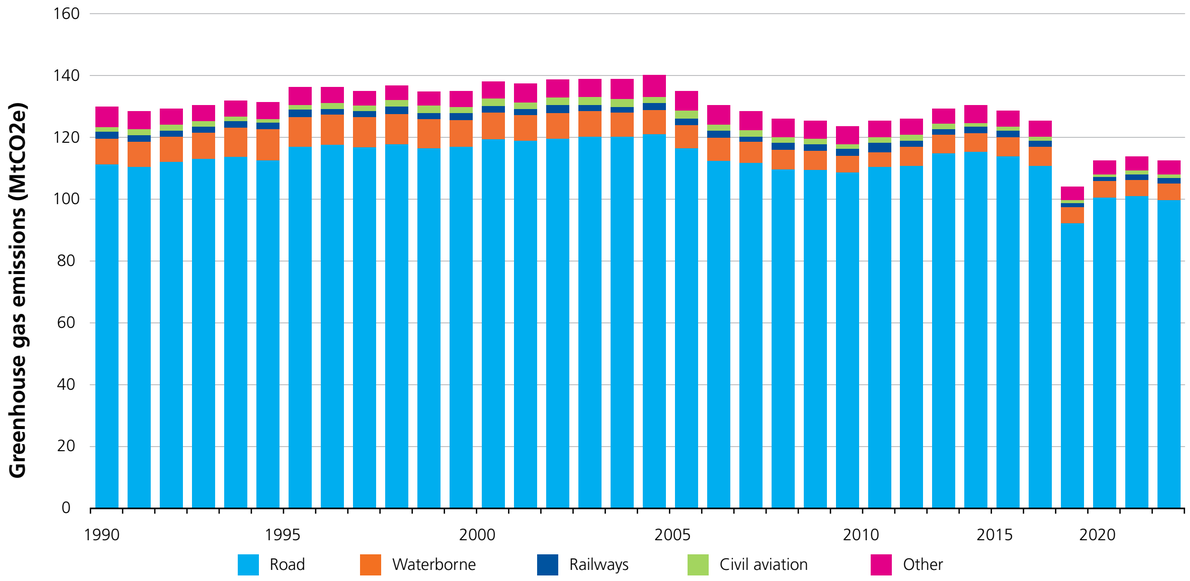


Figure 5.2.2.1: Greenhouse gas emissions from domestic transport, UK 1990-2023 (Source: 2023 UK Greenhouse Gas Emissions, Final Figures).

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 hampered progress on the creation of GBR, there was cross-party support for the creation of such an Integrated Rail Body (IRB).

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

Against this backdrop, in July 2021, the 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

[17, 18] *2023 UK Greenhouse Gas Emissions, Final Figures*.

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 deliverable 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 to 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 landfill 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 the 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 a 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 £20 million 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.

As noted above, political uncertainty around the future of GBR to a degree hampered progress in these areas during 2022, 2023 and into 2024. Nonetheless, some progress was made, such as the commitment to further electrify lines as part of the Integrated Rail Plan, funding a fast-charging trial for battery-only trains, and the government setting a rail freight growth target of at least 75% by 2050[19].

Those policies and plans helped clarify the transition risks and opportunities facing the UK rail sector, and challenged the industry to develop its own plans to meet them. Since the change of UK Government in July 2024, focus appears to have switched to structural public ownership and governance of the central players within the rail industry (Network Rail and the TOCs) and the creation of GBR, with less focus on climate-related policy initiatives. The policies and initiatives noted above do however remain in force.

In addition, unlike most other UK sectors, the rail industry is already facing the challenges of physical climate-related risks. The rail industry's focus on dealing with these risks, particularly weather-related risks, has not diminished.

5.2.3 Sector risks: Physical risks

Britain's railways 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 this 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. Since 2021, Network Rail reported that extreme weather events had delayed many freight and passengers' journeys, with 9.3 million weather-related delay minutes having cost £370 million in compensation over the last 3 years[20].

The data in figure 5.2.3.1 indicate the delay minutes and Schedule 8 costs per year for each weather impact category from 2006/07 to 2023/24 across the whole network and for England, Wales and Scotland. Nationally, the two biggest challenges come from wind and flooding incidents, causing just over 12.1 million and 11 million delay minutes respectively[21]. The cost of extreme weather is continuing to increase due to increases in schedule eight compensation rates over time.

19 *https://www.gov.uk/government/publications/rail-freight-growth-target/rail-freight-growth-target*.

20 *Network Rail Fourth Adaption Report – December 2024*.

21 *Schedule 8 costs refer to payments made under the Schedule 8 performance regime in the UK rail industry. This regime compensates train operators for unplanned service disruptions caused by Network Rail or other train operators.*

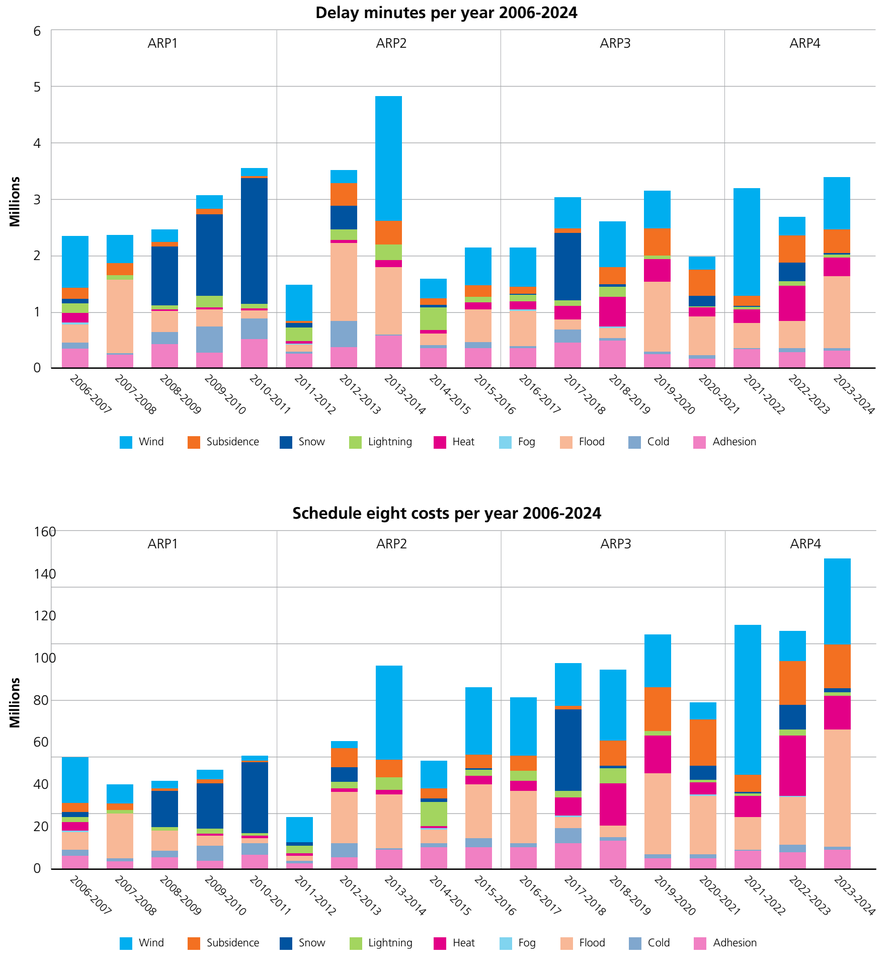


Figure 5.2.3.1: Delay minutes per year and Schedule 8 costs per year 2006-2024 (Source: Network Rail Fourth Adaption Report – December 2024).

In 2024, Network Rail's CEO, Andrew Haines stated: "Climate change is the biggest challenge our railway faces. The extreme weather of the past year that has seen an unprecedented 14 named storms, has taken its toll on our railway – with experts predicting more of the same to come. We are responding to that challenge with a huge investment in making our railway more resilient and better performing for rail users during such events."

Network Rail is funded in five-year 'control periods' (CPs), with the current one, CP7, running from 1 April 2024 to 31 March 2029. The funding and activity to be delivered by Network Rail is agreed in a long and complex three-year process working closely with the Office of Rail and Road, the DfT and Transport Scotland. At the commencement of CP7, Network Rail announced that the total CP funding of £45.7 billion includes a rail improvement plan aimed at delivering a simpler, better, greener railway that provides the best level of train performance possible, more geared-up than ever before to cope with the extremes of climate change. It said it will invest in activities and technology that will help it better cope with extreme weather and climate change, which will help deliver a more reliable and better performing railway. Examples include the following:

- Increased investment in looking after thousands of miles of drains, cuttings and embankments to make them more weather resilient.
- Recruiting almost 400 extra drainage engineers who will increase the care and maintenance of our drainage assets to be able to better handle increased and intense rainfall.
- Hundreds of key operational staff will attend Network Rail's new 'weather academy' to help make them 'amateur meteorologists', better able to interpret forecasts and make better operation decisions such as when and where to slow trains in stormy conditions.
- More than 600,000 metres of drains will be built or rebuilt, redesigned or see increased maintenance to enable our railways to cope with much heavier rainfall and reduce flooding.
- Targeting over 20,000 cuttings or embankments for attention, with over 300 miles being strengthened through renewal and refurbishment and over 900 miles seeing planned maintenance.
- Installing significantly more 'smart' movement sensors to cuttings and embankments giving early warning of any changes enabling engineers to react, hopefully before a full landslip.
- Installing CCTV at high-risk flooding sites to enable a better and faster response.
- Introducing new technology that will help us keep services running safely in difficult conditions, such as:
  - GUSTO – that uses topography to better predict windspeeds, distinguishing valleys, trees and buildings and enabling trains to run at higher speeds during stormy weather.
  - Precise 'real-time' world-leading rainfall forecasting, detailing weather conditions every 500m that will link with asset condition data for even better train service management.

The TOCs, train-builders and maintainers are also taking action. Severe weather, particularly wind and rain, also heightens the impact of a recurring cause of train delays – leaves on the line. Leaves, particularly in wet conditions, can be compressed onto the railhead by the weight of train wheels. In turn, this can reduce adhesion between the wheel and the rail and may also cause poor electrical contact between them. This leaf 'mulch' is to rail what ice is to roads.

Low adhesion causes an average of 350,000 delay minutes each year and can result in station overruns and signals passed at danger[22]. New train introductions by TOCs have improved wheel slip protection and old trains have had sanders fitted, all aiming at managing adhesion problems during leaf fall. Whilst sanding itself is not new, this new technology, combined with research into optimum sanding techniques e.g double variable-rate sanding, dramatically reduces breaking distances and improves assured braking performance. This not only reduces delays, platform overruns and signals passed at danger but also improves the consistency and predictability of train braking - a key enabler to delivering increased capacity.

5.2.4 Sector risks: Transition risks and opportunities

5.2.4.1 Government-linked bodies

As noted in the previous pages, 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. 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 Network Rail, and the SoS is accountable to Parliament for the activities / performance of Network Rail. As noted within the DfT's consultation document on the creation of GBR, GBR is to be created out of NRIL.

In addition to Network Rail, the 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. Under the Passenger Railway Services (Public Ownership) Act and via the creation of the GBR, these bodies will likely become public sector bodies, reinforcing that government support.

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. Such transition risks will therefore only materialise if the government has simultaneously agreed to provide the funding to these government owned/linked bodies. This amounts to a natural protection against employer transition risks for railways pension schemes and sections, covering the vast majority of AUM and the vast majority of sections that remain open to new members and therefore have medium to long term time horizons.

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 railways 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.

[22] *https://www.rssb.co.uk/research/flagship-research-activities/adhesion/changes-to-train-design/new-sander-arrangements-proven-to-dramatically-reduce-the-impact-of-low-adhesion-conditions*.

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.

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.

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 £127 billion p.a. to the UK economy, and employing more than 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 coming years.

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

- The UK rail freight sector is a fundamental part of the supply chain which is critical to the UK economy and to achieving net zero. This has been highlighted through recent events (e.g. COVID-19) 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 consents (noting the importance of strategic rail freight interchanges);
  - addressing workforce shortages, negative perceptions of the industry, and the lack of diversity; and
  - improving innovation and the adoption / 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, the following needs to be considered:

- 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 characteristics of new trains

Over half of all passenger trains on tracks in the UK have been replaced or upgraded in the past 10 years, with new trains being designed with sustainability credentials[23], e.g.:

- Each Elizabeth Line train is built from lightweight materials and uses a special type of braking – regenerative braking – that uses 30% less energy.
- London North Eastern Railway's diesel consumption has fallen from more than 30m litres a year to under five million litres since the introduction of Azuma trains. That's the equivalent of 10 Olympic-sized swimming pools.
- South Western Railway's new fleet of Arterio trains includes fully accessible bioreactor Controlled Emission Toilets for wheelchair users. The toilets – used in European countries like the Netherlands and Switzerland – biologically and thermally treat waste to produce wastewater compliant with European Union bathing water standards.
- Great Western Railway are testing the potential of battery-powered trains to replace traditional diesel ones.
- London North Eastern Railway's new tri-mode trains will be able to run on overhead wires, diesel or battery power. These trains are made with lightweight materials using Japanese bullet train technology and will help the company reduce its emissions by 67% by 2035.

The rail industry has also taken unusual measures to help reduce waste on train decommissioning - some of the older iconic trains built in the 1980s can now be found acting as libraries or science labs for schools. Charities are also using them as space for information and community workshops.

Climate / environmental impact on new build pipeline

As noted, the DfT has previously 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' forms of traction need to be procured. As at 31st March 2024, 19% of the UK passenger rolling stock was diesel only[24]. Only seven of the TOCs had all-electric fleets as at 31 March 2024.

[23] *https://www.networkrail.co.uk/stories/new-and-upgraded-trains-across-our-network*.

[24] *Source: Infrastructure and Assets, April 2023 to March 2024*.

Operator	Total vehicles	Electric	Diesel	Bi-mode	Loco hauled
c2c	356	100%			
Elizabeth Line	630	100%			
London Overground	507	100%			
Merseyrail	280	100%			
Southeastern	1,694	100%			
Heathrow Express	48	100%			
Lumo	25	100%			
Govia Thameslink Railway	2,466	98%	2%		
South Western Railway	1,446	93%	7%		
Avanti West Coast	664	86%	14%		
Greater Anglia	985	82%		18%	
West Midlands Trains	683	75%	25%		
ScotRail	1,039	62%	26%		11%
London North Eastern Railway	572	58%		29%	13%
Northern Trains	910	29%	67%	4%	
East Midlands Railway	381	22%	78%		
TransPennine Express	308	19%	50%	31%	
Great Western Railway	1,047	11%	23%	58%	8%
Chiltern Railways	205		84%		16%
TfW Rail	369		89%		11%
CrossCountry	332		100%		
Grand Central	60		100%		
Hull Trains	25			100%	
Caledonian Sleeper	75				100%

Figure 5.2.4.3.1: UK rail network, proportion of fleet by fuel source as of 31 March 2024.

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, but hampers a move to greener options in rail.

Pipeline – network constraints

Large parts of the network are non-electrified which restricts use of electric traction to replace diesel. The roll out of electrification has been slow paced with 141km of electrified track added to the network between 2023 and 2024[25]. Electrified routes represent 39% of total route length as of March 2024. Due to the slow roll out of electrification, the limited visibility on further electrification and some routes being unsuitable for it, 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).

Hydrogen trains

- Hydrogen powered trains are also in development for the UK market. 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.

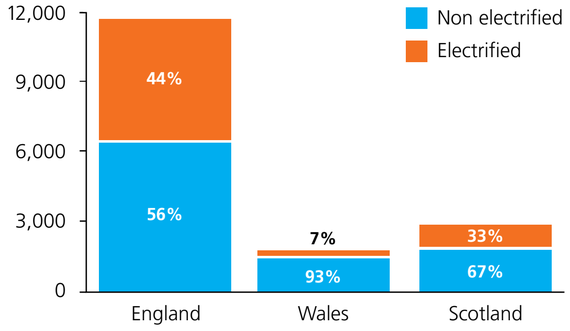


Figure 5.2.4.3.2: Total and electrified route length (km) by country, Great Britain, as of March 2024.

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[26].
- The EU's strategy to promote growth in European rail should be 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.

[25] *https://dataportal.orr.gov.uk/media/gcdkwb0v/infrastructure-and-assets-2023-24.pdf.*

[26] *It is worth noting that this ban currently covers a limited number of domestic flight routes and does not include connecting flights.*

5.3 Climate risks to scheme liabilities

This section of the report describes the following:

- 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 on the funding level of the DB sections of the RPS and the BTPFSF. Unless otherwise stated, the results disclosed in this TCFD report aggregate all DB sections of the RPS and the BTPFSF into two 'total scheme'[27] 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[28] (as referenced in section 5.1).

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).

The results in figures 5.3.2.1, 5.3.2.2, 5.3.3.1, and 5.3.3.2 represent the cumulative impacts to assets and liabilities over the long term (defined in section 5.1.2 as 40 years).

Limitations to the analysis include the following:

- 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.

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.

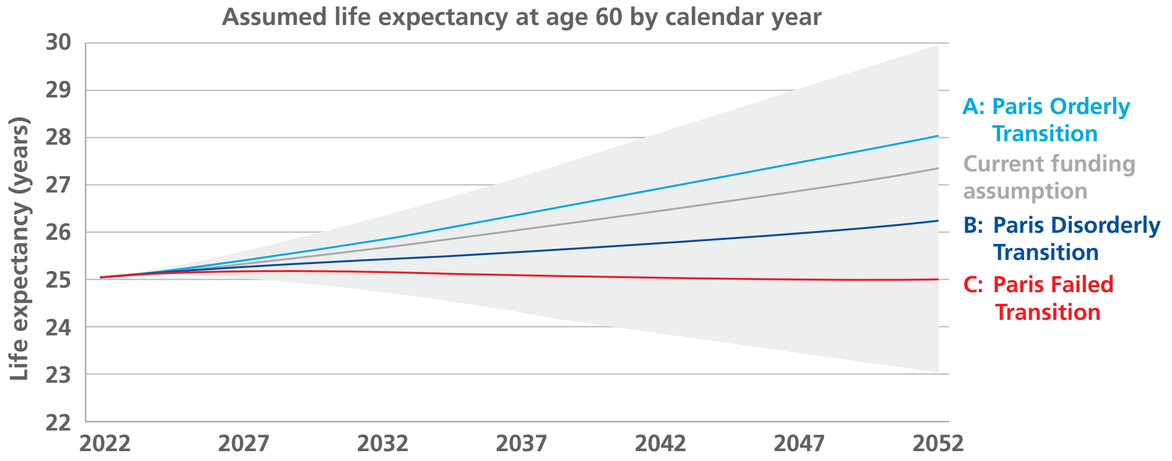


Figure 5.3.1.1: Projected changes to life expectancies in different climate scenarios for the DB Shared Cost Sections of the RPS and the BTPFSF.

[27] *i.e. including DB arrangements, but excluding DC arrangements.*

[28] *For the climate scenario analysis presented in this TCFD report, RPS data are as of 31st December 2021 (for asset allocation data and fund ranges) and 31st December 2019 (for membership liability data, being the date of the most recent valuation at time of analysis). For BTPFSF, WTW have assumed that the discount rates used to determine the technical provisions in the time since BTPFSF's last valuation 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.*

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 in figure 5.3.2.1 represent 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' 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).

Scenario	Indicative change in value of the overall liabilities for the RPS:			
	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%

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

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 (as referenced in section 5.1) 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' 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).

Scenario	Indicative change in value of the overall liabilities for the RPS:			
	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%

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

In the climate scenarios analysed, the impacts on 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.

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 indicative difference climate could make over 40 years to the ways in which assets, liabilities, and funding levels could change for non-climate reasons.

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

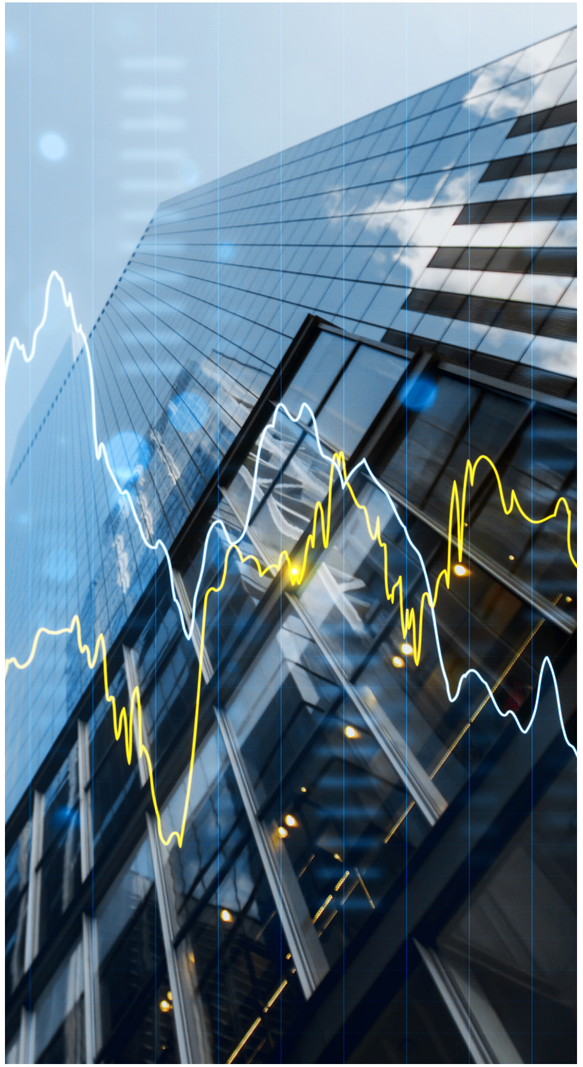
Scenario	Indicative change in value of the BTPFSF:		
	Assets	**Liabilities**	**Funding level**
Paris Orderly	-5.8%	+1.2%	-6.9%
Paris Disorderly	-11.7%	-2.4%	-9.5%
Failed Transition	-18.1%	-4.8%	-13.9%

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

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 realised.

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 following:

- 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 an investment-level lens and 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.

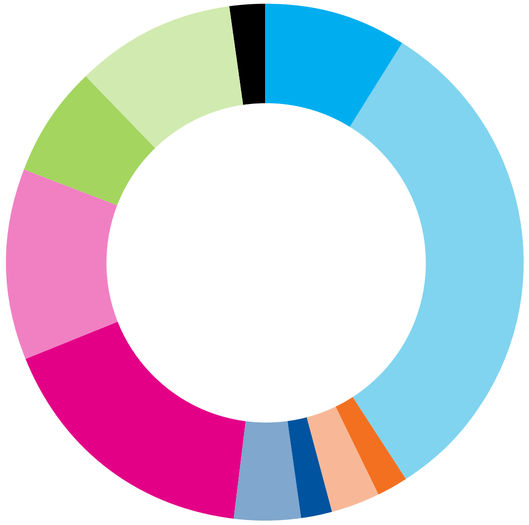
5.4.1.1 Supplementary data on asset allocation

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.

Pooled funds	£m
Growth	**18,152**
Illiquid Growth	**3,311**
Long Duration Index Linked Bond	**3,088**
Private Equity	**1,572**
Matching	**1,458**
Short Duration Index Linked Bond	**1,158**
Long Term Income	**866**
Non Government Bond	**572**
Global Equity	**337**
Passive Equity	**152**
Cash	**63**
Infrastructure	**8**
Government Bond	**-**
	30,737
BRASS and AVC Extra	**1,609**
Substitution orders	**1,041**
Annuities	**288**
	33,675
Cash and cash instruments	**225**
	33,900

Figure 5.4.1.1.1: RPS asset values as at 31 December 2024.

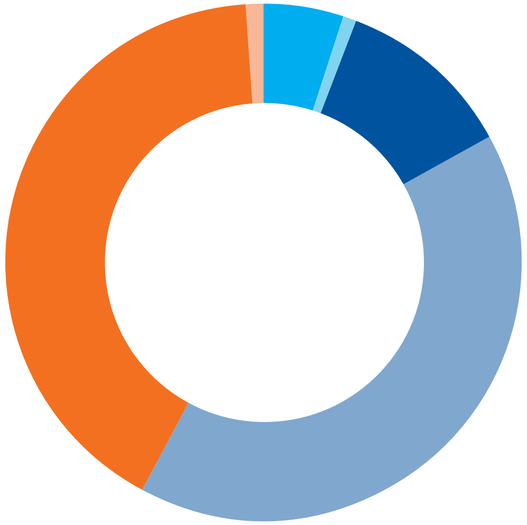
RPS asset allocation by asset class



9% Cash and Currency Instruments	17% Government Bonds
32% Public Equity	12% Private Equity
2% Private Debt	7% Property
3% Infrastructure	10% Corporate Credit
2% Royalties	2% Absolute Return
4% Insurance	

Figure 5.4.1.1.2: RPS asset allocation by asset class, 31 December 2024.

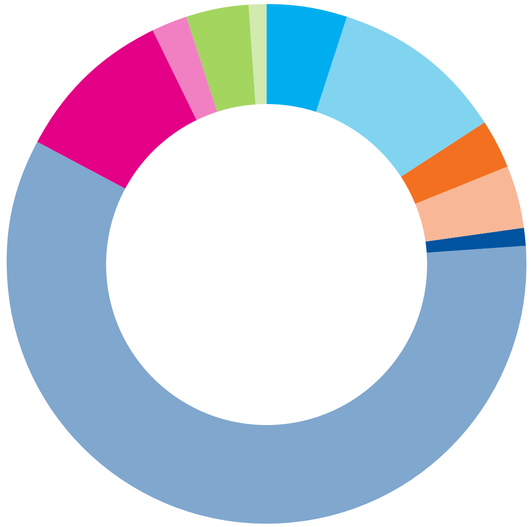
RPS asset allocation by geography



5% Asia Pacific excl. Japan	41% UK
1% Middle East & Africa	41% Americas
11% Europe excl. UK	1% Japan

Figure 5.4.1.1.3: RPS asset allocation by geography, 31 December 2024.

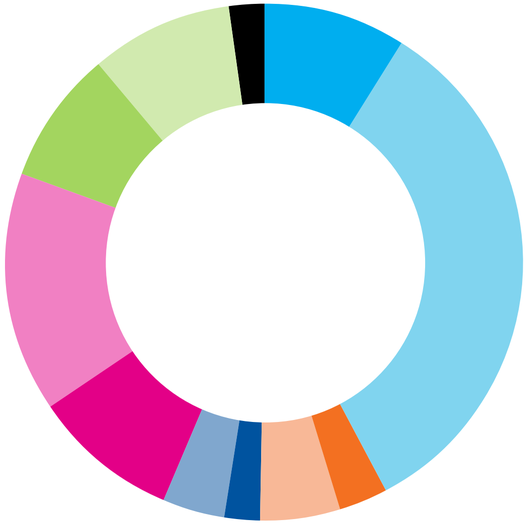
RPS asset allocation by pooled fund



5% Private Equity Pooled Fund	1% Global Equity Pooled Fund
0% Government Bond Pooled Fund	59% Growth Pooled Fund
11% Illiquid Growth Pooled Fund	0% Infrastructure
0% Cash	10% Long Duration Index-Linked Bond Fund
3% Long-Term Income Pooled Fund	2% Non Government Bond Pooled Fund
0% Passive Equity Pooled Fund	4% Short Duration Index-Linked Bond Fund
4% Short Maturing Pooled Fund	1% Long Maturing Pooled Fund

Figure 5.4.1.1.4: RPS asset allocation by pooled fund, 31 December 2024.

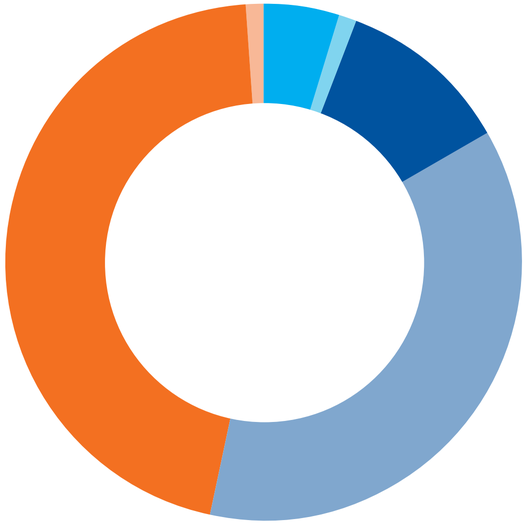
BTPFSF asset allocation by asset class



9%	Cash and Currency Instruments	9%	Government Bonds
33%	Public Equity	15%	Private Equity
3%	Private Debt	8%	Property
5%	Infrastructure	9%	Corporate Credit
2%	Royalties	2%	Absolute Return
4%	Insurance		

Figure 5.4.1.1.5: BTPFSF asset allocation by asset class, 31 December 2024.

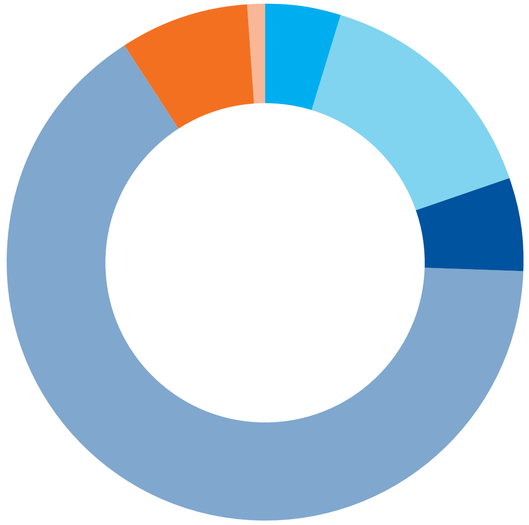
BTPFSF asset allocation by geography



5%	Asia Pacific excl. Japan	37%	UK
1%	Middle East & Africa	46%	Americas
11%	Europe excl. UK	1%	Japan

Figure 5.4.1.1.6: BTPFSF asset allocation by geography, 31 December 2024.

BTPFSF asset allocation by pooled fund



5%	Private Equity Pooled Fund	66%	Growth Pooled Fund
15%	Illiquid Growth Pooled Fund	0%	Infrastructure
0%	Cash	8%	Long Duration Index-Linked Bond Fund
6%	Long-Term Income Pooled Fund	1%	Short Duration Index-Linked Bond Fund

Figure 5.4.1.1.7: BTPFSF asset allocation by pooled fund, 31 December 2024.

5.4.2 Climate scenario analysis and resilience of the investment strategy

WTW were asked to conduct scenario analysis specifically focused on a portfolio of the most material listed equities held within the Growth Pooled Fund. This comprised approximately 120 holdings, accounting for around a quarter of the total assets in the Growth Pooled Fund. This approach was taken as it could balance deep bottom-up scenario analysis at a manageable number of individual companies, whilst also covering a material portion of the largest pooled fund used by both RPS and BTPFSF. This individual company analysis can also be seen as an effective complement to the more top-down approach undertaken by Absolute Strategy Research (as described in section 5.4.3), and the potential usefulness of such analysis was also highlighted in the findings of the peer asset owner review mentioned in section 5.1.

The analysis was undertaken by WTW's Climate Transition Analytics (CTA) team, which is a dedicated group of analysts specialising in climate transition risk. Each member offers critical insights and expertise in specific sectors and companies. WTW's analysis combines sector-level modelling with security-specific financial analysis, across different scenarios, to quantify the potential impact of the transition across a selection of equities. The WTW team delivered these results to Railpen through a combination of aggregate portfolio level overviews and security specific deep-dive sessions, ensuring Railpen's team could interrogate the results and apply them effectively into ongoing climate risk management processes.

5.4.2.1 Climate scenarios selected for analysis

A key part of the WTW approach is to assess how climate policy, technology shifts, and market dynamics could affect different industries under various sector-specific transition pathways. That is, WTW has investigated the various ways that the low-carbon transition could change technologies employed and their cost and efficiency, prices, margins, and demand on a sector level and, where relevant, even at an asset level, for all major industries and companies. WTW has developed these pathways by integrating multiple sources, including IPCC, IEA, NGFS[29], and WTW's own in-house modelling, to quantify economic impacts across key sectors.

The analysis conducted is based primarily on two scenarios, that together frame the maximum likely risk for the various companies:

- **Business as Usual (BAU) scenario:** This 'market expectations' scenario most closely reflects what we currently observe in the valuation of most companies and financial assets. Generally, this scenario is developed based on industry level paths that include no additional climate action beyond current policies and expectations, leading to approximately 3°C of warming.
- **2 Degrees scenario (2DS):** This aggregates a series of strong and consistent sector-level pathways that, on aggregate, produce an orderly transition in line with the Paris Agreement; that is, they limit global carbon emissions to a budget that the IPCC and others find consistent with limiting global temperature increases to well-below 2°C. WTW select the various sectoral pathways at consistent levels of feasibility and likelihood, such that the exposure of risk to the transition is consistent across sectors and companies. In practice, achieving the 2DS budget requires every sector to pursue all reasonable carbon reduction actions.

5.4.2.2 Sector modelling

WTW's research leverages numerous in-house global and regional commodity and sub-industry models. These sector insights inform the feasible and potential transition pathways across key economic sectors. Sectors and industries are linked and modelled together to capture the transmission of risks and opportunities across all relevant value chains.

In addition to assessing the direct effects of climate policy, linking these sector models allows WTW to model the specific economic shifts underpinning broader scenarios within each market. These economic shifts include changing demand for products and services, changing margins, technological development and their associated capex requirements.

The models vary depending on the nature of the risk in each sector. For example, the modelling includes asset-level commodity models to understand the risk for most companies in the oil, gas, coal, and other commodity sectors, where transition risk depends on the value of the resource being extracted and therefore the economics, location, timing, and capacity of individual assets. Those models forecast the impact on commodity prices in general – which feed into other sectoral analyses. For commodity producers, these models also capture the financial implications of a lower demand on asset utilisation, costs, capital expenditure, and margins at an asset level, and thus forecast cash flows generated by current and future production assets over the next 30 years, under different transition scenarios.

For companies and their securities in the manufacturing sectors, the risk is more often driven by changes in the demand for the manufactured products, the implications for growth expectations, asset utilisation, and the margin achieved on those products, rather than the value of the raw resource itself. For example, higher raw material prices – including carbon prices – will partly be passed onto consumers, with the impact on the manufacturer being driven by changes to growth expectations (positive and negative), price elasticity, and plant utilisation, all of which will affect volumes and margins.

Equities in the services industries are a step further removed whereby the impact of a transition will be on the growth of their customer base rather than directly on the products or commodities they sell. Two seemingly identical software service companies, at least in terms of carbon footprint of their product (software), could have very different outcomes if their product is used only by businesses that are likely to shrink in a transition versus one that will likely grow.

These models are regularly updated with new research and developments to ensure they remain accurate, incorporating factors such as economic viability and technological readiness to project the most probable future pathways.

[29] *IPCC = Intergovernmental Panel on Climate Change. IEA = International Energy Agency. NGFS = Network for Greening the Financial System.*

5.4.2.3 Company modelling

WTW's analysis begins with the basic principle that the value of an investment is its financial return; that is, the net present value of future free cash flows (FCFs). From that starting point, WTW ask how will the required changes to an industry or market change these future cash flows from what the market currently is expecting and, therefore, is in the current market price for that security.

WTW assess the business models of companies against the economic shifts that occur across the value chains in which they operate. The approach builds on an understanding of how economic shifts affect revenues, costs, capital expenditure and operating margins of various companies, across multiple climate scenarios, based on their respective business models (obtained through company and equity research).

WTW model transition risk for companies in commodity sectors with asset-level models. The analysis incorporates data and analysis of producing and potential resources for each commodity within a detailed review of business segments and assets owned by the company. The commodity models produce scenario-specific cash flow projections for resource extraction and production. WTW aggregate these cash flows at an asset level and combine these cash flows with manufacturing, trading, sales, or service segments (for example refining, trading and retail business segments) as shown in figure 5.4.2.3.2. Those projections account for the key transition risk drivers, including policy exposure, demand shifts, and technology disruption, as well as credible company strategies which may affect the exposure to transition risks.

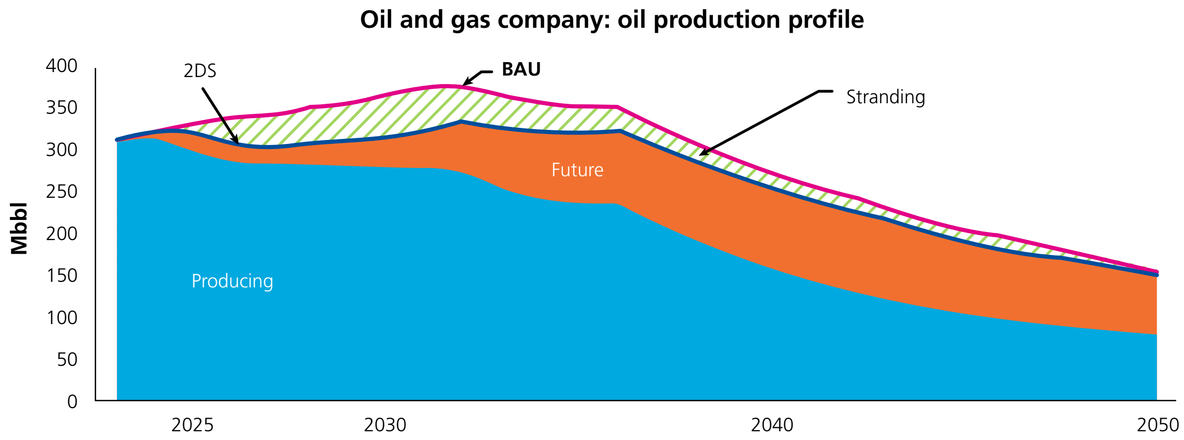


Figure 5.4.2.3.1: Transition risk summary for a commodity company. Source is WTW analysis.

To reflect the different nature of transition risk in manufacturing and services, WTW conduct analysis at a segment, rather than asset level. First, the value of a company and the relevant cash flows is broken down by segment (regionally differentiated if needed) so that each segment can be mapped to relevant sector level changes. Thus, a company involved in manufacturing three groups of products with one service line, may be exposed to three different sets of sectoral impacts, which adjust the cash flows from each business segment. Where relevant, the impact may be adjusted for the particular circumstances of the company being assessed, for instance, in cases where production is already fully contracted, these contracts will be taken into account. WTW also adjust for cases where, for instance, growth might be limited by access to natural resources, where competitive position might give the company stronger or weaker benefits from the transition upside, or where a country operates in regions with different market or regulatory environments. In the case of service companies, the analysis tends to be more focused on the relative growth of a company's client base, but with a similar result.

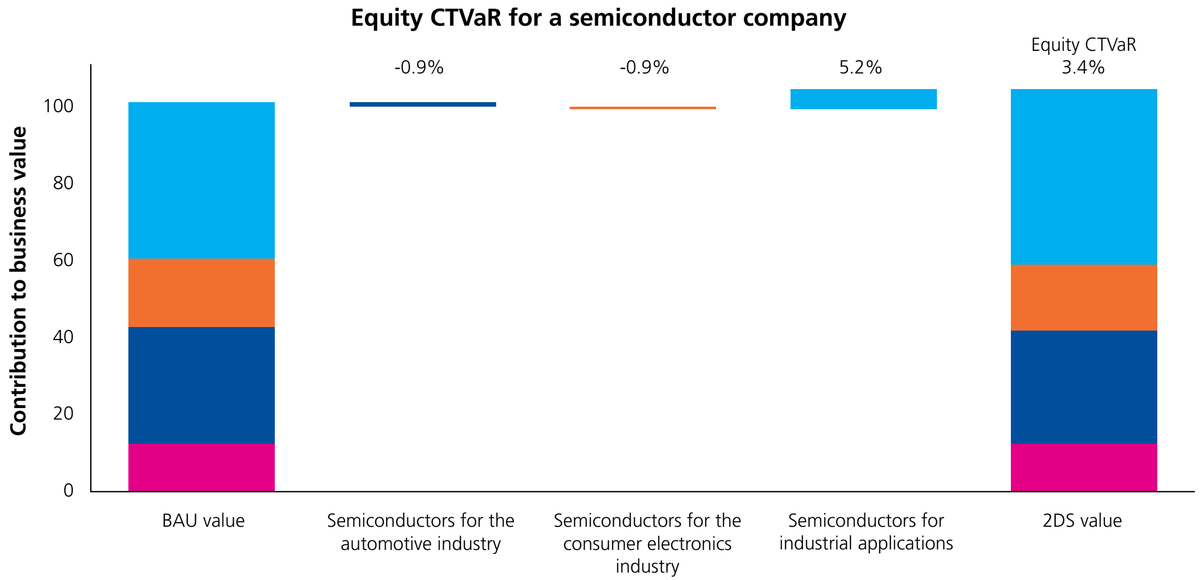


Figure 5.4.2.3.2: Transition risk summary for a company in a manufacturing sector. Source is WTW analysis.

In both cases, cash flows can be projected across all scenarios to understand how a low carbon transition could affect the enterprise value and equity value (depending on net debt and financial leverage) of each company. WTW refer to this metric as Climate Transition Value at Risk, or CTVaR.

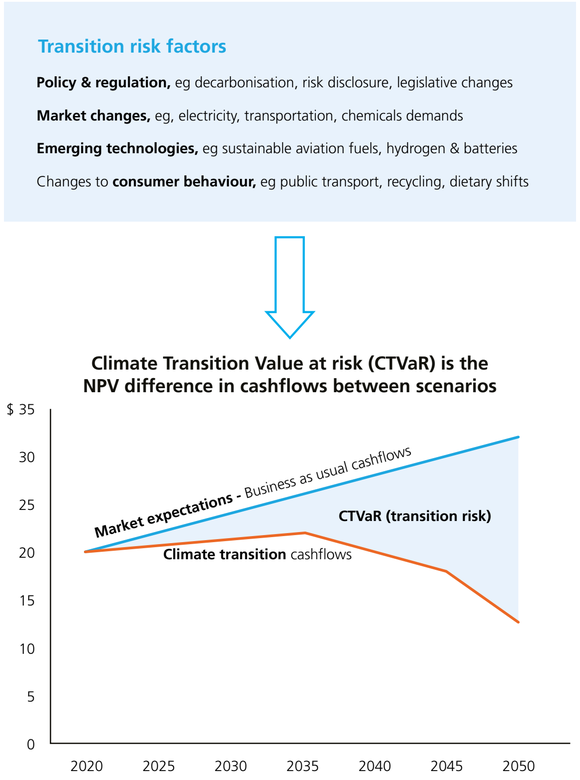


Figure 5.4.2.3.3: Climate Transition Value at Risk definition.

5.4.2.4 Portfolio-specific climate transition risk assessment

For the specific scenario analysis commissioned, WTW began with a high-level assessment of around 110 selected companies. The transition risk for each of those companies was quantified with the CTVaR metric to measure the financial impact under the 2DS scenario, with the CTVaR translated into equity-level impact as a function of the company's leverage and financial position. These findings were presented in a report, supported by a working session with Railpen's Sustainable Ownership and Fundamental Equities teams to explore the results in detail.

For each of the companies in scope, WTW provided further insights from the underlying sector and company models in a series of deep dive sessions. These sessions included the following:

- Two-way dialogues between the Railpen and WTW CTA teams.
- An overview of the sector analysis relevant for the equities in scope – illustrating the key assumptions, data used, approach taken and main results.
- Further details underlying the company models – key assumptions, breakdown of business segments, contributions of business segments (for manufacturing and service companies) or assets (for commodity companies) to overall risk.
- Scenarios – broader rationale for underlying scenarios and ongoing work on disorderly scenarios and their implications.

By linking sector-level trends to security-level financials, this work presented a consistent way to assess climate transition risk across a material portion of the Growth Pooled Fund in a way that was better aligned with existing valuation techniques and the investment processes. The WTW team was able to provide a clearer view of where risk is concentrated, both in terms of sectors and specific equities and provide a structured approach to assessing company transition strategies.

Importantly, this approach goes beyond regulatory compliance and disclosure requirements. Rather than treating climate risk as an abstract issue, the analysis provides a quantitative, actionable way to evaluate transition risk, ensuring Railpen and the Trustee can respond proactively as the low-carbon transition continues to unfold.

5.4.3 Climate scenario analysis conducted by Absolute Strategy Research (ASR)

ASR were asked to conduct scenario analysis on a macro, top-down basis, where the results and implications were most likely applicable across a broad range of the pooled funds, as well as providing insights that could be used within specific asset classes and investment portfolios. As such, it is intended as an effective complement to the more bottom-up, company-specific scenario analysis conducted by WTW and described in the previous section.

The analysis was undertaken by ASR's Climate Macro team, which focuses on providing investors with the building blocks required to create a climate-aware 'top-down' investment process, integrating climate change into views on macroeconomics, asset allocation and investment strategy. The ASR team scheduled a series of meetings and in-person workshops to deliver the results of their analysis to Railpen. These workshops were held with multiple Railpen teams with a view to embedding the insights of the analysis within various climate risk management processes undertaken across Railpen (and not just isolated to a single individual or team). ASR also delivered the results to the Trustee Sustainable Ownership Working Group.

5.4.3.1 Context and investment framework

ASR's climate macro investment framework has six principal components which are connected and feed into one another. These are:

- Climate policy – quantitative and qualitative analysis of policies and future pledges
- Societal response – public reaction to policies and physical climate risk
- Climate scenarios – with a foundation in the work of the Network for Greening the Financial System (NGFS)
- Base case – probability-weighted projections formed by ASR
- Macro impacts – growth, inflation and interest rate projections
- Market impacts – long-run return forecasts, market transition risks and opportunities

For the selection of scenarios from NGFS' work, ASR focused on: Current Policies, Fragmented World, Below 2°C, Net Zero 2050[30]. ASR also developed an 'extreme damage scenario' to help show the possible implications of some climate tipping points and feedback loops (to the extent possible). In particular, ASR focused on the impacts of their 'base case scenario', 'fragmented world', which is a disorderly transition, with high regional policy variation and fragmented rollout of clean technology.

For a quantitative assessment of the transition, ASR utilise a 'Kaya Framework'. The 'Kaya Identity' splits CO2 emission growth into GDP growth and the rate of decarbonisation.

$$CO2 = P * \frac{GDP}{P} * \frac{E}{GDP} * \frac{CO2}{E}$$

P : Population

$\frac{GDP}{P}$: GDP per capita

$\frac{E}{GDP}$: Energy Intensity (energy use per unit GDP)

$\frac{CO2}{E}$: Carbon Intensity (CO2 emitted per unit of energy used)

Figure 5.4.3.1.1: Kaya Identity.

Stronger GDP growth drives emissions up, while the latter term – comprising energy efficiency and the clean energy transition – drives emissions down. ASR note that the rate of decarbonisation has not changed materially in the past 50-60 years, despite all the declarations of stronger climate policy.

From here, for a given path of GDP trend, ASR can back out the required rate of decarbonisation under different CO2 targets, and assess its feasibility. The Kaya Identity lays bare the difficulty in meeting emission reduction targets while the economy is growing. Figure 5.4.3.1.2 shows the cumulative % change in CO2 emissions since 1965 on a global basis. This analysis can be done at country and regional levels also.

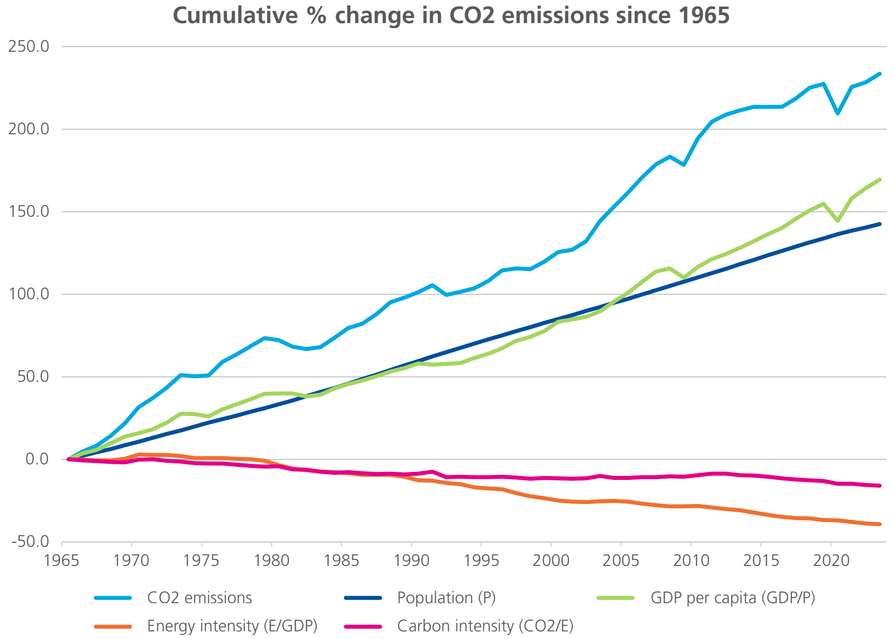


Figure 5.4.3.1.2: Cumulative % change in CO2 emissions since 1965.

When considering climate policy, analysis includes tracking policy changes and momentum across multiple countries and regions. This can be tied to the Kaya work on the feasibility of climate targets or commitments, and combined with the scenario inputs to help inform a probability-weighted base case.

An important addition here is the understanding of societal responses, particularly as it flows into opinion polling and ultimately voting trends. ASR highlight how climate policy can often follow public opinion, and therefore track how voters prioritise – or deprioritise – climate over time, and by region. This is illustrated in figure 5.4.3.1.3, showing a significant recent de-prioritisation of climate change across regions since 2020-21.

[30] *For more information on NGFS' scenario analysis, please see NGFS Scenarios Portal.*

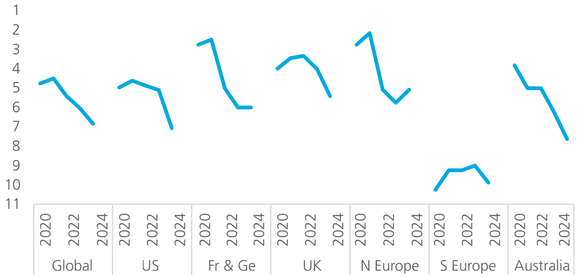


Figure 5.4.3.1.3: Ranking of climate change in list of 'most important issues' for voters.

A critical further piece of context behind ASR's climate scenario analysis is the recognition of physical climate risk rising, and extreme climate conditions often exceeding scientific expectations or modelling. This is notable in terms of record high global average temperatures and record low levels of Antarctic sea ice seen in recent years as two very concerning examples. Some important takeaways from this are that significant physical climate change (and accompanying risk) will occur no matter which future climate scenario unfolds, and that these physical changes and risks are coming more quickly and more severely than many previous forecasts have suggested.

5.4.3.2 Base case scenarios and select themes

Building on the context and investment framework above, ASR have identified a 'base case pathway' for the climate transition. This reflects that increasing extreme weather and climate impacts are likely to be a catalyst for change. Coupled with the observation that market mechanisms are not delivering decarbonisation at the rate or scale necessary, ASR view the most likely policy mechanism to be employed as carbon pricing. This in turn should unlock a range of clean technology solutions, and accompanying demand for metals and minerals, for example. In addition though, given the increasing levels of physical climate risks and impacts, there will also likely be increased spending on climate adaptation, water and food.

ASR's 'base case pathway' sees CO2 emissions remain high for the remainder of this decade, before declining by around 40% by 2050. Clean energy share rises to around 20% by 2030 and reaches around 50% by 2050. The carbon pricing mechanism, observed in the paragraph above, comes through in a more than tripling of the price in the next 10 years on a global emission-weighted average basis, with significantly higher absolute levels of that carbon price in developed markets.

Some of the themes explored in ASR's scenario analysis are around adaptation and resilience, recognising that future climate pathways all come with significant levels of physical risk and disruption. Two examples are water and food.

On water, ASR note that water availability per person has declined 60% over the past 60 years[31], and with rising populations and potential consumption shifts further pressuring water resources, high water stress could impact 60% of the world's population by 2050. Large areas of Europe and the US could be under extreme water stress by 2050 as illustrated in figure 5.4.3.2.1.

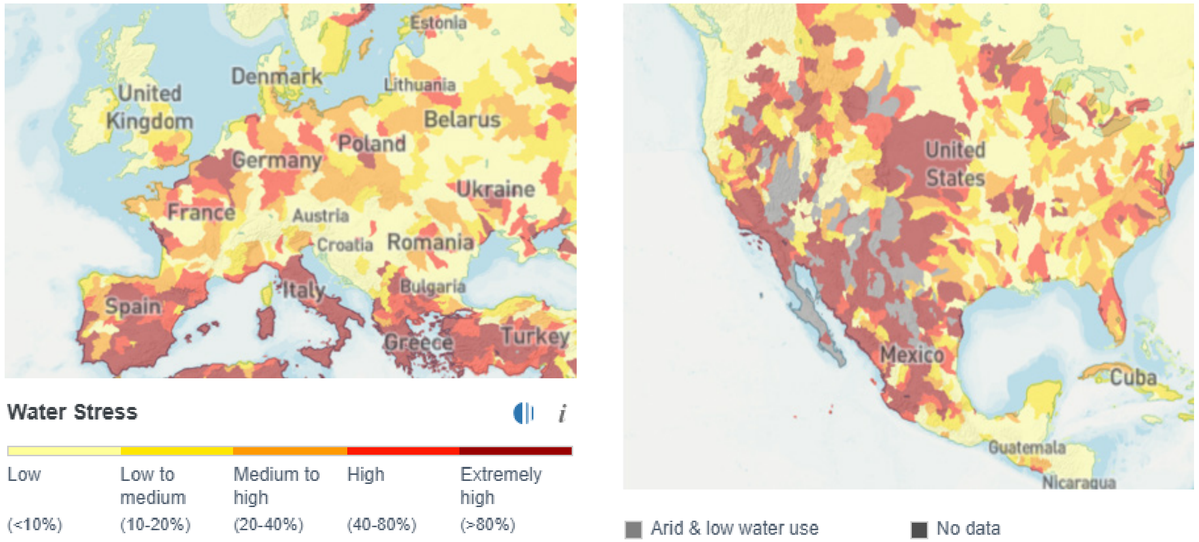


Figure 5.4.3.2.1: Potential water stress in 2050 by region[32]. Source: WRI Aqueduct Model

On food, rising populations and incomes will likely drive an increase in annual food demand of 20-38% by 2050 versus 2020 levels, according to ASR analysis. Chronic and acute climate risks could lead to significant food insecurity, with rising temperatures potentially reducing corn yields by 35% in a 2°C world, for example. The IPCC, amongst others, have noted the already increased frequency and size of climate-related food production losses in crops, livestock, fisheries and aquacultures in recent decades.

[31] *Source: ASR analysis and UN Aquastat.*

[32] *Two screenshots from Aqueduct Water Risk Atlas. Settings: Future, 2050 projection, Business as usual, Water stress.*

5.4.3.3 Outcomes: long run return implications, impact on pension funds

Pulling together the context and analysis outlined in the previous pages, ASR have produced a range of outputs including long-run return expectations across a number of asset classes, as well as inflation, interest rate and growth.

As physical climate risks build, growth is expected to be pushed lower, with higher levels of inflation. Rising inflation expectations also push bond yields higher, whilst equity returns suffer in real terms, albeit with the aggregate impact masking material sector divergences for example between agricultural commodities and energy.

However, it is important to exercise significant caution with economic modelling of climate pathways, in particular due to the challenge of handling extreme warming and climate tipping points. To illustrate this, ASR show two plausible lines of best fit when plotting economic damage against temperatures in figure 5.4.3.3.1. Whilst commonly used models assume more moderate economic damage, alternative models point to vastly different damage in moderate to high temperature scenarios. Given the uncertainty in climate and economic modelling, this further underscores the critical importance of limiting global temperature rise in line with the goals of the Paris Agreement.

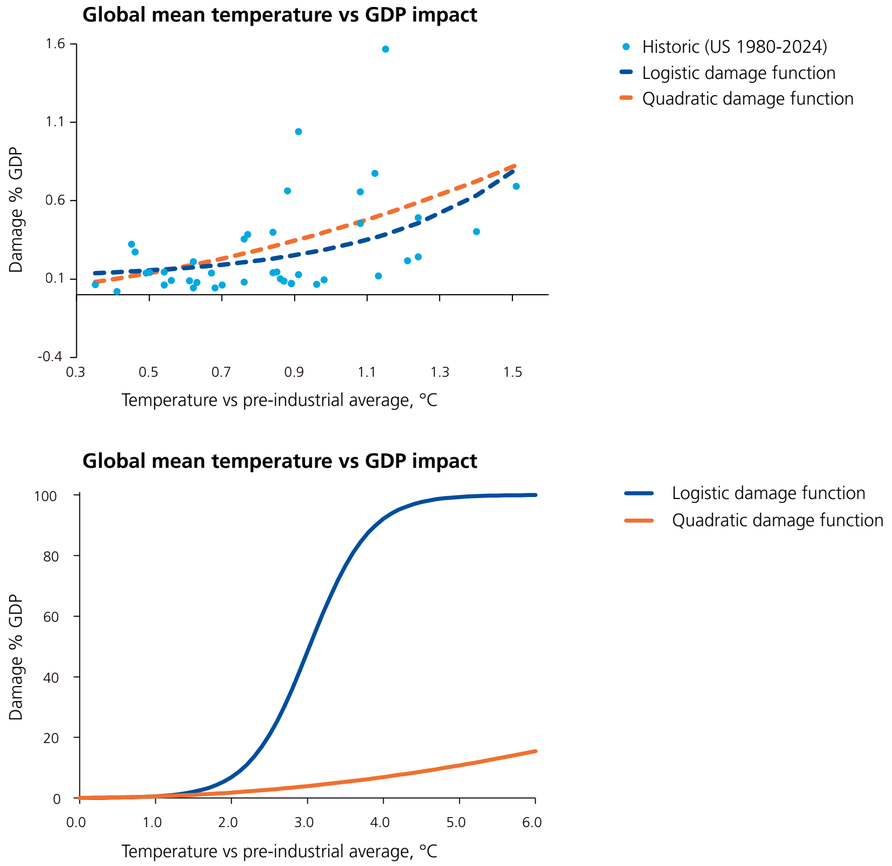


Figure 5.4.3.3.1: Global mean temperature vs GDP impact.

5.4.4 Risks, opportunities, impacts and resilience

The climate scenario analysis on the investment portfolio suggests the following conclusions in respect of investment strategy risks, opportunities, impacts and resilience:

- Expected returns are affected negatively across every time horizon considered, with scenarios featuring greater disorder and more extreme damage showing the most negative impacts. This scenario analysis continues to suggest that long-term investors have an economic incentive to support an orderly transition in line with the goals of the Paris Agreement.
- The greatest climate-related risks relevant to the scheme over the time periods that the Trustee as identified are as follows:
  - Physical climate risk in all scenarios, but particularly those when the transition to a low-carbon or net-zero economy fails. There are regional and sector considerations; however, physical risks can be seen across the vast majority of investment strategies and so cannot be isolated to a small sub-set of the investment portfolio.
  - Transition risk when global climate policy is uncoordinated, subject to uncertainty, and market reactions are more sudden. Some specific sectoral and company-level considerations were drawn out through the WTW analysis.
  - In terms of strategic asset allocation, growth assets are modelled to be less resilient across climate scenarios than defensive assets. However, growth assets are still expected to deliver a higher rate of return than defensive assets, even accounting for climate-related impacts in 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. Maintaining a diversified portfolio ought 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, energy, utilities and materials, showed significant impacts, both in terms of individual company risks as well as the dispersion of outcomes within sectors. 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 as follows:
  - Certain sectors and themes, such as those relating to adaptation and resilience, water and food, could prove to be prudent investments across a range of scenarios, particularly those with greater levels of physical risk.
  - Stewarding high climate risk 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 goals of the Paris Agreement experience greater impacts in the short term, but those with slow or limited transitions have 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.

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 take the following action:

- Continue to analyse, monitor and manage the highest climate risk 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.

5.4.4 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, the 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 be managed in line with net zero by 2050 or sooner. Figure 5.4.4.1 provides an overview of climate risk integration for the schemes, with a focus on the investment pillar; explanations are provided in the sections that follow.

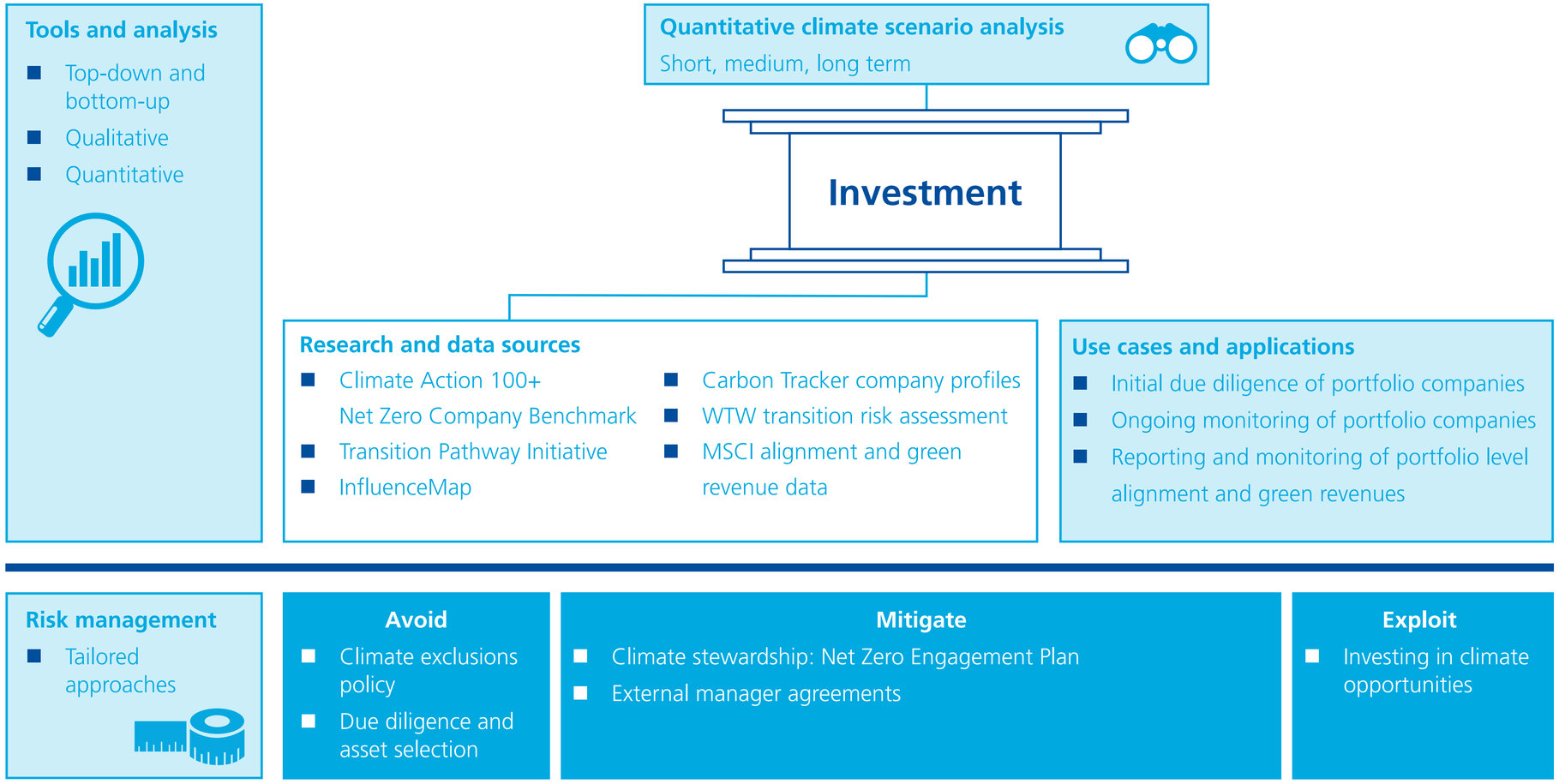


Figure 5.4.4.1: Schematic depicting climate risk integration in the investment portfolio.

5.4.4.1 Climate risk management in the investment process

Risk identification and assessment are powered by quantitative scenario analysis (explained in the previous sections), qualitative analysis (for example, in assessing the way climate risks could threaten employer covenant strength), and a variety of research and data sources that are aligned with industry best practice (listed in figure 5.4.4.1). 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 set a supportive and enabling regulatory environment, 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 on the management of 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.

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 funds above		
	Long-term growth	As per Growth Fund above		

Avoid		Mitigate		Exploit	
a	Climate risk exclusions	**d**	Legals & contracts	**j**	Monitoring and re-measuring
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	Value creation plan		

Figure 5.4.4.1.1: Techniques used to identify and assess climate risks in the investment portfolio[33].

[33] *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 have been additionally analysed. We provide detail on risk management in public markets portfolios in section 6.4. We comment briefly below and in more detail in sections 6.2.1, 6.2.2 and 6.2.3 on activities undertaken within private markets and real assets.

5.4.4.2 Climate risk integration in private markets and real assets

Private markets investors are beset by a lower level of climate-related information compared to public markets. In addition, private markets have been slower to develop net-zero methodologies. Sections 6.2.1, 6.2.2 and 6.2.3 describes in more detail how climate risk is integrated in private markets, and what climate-related metrics are currently available for the portfolios in question.

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. For more details on climate risk integration and climate data in real assets, please see sections 6.2.1 and 6.2.2.

5.4.4.3 External managers and climate risk integration

Scheme assets are managed by a mixture of internal and external investment managers. 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 zero. These expectations are set out in Investment Management Agreements (IMAs), with the Trustee's Statement of Investment Principles (SIP) being appended, as appropriate.

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.

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 (e.g. 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[34,35]). The UK power sector is targeting decarbonisation by 2030, creating a supportive policy environment for investments in technologies that address climate mitigation[36]. 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. 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. Sections 6.2.1, 6.2.2 and 6.2.3 provides some case studies that illustrate our climate solutions investments in property, infrastructure and private markets.

This year, we have gathered climate solutions data where reasonably possible across listed assets, private markets, property, and infrastructure investments. As at the end of 2024, we estimate that we have 3% of listed assets classified as climate solutions[37]. We estimate that climate solutions represent 23% and 5% of infrastructure and property investments respectively[38]. In total, 5% of private markets investments classify as eligible climate solutions[39]. The data collection efforts completed in 2024 will help establish a baseline level of data across asset classes, enabling us to measure progress in the future.

34 *HM Government UK Climate Change Risk Assessment 2022.*

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

36 *UK – Climate Performance Ranking 2025 | Climate Change Performance Index.*

37 *This number is calculated based on green revenue data provided by MSCI.*

38 *Please refer to sections 6.2.1 and 6.2.2 for more details around the methodology for the climate solution classification.*

39 *Please refer to section 6.2.3 for more details around the methodology for the climate solution classification.*

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. We are also continuing to report this year on section-by-section climate metrics[40] (see Appendix E).

	Description	Selection rationale	Target
Total GHG emissions[41] (tCO_2e)	This is an **absolute emissions** metric that measures the total greenhouse gas emissions attributable to a portfolio	Recommended by statutory guidance	n/a
Carbon footprint (tCO_2e/ £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[42], measured by AUM, aligned to a net-zero pathway. Defined in the statutory guidance as a '**binary target measurement**'	■ Forward-looking metric ■ Simple to understand ■ Linked to industry frameworks such as the Net Zero Investment Framework[43] ■ Conducive to investment stewardship activities, e.g. engaging portfolio companies for net-zero alignment	100% of the AUM in material sectors to be ratedas 'aligning' or 'fully aligned' by 2040
Company engagement (%)	Proportion of the portfolio[44], weighted by financed emissions, being engaged	PCRIG's[45] 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

Figure 6.1.1: Trustee's selection of climate metrics.

[40] *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.*

[41] *Scopes 1 and 2, as explained in this section.*

[42] *Considering companies that are the biggest contributors to the schemes' financed emissions in relevant investment portfolios, as further detailed in this TCFD report.*

[43] *Authored by the Paris Aligned Investing Initiative.*

[44] *Considering companies that are the biggest contributors to the schemes' financed emissions in relevant investment portfolios.*

[45] *Pensions Climate Risk Industry Group.*

Data we have been able and unable to gather: For the purposes of this 2024 TCFD report, the Trustee has obtained Scope 1 and Scope 2 GHG emissions data as far as able to do so[46]. 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.

As stated in our 2023 TCFD report[47], Railpen, on behalf of the Trustee, has begun to gather GHG data for property, infrastructure and private markets. Sections 6.2.1, 6.2.2 and 6.2.3 provide more detail around this process, the challenges we faced when collecting this data, and how we look to improve coverage and data quality going forward for these asset classes. This data is reported and tracked separately due to methodological differences and difficulties with aggregating data across different asset classes.

We have reported some information in section 6.2.4 (below) in relation to the schemes' investments in sovereign bonds, and the associated GHG emissions and alignment status. Emissions data is sourced from the Department for Energy Security and Net Zero. 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): A significant majority of the schemes' assets have some GHG data used and reported in this TCFD report. We have reported the data coverage and quality in the following pages; however, since our two data providers for listed companies 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 for listed companies does not allow us to break down the data quality of Scope 3 data into 'verified', 'reported', and 'estimated'.

Coverage and methodology of the alignment metric: This year, the data behind the Trustee's chosen alignment metric has been updated to align with industry best practice. The metric is now based on the alignment assessment within the Net Zero Investment Framework (NZIF). This assessment evaluates a company's performance across six criteria: 1. ambition, targets, 2. disclosure, 3. decarbonisation plan, 4. capital allocation plan, and 5. emissions performance. Companies are then classified into five alignment categories: 1. Achieving Net Zero, 2. Aligned, 3. Aligning, 4. Committed, and 5. Not Aligned. MSCI provides this data through the MSCI Climate Change Metrics, utilising a data-mapping solution that matches issuers to the NZIF alignment categories based on the criteria mentioned in this TCFD report.

Whilst we have commented on the alignment status of our investments in sovereign bonds in section 6.2.4 (below), this information is reported separately in that section given the different methodology used. This year, we have also included alignment data for private markets, infrastructure, and property investments. Due to methodological differences, this data is reported separately. For alignment data and the methodologies employed for these asset classes, please refer to sections 6.2.1, 6.2.2 and 6.2.3.

[46] *GHG emission scopes are defined in the Glossary of this TCFD report. See category 15 emissions (investment emissions) in the GHG Protocol Technical Guidance for more information.*

[47] *RPTCL 2023 – Taskforce on Climate-Related Financial Disclosures.*

Methodology used to measure performance against targets: The Trustee has selected climate targets as noted in figure 6.1.1. 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.

As outlined in our 2023 TCFD report[48], Railpen has developed a re-baselining framework to enhance transparency and accountability through improved comparison over time. This initiative was undertaken in the context of two new strategies implemented in 2023 and the termination of a mandate in 2024.

In April 2023, Railpen established the Energy Transition Portfolio (ETP), an actively managed, concentrated public equity strategy focusing on companies in the energy, utilities, and materials sectors. In July 2023, Railpen awarded a £2 billion mandate to Neuberger Berman to manage a liquid multi-asset credit strategy. In September 2024, Railpen terminated its Baillie Gifford China A shares mandate.

These strategic changes are expected to significantly alter the sectoral and regional weights of the Growth Pooled Fund. Given the concentration of Scope 1 and Scope 2 emissions in certain sectors and regions, this is likely to materially influence the GHG footprint of the Growth Pooled Fund in the near term. In line with NZIF recommendations, Railpen has developed a policy to re-baseline the 2020 emissions figures for significant strategic changes impacting sector and regional allocations.

For the new strategies initiated in 2023, Railpen approximated emissions for the baseline year (2020) based on representative exposures or benchmarks from that time, and added these to the baseline emissions figure. For the mandate terminated in 2024, emissions associated with the strategy were removed from the 2020 baseline calculation. Figure 6.2.1 presents the re-baselined emissions for the base year, alongside non-adjusted baseline emissions and performance against both of these. We emphasise performance against the re-baselined 2020 emissions as we believe this provides a more accurate comparison; however we have followed best practice guidelines in presenting all relevant figures.

It is important to note that this re-baselining strategy is subject to significant assumptions and estimations. Railpen acknowledges that any baseline is subject to material change due to company restatements of emissions, coverage changes, and methodological adjustments. Achieving a true picture of comparable baseline emissions remains challenging, and Railpen will continue to seek improvements going forward.

[48] *RPTCL 2023 – Taskforce on Climate-Related Financial Disclosures*.

6.2 Metrics and targets: 2024 data

Metric	2024	Re-baselined emissions base year (A)	Unadjusted base year (B)	Performance vs. A (vs.B)	Target
Total GHG emissions[49] (tCO_2e)	803,272	2,003,685	1,191,915	-60% (-33%)	n/a
Carbon footprint (tCO_2e/ £m invested)	60	102	70	-41% (-14%)	25-30% reduction by 2025
Portfolio alignment (%)	23	n/a	n/a[50]	n/a	100% in material sectors by 2040
Company engagement (%)	74[51]	n/a	70	+4%	70% today, rising to 90% by 2030

Figure 6.2.1: The metrics and their values as of 31 December 2024 and the base year (December 2020).

The 41% reduction in carbon footprint (compared to the re-baselined emissions figure) 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. Comparing to the non-adjusted baseline leads to a 14% decrease in carbon footprint relative to the base year. The smaller decrease is materially driven by the changes in sectoral and regional exposures as a result of the strategic portfolio changes described above in section 6.1.

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 based on the NZIF alignment framework described in section 5.4, with data being provided by MSCI. This framework sets a high bar for a company to be described as 'aligning' or 'aligned' to net zero, and the data shown in figure 6.2.1 reflects this. This year, we have implemented a new methodology (described in section 5.4) for calculating the alignment metric. As a result, there is no baseline number available for comparison. The alignment figures reported for this year are not directly comparable to those from previous years due to these methodological changes.

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

[50] *In 2024, we implemented a new methodology for the alignment metric. As a result, there is no baseline number for comparison.*

[51] *The engagement programme of focus companies is decided at the start of the year, but new investments made during the year can be added to the engagement programme as appropriate. The disclosed metric has been calculated to include all holdings that were in the engagement plan at the start of 2024 (using their respective financed emissions at that time) together with any additional holdings that were added to the engagement plan during the year (using their respective financed emissions as at the end of 2024). The denominator used is a simple average of the total emissions at the start and end of 2024.*

		Total GHG emissions[52] (tCO_2e)	Carbon footprint (tCO_2e/£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_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)	Scope 3 data quality: unavailable GHG data (%)
DB pooled funds	**Growth Pooled Fund**[53] int, eq	691,415	60	23	51	13	35	4,830,202	433	63	37
	Passive Equity Pooled Fund ext, eq	5,479	40	n/a	66	24	10	61,476	457	88	12
	Global Equity Pooled Fund ext, eq	25,368	80	n/a	81	13	5	251,126	803	93	7
	Non-government Bond Pooled Fund ext, fi	29,183	57	n/a	77	14	8	332,881	659	91	9
DC pooled funds	**DC Long-Term Growth Fund** int, eq	37,286	60	23	51	13	35	260,480	433	63	37
	DC Global Equity Pooled Fund ext, eq	9,731	40	n/a	66	24	10	109,183	457	88	12
	DC Corporate Bond ext, fi	4,810	57	n/a	77	14	8	54,862	659	91	9

Figure 6.2.2: Climate metrics by pooled fund (as of 31 December 2024).

int *internally managed portfolios* eq *listed equity portfolios*

ext *externally managed portfolios* fi *corporate fixed income portfolio*

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

- 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. This is mitigated by the supplemental emissions data provided in sections 6.2.1, 6.2.2 and 6.2.3.
- There have been some material year-on-year movements, which highlights that GHG emissions-related metric can be volatile measures and therefore it may be more reasonable to draw inferences on longer-term trends rather than short-term variations.

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

[53] *Includes listed equity investments in the Growth Pooled Fund only.*

	Total GHG emissions[54] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)	Scope 3 data quality: unavailable GHG data (%)
RPS	**761,169**	**60**	**53**	**13**	**34**	**5,596,425**	**453**	**65**	**35**
Of which DB sections	713,086	60	53	13	34	5,527,707	453	64	36
Of which BRASS	38,412	55	56	15	29	310,376	455	69	31
Of which AVC Extra	870	52	61	17	22	8,118	493	77	23
Of which IWDC	8,801	57	55	15	30	70,224	465	68	32
BTPFSF	**38,104**	**60**	**51**	**13**	**35**	**266,501**	**433**	**63**	**37**
Of which DB sections	37,915	60	51	13	35	264,871	433	63	37
Of which BRASS	105	54	57	16	27	882	461	71	29
Of which AVC Extra	84	55	60	15	25	748	502	74	26
BRSF	**475**	**60**	**51**	**13**	**35**	**3,318**	**433**	**63**	**37**
Of which DB sections	475	60	51	13	35	3,318	433	63	37

Figure 6.2.3: GHG metrics by scheme (as of 31 December 2024).

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

6.2.1 Metrics: 2024 data – supplement on the Long-Term Income Pooled Fund and Growth Infrastructure Portfolio

Our approach to climate integration

The Real Asset team's activity spans real estate and infrastructure investments, including renewable energy assets that represent significant climate opportunities. The investments are held in two portfolios, the Long-Term Income Pooled Fund (LTIF) and the Growth Infrastructure Portfolio (GIP).

These assets are intended to be resilient through turbulent times, so it is critical that they are sustainable by nature and that we continue to encourage ongoing improvements. As such, we actively incorporate ESG considerations, including climate, into our investment process and asset management.

For direct investments, we begin the due diligence process by producing a 'Materiality Map', which lays out the sector-level ESG factors for a proposed investment against our assessment of the relative financial impact and importance to stakeholders. Materiality maps are not only used to help identify the ESG factors that should be analysed as part of investment due diligence, but also those that should be regularly monitored. For indirect investments, we use our Manager Assessment Framework (MAF) to determine whether the quality of their ESG risk management is low, medium or high. We periodically review the managers' integration of climate risks and opportunities into their investment processes.

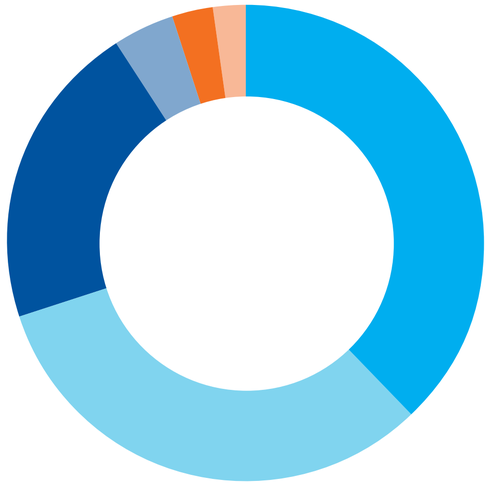


Figure 6.2.1.1: Investments in the Long-Term Income Pooled Fund and Growth Infrastructure Portfolio by sector (as of most recently available valuation at December 2024).

Data findings

GHG emissions

This year we sought to gather GHG emission data for all in scope assets held in the two portfolios[55]. The availability of data across all three scopes of emissions was around 45%[56]. Based on available information, the portfolios' Scope 1 & 2 carbon footprint is estimated to be 77 tCO2e/£m invested. The data is shown in figure 6.2.1.2.

Many of the assets held in these portfolios 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).

Alignment

Our alignment assessment for infrastructure is based on the IIGCC's Net Zero Investment Framework 2.0, which was published in 2024. Assessment criteria include emissions performance, decarbonisation planning, governance, disclosure, targets, and ambition. We evaluated the assets' fulfilment of each criterion to determine their alignment category, ranging from 'not aligned' to 'achieving net zero'. More detail on our alignment assessment for real estate assets can be found in section 6.2.2.

Information on alignment category was available for 64% of the assets. Our baseline assessment indicates that 28% of assets are aligned to a net zero pathway, with a further 22% committed to or in the process of aligning. This data is shown in figure 6.2.1.3.

			Scope 1 & 2 GHG data quality					Scope 3 GHG data quality		
	Total Scope 1 & 2 GHG emissions (tCO_2e)	Scope 1 & 2 carbon footprint (tCO_2e/£m invested)	Reported (%)	Estimated (%)	Unavailable (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Reported (%)	Estimated (%)	Unavailable (%)
LTIF & GIP	45,558	77	33	10	58	43,203	67	34	12	54

Figure 6.2.1.2: GHG metrics for LTIF and GIP.

	No data (%)	Not aligned (%)	Committed to aligning (%)	Aligning to a net zero pathway (%)	Aligned to or achieving a net zero pathway (%)
LTIF & GIP	36	15	18	4	28

Figure 6.2.1.3: Alignment metrics for LTIP and GIP.

[55] *All infrastructure assets are in scope of data gathering with the exception of those being sold or lacking an appropriate assessment methodology.*

[56] *All percentages are reported by valuation at the most recently available date, with data rounded to the nearest whole number. Percentages may not sum to 100% due to rounding.*

Climate solutions

Our climate solutions assessment for infrastructure is drawn from the EU Taxonomy – an established classification system that can be applied across the portfolios' diverse range of assets. To determine if assets involved in 'eligible' activities could be classified as climate solutions, we examined compliance with the EU Taxonomy Technical Screening Criteria (TSC) so that environmental objectives were not adversely affected by the activity. More detail on our climate solutions assessment for real estate assets can be found in section 6.2.2.

Information around climate solutions was less readily available than emissions and alignment, with 32% of the assets being categorised this year. Around a quarter of the assets are deemed to be climate solutions, but this proportion may increase as new data becomes available.

Our engagement and priorities

We will continue focusing on materiality assessments and climate integration during the investment process to enhance the value and resiliency of our assets.

We aim to improve the ongoing coverage and quality of GHG emissions and alignment data. If assets have been unable to provide data, we will include this in our engagement plans where possible, noting that data collection for real estate assets presents particular challenges (details in section 6.2.2).

We aim to strengthen our assets' and managers' understanding of the climate solutions assessment, which will enable us to fill gaps in our baseline data.

Case study: **Climate solutions**

In 2024, Railpen acquired a 50% shareholding in AGR Power (AGR), a leading London-based renewable energy and sustainable infrastructure developer. For Railpen, the investment in AGR reflects our continued commitment to investing in essential infrastructure, with over £500 million invested into UK energy infrastructure projects since 2019 including wind, solar, biomass and energy storage. Many of these projects have been classified as climate solutions within our assessment framework.

AGR has delivered more than 55 projects totalling over 1.1GW of renewable power to support the UK's energy transition and food security. Railpen's investment in AGR will facilitate the business in constructing a portfolio of assets and achieving its target of putting over 500MW of high-quality renewable assets in operation by 2029.

As part of the partnership, Railpen has committed to invest in AGR's near-term UK solar, Battery Energy Storage System (BESS), and greenhouse projects. This investment will facilitate the construction of 160MWp of solar photovoltaics (PV), 150MW of BESS, and AGR's second sustainable greenhouse in 2024/25. Previously, AGR developed one of UK's largest and most technologically advanced sustainable greenhouse projects, Fenland Greenhouse in Cambridgeshire, which currently spans over 22 hectares and produces over 2.5 million vegetables a week.

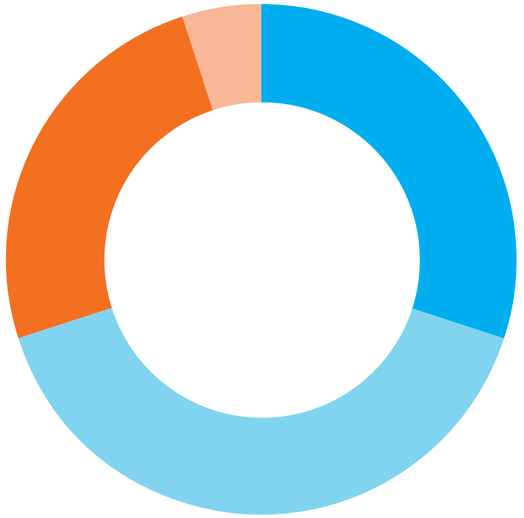
6.2.2 Metrics: 2023 data – supplement on property assets

Our approach to climate integration

Our long-term approach sees us investing in real assets because they provide the diversification, stability and long-term reliable growth our members need to help us to secure their future, while also enabling us to deliver social, economic, and environmental value.

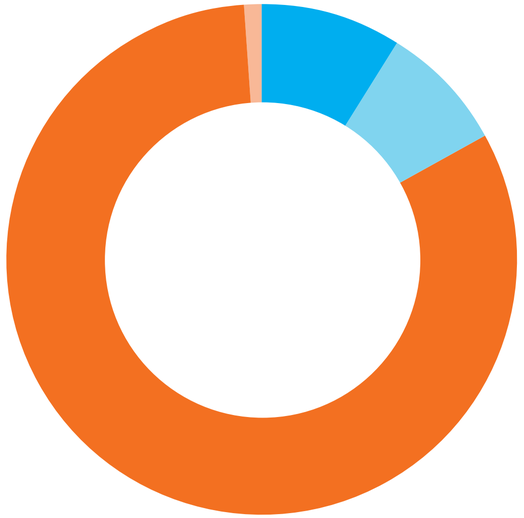
Railpen's in-house property team target commercial and mixed use investments and apply asset management experience to generate added value through development, refurbishment, repositioning and income enhancement projects.

Property investments by sector



- **30%** Industrial
- **40%** Office (incl. mixed use)
- **25%** Retail
- **5%** Other

Status of property investments



- **9%** Under redurbishment
- **8%** Under development
- **82%** Operational
- **1%** Awaiting development

Figure 6.2.2.1: Property investments by sector and by status.

The property team also oversees the integration of sustainability in its investments, including climate. The boxes below illustrates different ways in which the team integrates climate considerations into their work, through data gathering, tenant engagement, asset management and target setting.

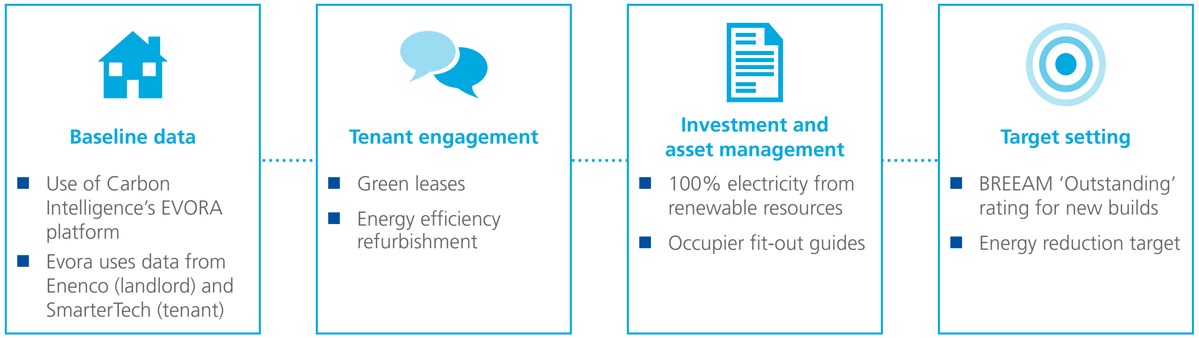


Figure 6.2.2.2: Integration approach for property investments.

Data findings

GHG emissions

Data on emissions for our property assets is provided by Evora, a sustainability consultancy focused on the property sector. Property presents practical challenges in assessing and managing emissions. One of the main challenges is the division of responsibility for, and control of, emissions between the landlord and the tenant. Within tenant occupied space, we engage, using Smarter Technology to install meters that allow us to derive accurate, real time emissions data. This is then showcased through the Evora platform alongside our Landlord emissions data. We are continuing to work with Evora to improve the accuracy of our reporting of emissions across our property portfolio.

Alignment

In line with the Net Zero Investment Framework (NZIF) guidance, the recommended methodology for the alignment assessment of this asset class is The Carbon Risk Real Estate Monitor (CRREM). CRREM publicly released decarbonisation pathways that translate the ambitions of limiting global warming to 1.5°C and 2°C by the end of the century into regionally and property-type-specific trajectories against which real estate assets and portfolios can benchmark themselves. We have therefore based our alignment classification on how an asset's decarbonisation pathway compares to the CRREM sectoral decarbonisation benchmark. This information is also provided to us through Evora.

Data was available for 56%[57] of the property portfolio. Our baseline assessment indicates that 16% of assets are aligned to a net zero pathway, with a further 24% committed to or in the process of aligning to a net zero pathway. This data is shown in figure 6.2.2.2.

We note that an asset's decarbonisation is based on emissions data and therefore the issues and caveats around this data that are described above should also be considered in the context of our alignment data.

	No data (%)	Not aligned (%)	Committed to aligning (%)	Aligning to a net zero pathway (%)	Aligned to or achieving a net zero pathway (%)
Property assets	44	16	13	11	16

Figure 6.2.2.2: Alignment metrics for property.

[57] *All percentages for property assets are reported by valuation at the most recently available date. Data is rounded to the nearest whole number, and percentages may not sum to 100% due to rounding.*

Climate solutions

Our climate solutions assessment employs a conservative classification methodology, incorporating a range of metrics, including Energy Performance Certificate (EPC) data and BREEAM certifications. Through this assessment, we have identified that two of our properties meet our criteria for climate solutions, accounting for 5% of our property portfolio. We anticipate an increase in this percentage over time, driven by new developments and refurbishments where sustainability is a key priority (on Cambridge on the following page).

Our engagement and priorities

1. We will continue to focus on climate integration in our property investments, with varying aims depending on the type of property asset being considered.
    a. For our legacy assets, we do not expect these to reach the category of climate solutions, but we can look to make proportionate improvements that could improve the alignment status of these assets as the opportunities arise.
    b. For new developments and refurbishments, we are aiming to meet high climate standards and significantly increase the climate solutions and alignment status of our portfolio as our property team targets robust climate considerations in the investment process.
2. We will continue to engage with Evora with an aim to increase coverage of the above climate metrics across our property assets and improve our confidence in the accuracy of our emissions data.

Case study: **Climate solutions**

Railpen is a large investor in Cambridge. We are creating an innovation cluster of real estate assets, including sustainable and amenity-led workspace, build-to-rent homes, laboratories and research facilities, and public spaces, all located in one of the most significant and fastest-growing economic areas in the UK.

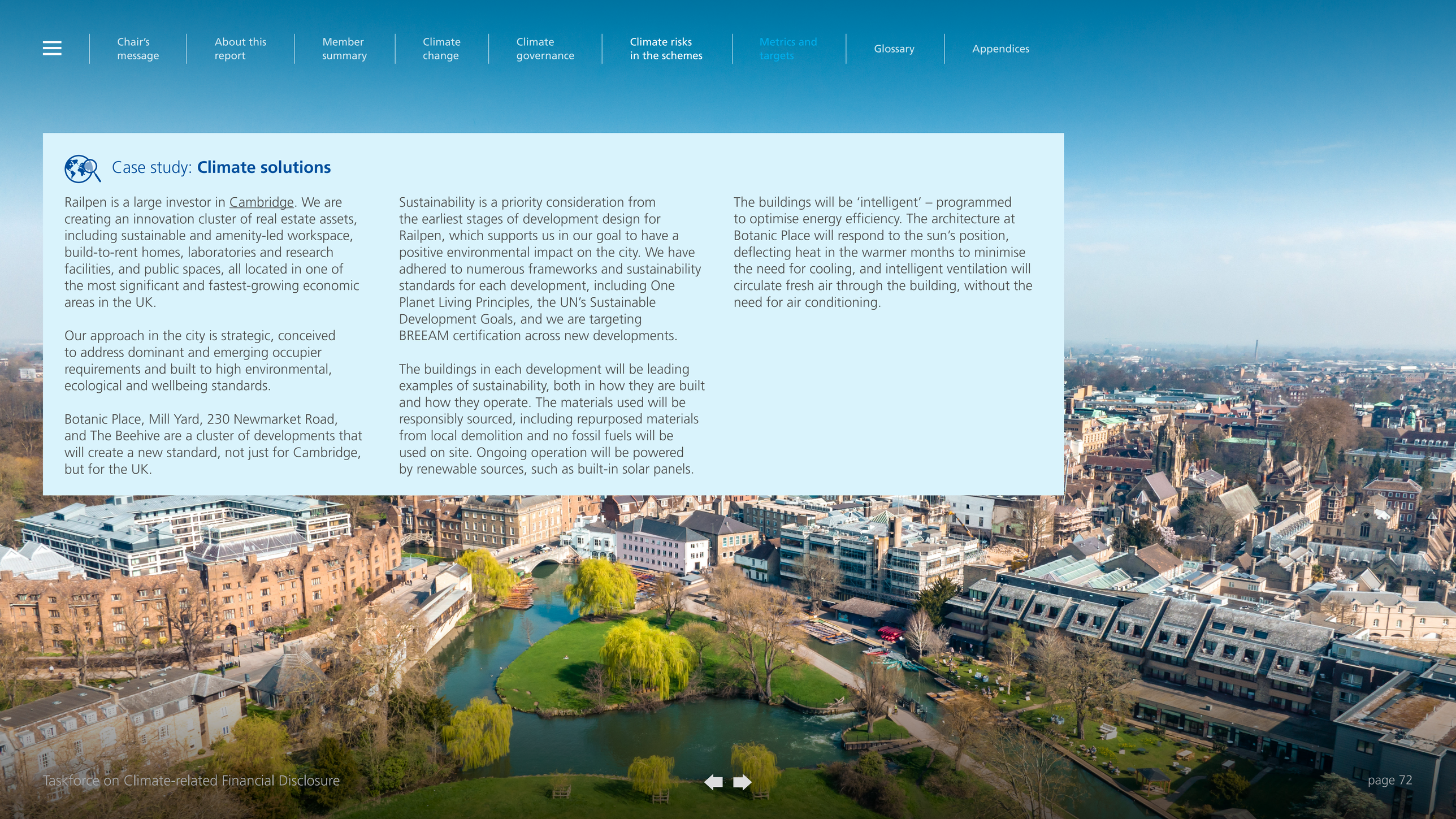
Our approach in the city is strategic, conceived to address dominant and emerging occupier requirements and built to high environmental, ecological and wellbeing standards.

Botanic Place, Mill Yard, 230 Newmarket Road, and The Beehive are a cluster of developments that will create a new standard, not just for Cambridge, but for the UK.

Sustainability is a priority consideration from the earliest stages of development design for Railpen, which supports us in our goal to have a positive environmental impact on the city. We have adhered to numerous frameworks and sustainability standards for each development, including One Planet Living Principles, the UN's Sustainable Development Goals, and we are targeting BREEAM certification across new developments.

The buildings in each development will be leading examples of sustainability, both in how they are built and how they operate. The materials used will be responsibly sourced, including repurposed materials from local demolition and no fossil fuels will be used on site. Ongoing operation will be powered by renewable sources, such as built-in solar panels.

The buildings will be 'intelligent' – programmed to optimise energy efficiency. The architecture at Botanic Place will respond to the sun's position, deflecting heat in the warmer months to minimise the need for cooling, and intelligent ventilation will circulate fresh air through the building, without the need for air conditioning.



6.2.3 Metrics: 2024 data – supplement on private markets

Our approach to climate integration

Railpen's private markets team invests in illiquid, privately held assets – including private equity, venture capital and private lending – as well as more opportunistic investment opportunities. They access private markets exposure through a variety of legal structures, from funds and co-investments, to direct share ownership in private companies. The approach is also not bound to any sector, strategy or geography.

The Illiquid Growth Pooled Fund (IGPF) consists of investments across the range of private market assets, including both private equity and private debt. This includes investment in pooled funds, co-investments and direct share ownership in private companies.

IGPF - breakdown by investment type as at 31 December 2024

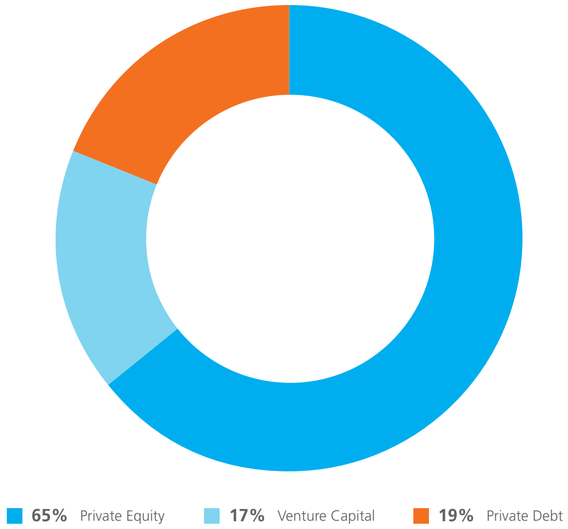


Figure 6.2.3.1: Investments in the Illiquid Growth Pooled Fund by type.

For all private markets investments, prior to investing there is an assessment of the ESG related risks and opportunities (including climate) relevant to the investment decision. For investment in pooled funds, this includes a review of the manager's integration of climate risks and opportunities into their investment processes. For co-investments or direct investments this includes an assessment of the climate risks and opportunities relevant to the specific investment.

Data findings

GHG emissions

This year we attempted to gather GHG emission data for all in scope assets held in IGPF[58]. The availability of data for Scope 1 & 2 emissions data was 24%, while for Scope 3 (as expected) this was more limited at just 3%[59].

The quality and availability of GHG data in private markets remains lower than in other asset classes such as public markets where there are more mature methodologies. However, as methodologies in private markets continue to develop and expectations as to the availability of this data increase then we expect that the coverage will improve over time.

Based on available information, the portfolios' Scope 1 & 2 carbon footprint is estimated to be 92 tCO2e/£m invested. The data is shown in figure 6.2.3.2.

			Scope 1 & 2 GHG data quality					Scope 3 GHG data quality		
	Total Scope 1 & 2 GHG emissions (tCO_2e)	Scope 1 & 2 carbon footprint (tCO_2e/£m invested)	Reported (%)	Estimated (%)	Unavailable (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Reported (%)	Estimated (%)	Unavailable (%)
Illiquid Growth Pooled Fund	71,605	92	16	9	76	24,304	252	2	1	97

Figure 6.2.3.2: GHG metrics for private markets.

[58] *All IGPF assets are in scope of data gathering with the exception of those late in their investment lifecycle (i.e. returning capital to investors) or lacking an appropriate assessment methodology.*

[59] *All percentages are reported by valuation at the most recently available date, with data rounded to the nearest whole number. Percentages may not sum to 100% due to rounding.*

Alignment

Our alignment assessment for private markets is based on the IIGCC's Net Zero Investment Framework 2.0, (NZIF 2.0) which was published in 2024 with specific accompanying guidance for private equity and private debt. Assessment criteria include emissions performance, decarbonisation planning, governance, disclosure, targets, and ambition.

For private equity and private debt, the NZIF 2.0 framework also includes an additional classification – 'managed in line with net zero' – which is intended to address the asymmetric information relationship in private markets between General Partners (who manage funds and co-investments) and Limited Partners (such as Railpen who invest in funds and co-investments managed by General Partners) with respect to underlying portfolio companies. The 'managed in line with net zero' classification includes an expectation that portfolio companies should progressively achieve each NZIF 2.0 alignment category within a time limit. The timelines and measurement of actions are based on a fund's cycle, reflecting that an investor's influence exists when the company is within their portfolio.

We requested that our managers and investments[60] provide an evaluation of either a fund or an investment's fulfilment of NZIF 2.0 defined criteria to determine their alignment category, ranging from 'not aligned' to 'achieving net zero', based on this assessment and incorporating information on how long an investment has been held, this assessed whether a fund or asset was 'managed in line with net zero'.

Data was available for 28% of the Fund, with 10% classified as 'Committed to aligning'. This data is shown in figure 6.2.3.2.

	Managed in alignment with net zero (%)	No data (%)	Not aligned (%)	Committed to aligning (%)	Aligning to a net zero pathway (%)	Aligned to or achieving a net zero pathway (%)
Illiquid Growth Pooled Fund	1	72	19	10	0	0

Figure 6.2.3.3: Alignment metrics for private markets.

[60] *For direct assets we requested this information directly.*

Climate solutions

Our climate solutions assessment for private markets is derived from the EU Taxonomy – an established classification system that we believe can be applied across the diverse range of private market assets in which Railpen is invested. To determine if assets involved in 'eligible' activities could be classified as climate solutions, we examined compliance with the EU Taxonomy Technical Screening Criteria (TSC) so that environmental objectives were not adversely affected by the activity.

Data on a climate solutions assessment was available for 19% of IGPF assets this year, with 5% classified as being in 'eligible' activities. Of the data received, no investments were classified as climate solutions. However, we expect that the actual number of investments within the fund meeting the climate solutions criteria would be higher than this once managers are more comfortable with the criteria we have used in our assessment. Therefore, going forward we will focus on ensuring that the climate solutions assessment is well understood by our managers and investments in order to receive the highest possible quality of responses and increase coverage over time.

Our engagement and priorities

1. We will continue focusing on climate integration during the investment process to enhance the value and resilience of our investment approach.
2. We aim to improve the ongoing coverage and quality of GHG emission, alignment and climate solutions data across the IGPF. If assets have been unable to provide data, we will include this in our engagement plans, where possible.
3. We aim to strengthen our assets' and managers' understanding of the alignment and climate solutions assessments, which will enable us to receive higher quality responses over time.

Case study: **Climate solutions**

In 2024, Railpen committed to invest in a fund managed by a US-based asset manager targeting controlling equity investments in companies that positively contribute to the 'new energy economy' themes of decarbonisation, electrification, and decentralisation. This could include investments in companies involved in grid modernisation, renewable and distributed generation, demand response/energy efficiency, and transportation electrification.

This was Railpen's first time investing with the manager. Therefore, we aimed to assess this fund to make sure ESG risks were identified and appropriately managed in the investment process. This includes meeting with the firm's managing partner and chair of the ESG Committee, to discuss their overall ESG strategy and philosophy. We continue to engage with the manager.

6.2.4 Metrics: 2024 data – supplement on sovereign bonds

The schemes invest in UK Government bonds. In 2023 (the latest year for which final figures are available), net territorial UK GHG emissions were 385m tCO2e[61, 62]. GHG emissions in 2023 were around 5% lower than in 2022, and have decreased by about 53% since 1990. It is interesting to note that domestic transport was the largest emitting sector, accounting for 29% of emissions in 2023, 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 distance[63].

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 6th in the Climate Change Performance Index (CCPI) 2025[64], achieving an overall 'high' rating. This is a substantial increase from 2024, when the UK was ranked 20th. CCPI assesses individual countries' climate protection efforts and performance. CCPI ranks the UK 'high' in the GHG emissions and energy use categories, 'medium' in climate policy and 'low' in renewable energy. 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.

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 (page 81).

61 *2023 UK Greenhouse Gas Emissions, Final Figures.*

62 *At the end of 2024, the RPS had £4.4bn invested in various types of UK Government bonds.*

63 *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.*

64 *CCPI 2025 Country Ranking United Kingdom UK – Climate Performance Ranking 2025 | Climate Change Performance Index.*

6.3 Net Zero Plan

The climate targets selected by the Trustee, including the GHG reduction reference target shown in Figure 6.3.1, 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 Plan[65].

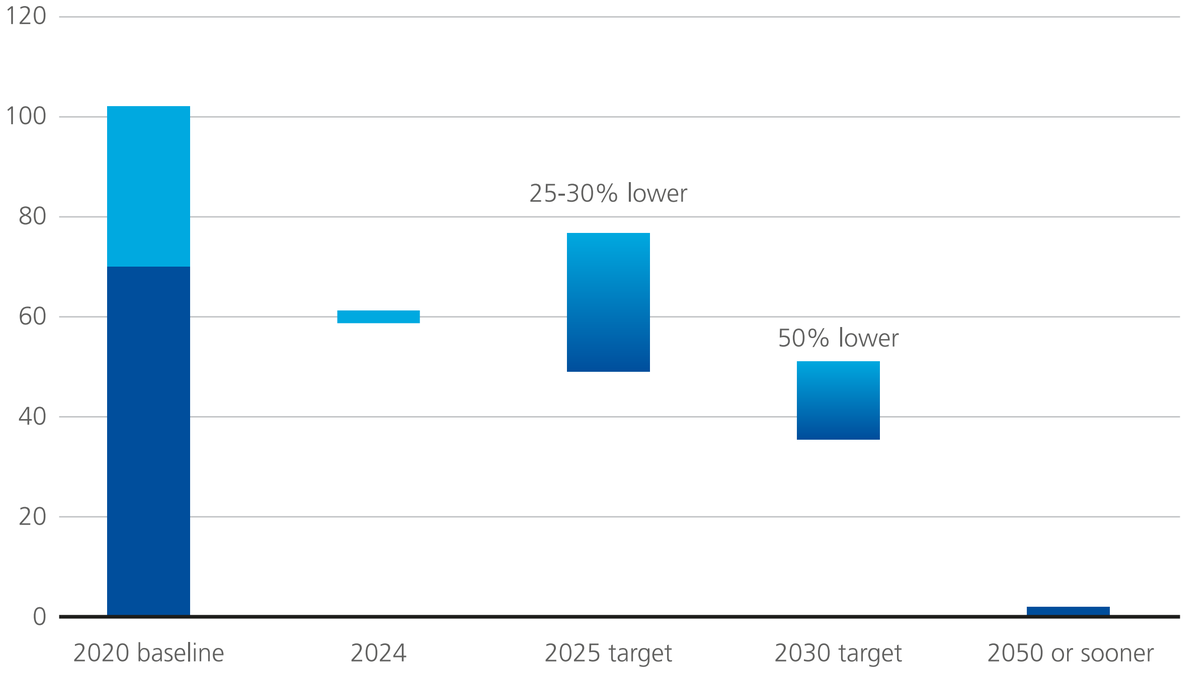


Figure 6.3.1: Railpen's GHG reduction reference target[66].

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, 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 a key step the Trustee is taking to achieve its climate targets.

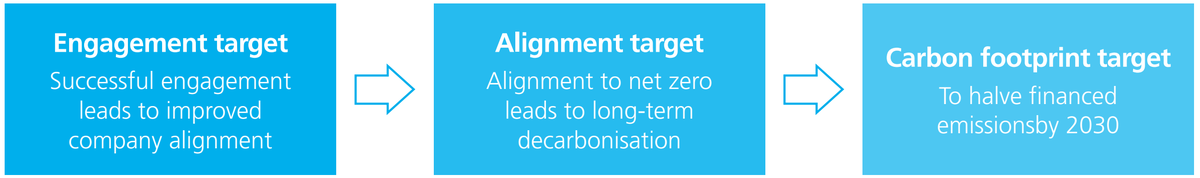


Figure 6.4.1: Relationship between climate targets.

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.

[65] *https://cdn-suk-railpencom-live-001.azureedge.net/media/media/dyiflcd5/railpen-net-zero-plan_2020.pdf.*

[66] *Please refer to sections 6.1 and 6.2.1 for detail around 2024 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 on 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 2050[67].

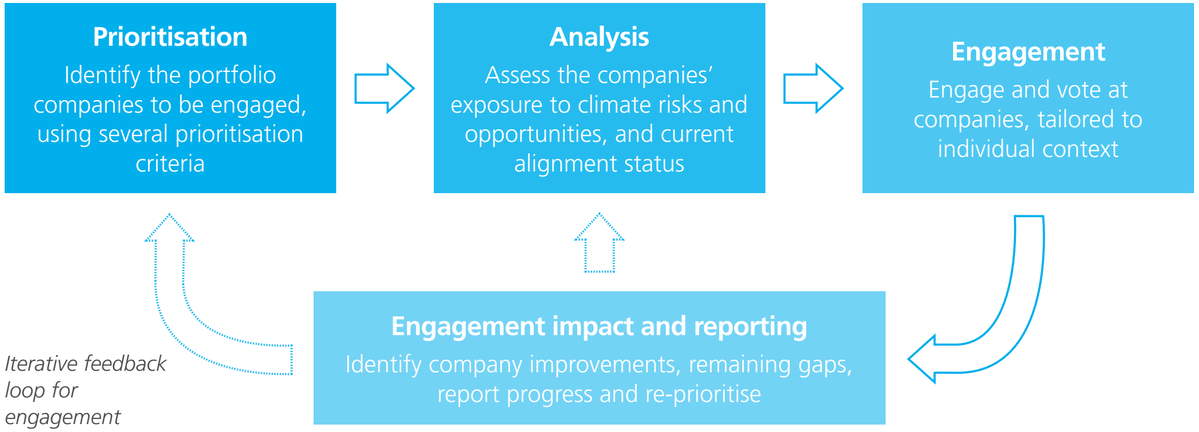


Figure 6.4.1.1: Four-step approach in Railpen's NZEP.

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 likely pace of change. The prioritisation used in 2024 is summarised in figure 6.4.1.2.

	Tier 1	Tier 2	Tier 3	Total
Companies in scope for engagement (#)	27	9	20	56
Financed emissions (% of total in material sectors)	45	11	18	74

Figure 6.4.1.2: Prioritisation of companies within the NZEP.

[67] *Railpen co-chaired the working group and co-authored the Net Zero Stewardship Toolkit.*

Through the engagement phase of the NZEP, topics may include alignment to net-zero trajectories, interim and long-term targets, and enhancements to climate risk management practices. This can be achieved through a combination of collaborative engagements (for example, via Climate Action 100+), bilateral engagements with companies, and public policy engagement.

Companies are allocated to tiers based on the form and substance of the engagement activity – these are as follows:

- **Tier 1** companies are subject to collaborative and/or bilateral 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 subject to collaborative engagement, and shares are actively voted.
- **Tier 3** companies are analysed, monitored and shares are actively voted.

The Net Zero Engagement Plan was introduced in 2022. As with last year's TCFD report, we present some early-stage engagement case studies on the right and on page 80.

Case study: **A direct engagement case study for a US-based energy company held in Railpen's fundamental equities portfolio.**

Background

Cheniere is a material holding in our fundamental equities portfolios. The company was identified as a priority for our Net Zero Engagement Plan in 2024, with our analysis at the start of the year identifying several issues of concern, including the company's lack of emission-reduction targets and a Transition Pathway Initiative (TPI) Management Quality score of 2.

Objective

As recent investors in Cheniere, we wanted to:

- Demonstrate our willingness to work constructively with the company
- Discuss with the company potential enhancements to their climate-related disclosures and the development of measurable emissions targets, beginning with Scope 1 emissions

Approach

We pursued bilateral engagement that included both our Sustainable Ownership (SO) and Fundamental Equities (FE) teams. Through discussions with the company, we raised our concerns, explaining our rationale and sharing industry peer practices to help the company navigate potential blockers to progress.

While we understood Cheniere's resistance to setting targets without a clear path forward to achieving their goals, we noted how improved disclosures could enhance their sustainability ratings, including their TPI score.

Through our voting, we also supported the re-election of the Board Chair, while communicating our desire for further engagement.

Outcome and next steps

We are pleased to report that Cheniere has now announced a Scope 1 methane target: to consistently maintain annual methane emissions intensity of 0.03% per tonne of liquefied natural gas produced across its two US Gulf Coast liquefaction facilities by 2027.

While Cheniere recognises methane represents a smaller portion of its total Scope 1 emissions compared to CO2, it also acknowledges that addressing methane is crucial to their competitiveness, particularly in Europe where environmental credentials are increasingly important.

The company also committed to enhancing their disclosures in their upcoming Corporate Responsibility Report, with more transparent information about their emissions mitigation activities and the challenges they face.

We recognise that there is still more progress to be made on Cheniere's climate strategy. We will continue to engage with the company, primarily through bilateral dialogue, discussing their climate strategy in detail, including their capital expenditure plans for emissions reduction initiatives.

We will also monitor Cheniere's next Corporate Responsibility Report closely to assess their progress on enhanced disclosures and their methane target.

Case study: **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. Because of this, 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. It also committed to significantly increasing its use of renewable energy.

We have identified climate lobbying as a key thematic priority across our portfolios, and a priority issue for NextEra in particular. We are also part of the climate lobbying working group, a thematic activity within the Climate Action 100+ initiative. Because of this, 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. We also wanted to direct NextEra to best practice guidelines and resources on the topic.

Approach

Together with some CA100+ participants, we have continued to raise the issue of climate lobbying with the company.

In December 2023, Railpen co-filed a shareholder resolution on this subject in time for the 2024 AGM. The resolution sought an expanded review and disclosure of NextEra's lobbying activity in relation to climate change.

The subsequent 2024 vote received a relatively high level of support – over 30%. This helps demonstrate the widespread investor concern on this issue.

Outcome and next steps

We have continued to engage constructively with NextEra on this topic. We are sharing best practice from peers as well as insights into what investors expect, and we 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 net-zero and resilient economy. Railpen continued its policy advocacy activities in 2024, promoting credible 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 2024 policy work and interventions were focused on the following:

- 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.

Railpen was involved in the writing of several industry guidance documents and frameworks, such as:

- UK Transition Plan Taskforce (TPT) Disclosure Framework and Asset Owners Sector Guidance.
- IIGCC Net Zero Bondholder Stewardship Guidance.

Through 2025, 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 2024, 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:

- Co-chaired the IIGCC Adaptation and Resilience Working Group
- Co-chaired the IIGCC Climate Lobbying Working Group
- Were elected to the Board of IIGCC
- Continued to co-chair the Investor Practices Programme within the IIGCC
- Continued to be a member of the Global Steering Group of the Paris Aligned Investing Initiative (PAII)
- Participated as a member of the Strategic Advisory Committee for the Transition Pathway Initiative (TPI)
- Participated as a member of the Steering Group of the Climate Financial Risk Forum (CFRF)
- Contributed to conferences, webinars, and articles supporting investors looking to set and deliver against net-zero targets

Industry collaborations

Transition Pathway Initiative
IIGCC The Institutional Investors Group on Climate Change
PENSIONS AND LIFETIME SAVINGS ASSOCIATION
CDP
Climate Action 100+
PRI Principles for Responsible Investment
THE INVESTMENT ASSOCIATION
UKSIF UK Sustainable Investment and Finance Association
Occupational Pensions Stewardship Council

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 focused on c.170 of the world's largest corporate greenhouse gas emitters, focuses on appropriate corporate action to mitigate financial risk and maximise long-term value of assets in response to climate change.
- **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 tCO_2e/£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.** These 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 and 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.** 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 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: ■ 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
	■ 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
	■ 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: ■ 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
	■ the frequency with which this information is provided.	4.5, 4.7
36	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: ■ the time periods which the trustees have determined should comprise the short term, medium term and long term;	5.1.2
	■ 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
	■ the most recent scenarios the trustees have used in their scenario analysis;	5.1, 5.4
	■ 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
	■ 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
	■ where trustees have concluded that it is not necessary to undertake new scenario analysis outside the mandatory cycle, the reasons for this determination.	n/a

DWP statutory guidance reference	Reporting requirement	Report section
Strategy		
93	Trustees should also describe in their TCFD report: ■ their reasons for choosing the scenarios they have used; and	5.1, 5.4
	■ 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, 5.3, 5.4
	■ 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, 5.3, 5.4
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: ■ the risk tools the trustees used and the outputs / outcomes of using those particular tools;	4, 5.1, 5.4
	■ how the trustees have identified, assessed and managed both transition and physical risks for the scheme, and	5.1-5.4
	■ 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, 5.4
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

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 CO2 equivalent (CO^2e).	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 (GHG) attributable to a portfolio. Trustees are recommended to report this number, covering at least scopes 1 and 2 GHGs.

Equation

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

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

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

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

$\sum$ *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	
Portfolioalignment metric allows for a simple representation of status across portfolios and incorporate ongoing changes in company alignment through engagement and climate data developments	Further work will be needed to improve forward looking quality

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 the opportunity to raise issues and opportunities for improvements at investee companies. Asset managers should be using this tool 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

$\sum$ *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 redisseminated 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[63] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 Data quality: reported + estimated GHG data (%)
RPS								
1994 Pensioners	49,415	69	62	13	25	419,120	598	73
Abellio	385	57	76	14	9	4,341	653	90
Abellio East Midlands	10,739	60	51	13	35	75,021	433	63
AECOM	581	60	51	13	35	4,059	433	63
Alpha Trains	160	58	69	14	18	1,630	600	81
Alstom Railways	4,773	58	69	14	17	49,322	607	82
Alstom Signalling	457	60	51	13	35	3,191	433	63
Alstom UK	1,884	59	60	14	26	16,554	529	72
Alstom UK C2C	257	60	55	13	32	1,984	472	66
Alstom UK SIgnal	584	60	55	13	31	4,571	478	67
AMCO	34	58	66	14	20	333	582	79
Angel Trains	1,324	60	51	13	35	9,251	433	63
Anglia Railways	3,138	60	51	13	35	21,919	433	63
AtkinsRéalis	3,275	60	51	13	35	22,880	433	63
AtkinsRéalis Rail & Transit	1,026	60	51	13	35	7,171	433	63
ATOC Limited	1,448	60	51	13	35	10,115	433	63

	Total GHG emissions[63] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS								
Atos	3,233	58	72	14	14	34,727	627	85
Babcock Rail Ltd	2,729	60	51	13	35	19,068	433	63
Balfour Beatty	3,126	60	51	13	35	21,840	433	63
BAM Nuttall	12	59	64	14	22	109	562	76
BR	2,399	60	51	13	35	16,761	433	63
British Transport Police	5,495	60	51	13	35	38,385	433	63
BT	32	60	51	13	35	226	433	63
BUPA Occupational Health	83	60	51	13	35	578	433	63
Caledonian Sleeper	330	60	51	13	35	2,304	433	63
Carlisle Cleaning Services	15	60	56	13	31	122	487	68
Chiltern Railway Company Limited (Maintenance)	909	60	51	13	35	6,348	433	63
Clientlogic	73	58	70	14	16	755	609	83
Colas Rail	2,169	60	51	13	35	15,152	433	63
Crossrail	1,482	60	51	13	35	10,353	433	63
CSC Computer Sciences	28	57	77	14	8	316	659	91
DB Cargo (UK) Limited	27,142	53	68	17	15	284,834	566	84
East Coast Main Line	16,849	60	51	13	35	117,705	433	63
Eurostar	12,776	60	51	13	35	89,253	433	63
Eversholt Rail Limited	380	60	55	13	31	2,990	480	67

	Total GHG emissions[63] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS								
First Great Western	31,421	60	51	13	35	219,506	433	63
Freightliner	7,788	60	51	13	35	54,404	433	63
GB Railfreight	1,075	60	55	13	32	8,276	471	66
Gemini Rail Services	43	60	51	13	35	298	433	63
Global Crossing	509	60	51	13	35	3,558	433	63
Govia Thameslink Railway	14,822	60	51	13	35	103,549	433	63
Govia Thameslink Railway (Southern & Gatwick Express)	22,532	60	51	13	35	157,407	433	63
Great Eastern Railway	6,943	60	51	13	35	48,502	433	63
Hitachi Rail Europe	1,030	60	51	13	35	7,198	433	63
HS1	87	60	51	13	35	606	433	63
Hull Trains	247	60	56	13	31	1,953	482	67
Intelenet Global BPO (UK) Limited	2	59	61	14	25	15	538	73
Island Line	251	60	51	13	35	1,752	433	63
ISS Transport Services	40	57	75	14	11	442	644	88
Jacobs UK	734	60	51	13	35	5,125	433	63
London Eastern Railway (West Anglia)	3,283	60	51	13	35	22,934	433	63
London Overground	6,739	60	51	13	35	47,081	433	63
London Underground	38	60	51	13	35	262	433	63
Merseyrail	5,887	60	51	13	35	41,124	433	63

	Total GHG emissions[63] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS								
MITIE Facilities Services	2	60	51	13	35	16	433	63
MTR Elizabeth Line	2,862	60	51	13	35	19,996	433	63
National Express Services Limited	37	60	53	13	33	273	458	65
Network Rail	239,930	60	51	13	35	1,676,144	433	63
New Cross Country	12,735	60	51	13	35	88,969	433	63
Northern (ex North East)	17,242	60	51	13	35	120,454	433	63
Northern (ex North West)	15,269	60	51	13	35	106,672	433	63
Omnibus	258	58	70	14	17	2,672	607	82
Porterbrook	796	60	51	13	35	5,561	433	63
QJump	70	58	66	14	20	687	579	78
Rail Gourmet UK Limited	324	60	51	13	35	2,266	433	63
Railpen	1,930	60	51	13	35	13,484	433	63
Resonate Group (Link)	382	60	51	13	35	2,668	433	63
Resonate Group (Rail)	753	60	51	13	35	5,262	433	63
Resonate Group (TCI)	276	60	51	13	35	1,927	433	63
RSSB	1,854	60	51	13	35	12,951	433	63
Scotrail	23,459	60	51	13	35	163,882	433	63
SE Trains Limited	24,368	60	51	13	35	170,233	433	63
SERCO	673	60	51	13	35	4,701	433	63

	Total GHG emissions[63] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS								
Siemens	214	58	71	14	15	2,264	618	84
Socotec UK Limited	388	58	69	14	17	3,968	601	81
South Western Railway	27,770	60	51	13	35	194,003	433	63
Specialist Computer Centres	64	58	71	14	15	675	618	84
Stadler Greater Anglia	94	60	51	13	35	656	433	63
Stadler Rail	261	60	51	13	35	1,825	433	63
Swirl Service Group	1	57	77	14	8	9	659	91
Systra Ltd	1,159	60	51	13	35	8,096	433	63
Thales Information Systems	107	58	71	14	15	1,136	620	84
Thales Transport and Security	3,961	59	59	14	27	34,350	523	72
The Chiltern Railway Company Limited	4,693	60	51	13	35	32,787	433	63
The QSS Group Limited	125	60	51	13	35	876	433	63
Torrent Trackside Limited	13	60	51	13	35	92	433	63
TransPennine Express (Former Arriva Trains Northern)	3,566	60	51	13	35	24,910	433	63
TransPennine Express (Former North Western Trains)	2,258	60	51	13	35	15,773	433	63
Transport for Wales	137	60	51	13	35	960	433	63
Transport for Wales (Rail)	11,934	60	51	13	35	83,368	433	63
Trenitalia c2c	3,590	60	51	13	35	25,083	433	63
Unipart Rail – NRS	1,365	60	55	13	32	10,638	477	67

	Total GHG emissions[68] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
RPS								
Unipart Rail – Railpart	1,104	60	55	13	32	8,497	471	66
Unisys	36	58	67	14	19	356	587	80
UPS	305	57	76	14	10	3,429	652	89
Voith	12	57	77	14	8	137	659	91
Wabtec Rail Limited	23	59	64	14	23	218	560	76
West Coast Partnership	21,075	60	51	13	35	147,230	433	63
West Coast Traincare	3,599	59	59	14	28	30,770	516	71
West Midlands Trains	15,807	60	51	13	35	110,425	433	63
Westinghouse Rail Systems	3,210	60	53	13	34	23,618	453	65
Worldline IT Services UK Limited	781	60	51	13	35	5,456	433	63

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

	Total GHG emissions[70] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
BTPFSF[69]								
BT Police 1970	37,915	60	51	13	35	264,871	433	63

	Total GHG emissions[71] (tCO_2e)	Carbon footprint (tCO_2e/£m invested)	Data quality: reported GHG data (%)	Data quality: estimated GHG data (%)	Data quality: unavailable GHG data (%)	Total Scope 3 GHG emissions (tCO_2e)	Scope 3 carbon footprint (tCO_2e/£m invested)	Scope 3 data quality: reported + estimated GHG data (%)
BRSF								
BR Superannuation Fund	475	60	51	13	35	3,318	433	63

[69] *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.*

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

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

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