

Taskforce on Climate-related Financial Disclosures Report 2024

Introduction

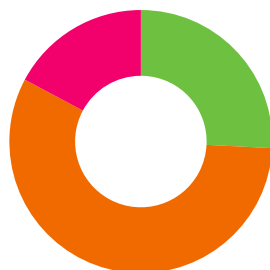
Who we are

Jaguar Land Rover Pension Trustees Limited (the Trustee) is the trustee body for the Jaguar Pension Plan, Land Rover Pension Scheme and Jaguar Executive Pension Plan (the Schemes), which include assets of around £5.4bn. Its purpose is to pay pension benefits to members of the Schemes as they fall due.

We've agreed to a long-term investment strategy whereby assets will be migrated into a cashflow-driven-investment (CDI) portfolio as members retire and become pensioners. We chose this strategy to provide more funding-level stability and greater certainty of paying members' benefits. A key priority for us is ensuring that the Schemes' investment strategy delivers sustainable long-term cashflows.

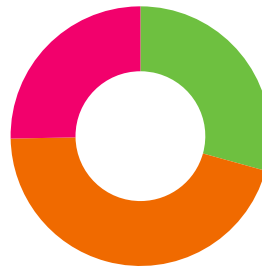
The pie charts below show the high-level investment strategy of our three Schemes as at 31 March 2024. The return-seeking (RS) portfolios are invested across a range of growth assets aiming to deliver a high level of return, such as equities, private markets and credit. The CDI portfolios are invested in income-generating assets, such as corporate bonds, long-lease property and infrastructure. The liability-driven investment (LDI) portfolio holds low-risk assets that aim to ensure that the overall movement in the Schemes' assets is in line with the Schemes' liabilities.

Jaguar Pension Plan (JPP), c£2.6bn



- Return Seeking (25.8%)
- CDI (57.0%)
- LDI (17.2%)

Land Rover Pension Scheme (LRPS), c£2.7bn



- Return Seeking (29.3%)
- CDI (45.4%)
- LDI (25.3%)

Jaguar Executive Pension Plan (JEPP), c£115m



- Return Seeking (56.4%)
- LDI (43.6%)

In aggregate across our three schemes, around half of our members are retired, around a quarter are active, and the rest are deferred members. The table below summarises the number of members in our three Schemes, broken into active, deferred and pensioner members.

Scheme	Active	Deferred	Pensioner	Total
Jaguar Pension Plan	2,172	2,721	7,988	12,881
Land Rover Pension Scheme	3,117	2,000	4,693	9,810
Jaguar Executive Pension Plan	8	25	96	129

Source: Aon. Data as at 31 March 2024

TCFD reporting

This statement sets out our approach to assessing, monitoring and mitigating climate-related risks in the context of our broader regulatory and fiduciary responsibilities to members.

We believe that climate change is a systemic risk and therefore we aim to incorporate climate change considerations into all of our strategic decisions. To ensure a sustainable future for our members and achieve our intended long-term objective, we think that collaborative action across the globe is required to tackle the climate crisis. The Schemes are long-term investors, and we believe that improved transparency on climate-related matters will lead to improved investment decisions and member outcomes. This has created focus and an imperative to act.

The Trustee board supports initiatives that help improve disclosures and enhances transparency. The Taskforce on Climate-related Financial Disclosures (TCFD) framework provides a structure for companies, asset managers, asset owners, banks and insurance companies to outline the steps they have undertaken to identify, manage and monitor climate-related risks and opportunities. The framework is designed to increase comparability while allowing sufficient flexibility to communicate the specific approach adopted by each entity.

The Task Force divided climate-related risks into two major categories: risks related to the transition to a lower-carbon economy, and risks related to the physical impacts of climate change. Climate-related risks and the expected transition to a lower-carbon economy affect most economic sectors and industries; however, opportunities will also be created for organisations focused on mitigating climate change and adapting solutions.

This report provides detail of our actions against the four pillars set out by the TCFD:

- **Governance:** the organisation's governance around climate-related risks and opportunities
- **Strategy:** the actual and potential impact of climate-related risks and opportunities on the organisation's business, strategy and financial planning
- **Risk management:** the process used by the organisation to identify, assess and manage climate-related risks
- **Metrics and targets:** how we assess and manage relevant climate-related risks and opportunities

As well as developing our own reporting for TCFD, we expect our underlying investment managers and engagement service providers to be aligned with TCFD. We will continue to monitor this through our regular reporting. This is our third disclosure in accordance with the requirements of TCFD. The following pages detail our climate risk disclosures.

Executive summary of this year's report

Since the last report, we've continued to monitor climate-related risks present within the Schemes' investment strategy through quantitative and qualitative measures. We believe that responsible investment issues can have a material impact on the Schemes' ability to achieve their ultimate objective of meeting benefit payments, so we aim to integrate RI considerations into all decision-making processes. Addressing the challenges caused by climate change can be achieved via capital allocation decisions and through engagement with investment managers and underlying companies – we believe it is important to explore new opportunities that can tackle climate change as well as evolving existing mandates.

We acknowledge that data coverage and data quality is continually evolving and the pace of progress has varied for different asset classes. In order to understand the information that is received from the Schemes' investment managers, we held a session with Willis Towers Watson (as the Schemes fiduciary manager) during the reporting period on data availability. This session also focussed on the existing metrics included within the RI reporting and how the reporting framework can be evolved so that we can more easily monitor the Schemes' progress against our targets.

During the year, we also performed a deep dive into a specific climate scenario – this additional modelling was conducted to better reflect the potential impact of an extreme climate change event. The evolution of our climate scenario analysis modelling reflected conversations with our strategic investment adviser, Hymans Robertson, around some of the limitations of the standard climate scenario modelling undertaken within the pensions industry. In conjunction with the Hymans, we explored the potential impact of a severe climate shock scenario on the Schemes' ability to achieve its long-term objective. This scenario considered a climate induced food shock event and the pathways that could ensue.

The key highlights and findings from the 2023/24 TCFD report are set out below:

Governance

Our governance framework has remained unchanged over the last year with RI discussions being integrated into the FSC (Financial Strategy Committee) and IIC (Investment Implementation Committee) business plans. The Schemes continue to receive support and training from Hymans, WTW and the sponsor. We maintain a governance policy setting out the roles and responsibilities of all relevant parties. We've also designed robust processes to ensure that climate-related risks and opportunities are appropriately managed.

Strategy and risk management

Over the last 12 months, we explored a more extreme climate scenario focused on a shock to the world's food supply. This updated scenario analysis showed a more significant impact on the Schemes' downside risk metrics and probability of achieving its long-term objective. More detail is included within the remainder of this report. Further discussions on managing climate-related risks will be undertaken as part of the 2024 actuarial valuation.

Metrics and targets

We receive regular reporting from WTW covering various metrics. There has been a decrease in the absolute emissions and emissions intensity metrics over the past 12 months for our return seeking portfolio, driven by a combination of lower emissions from the holdings themselves and a lower allocation to illiquid assets. Emissions across our CDI portfolio have also decreased but to a lesser extent than our return seeking portfolio. This is demonstrated for LRPS in the table below, with a similar pattern observed across the three schemes.

Metric		Land Rover		
		RS	CDI	LDI*
Total carbon emissions (tCO ₂ e)	2023	95,454	81,115	47,591
	2024	36,465	62,340	50,279

Carbon footprint (tCO ₂ e / \$m invested)	2023	97	52	55
	2024	36	42	61
WACI (tCO ₂ e / \$m sales)	2023	262	124	122
	2024	112	89	127

Source: WTW and LGIM. *the climate data for the LDI portfolio solely considers government bonds, index-linked government bonds and cash. This data excludes any derivatives held in the portfolio.

WTW provided an updated RI metric dashboard in Q4 2023, which is intended to capture progress relative to targets and achieve the objective of integrating RI considerations into our overall decision-making process. This reporting showed that as at end 2022 (the latest data available) our CDI portfolio is ahead of our carbon journey plan of achieving net zero emissions by 2050, although we would note that data availability is currently limited and so there may be short-term volatility in this measurement.

We have previously discussed if there is merit in adopting a more aggressive and challenging target than that set by WTW. We considered whether an earlier target date should be adopted, but ultimately concluded to retain the Schemes' existing net zero commitments and align with WTW's targets.

Governance

How we retain oversight of climate-related risks and opportunities

We have a clear governance structure with dedicated sub-committees to ensure effective and timely decision-making. Regarding investment and funding matters, we have a Financial Strategy Committee (FSC) that oversees our integrated risk management, covering actuarial, company covenant and investment strategy matters. It reports into the Trustee board.

Role of the fiduciary and strategic adviser

We appointed a fiduciary manager, WTW, to implement our investment strategy. WTW has day-to-day responsibility for the consideration of climate-related risks and opportunities in investment decision-making. The Investment Implementation Committee (IIC) oversees the implementation of investment strategy, including how climate risks and opportunities are being addressed. The IIC reports into the FSC and Trustee board.

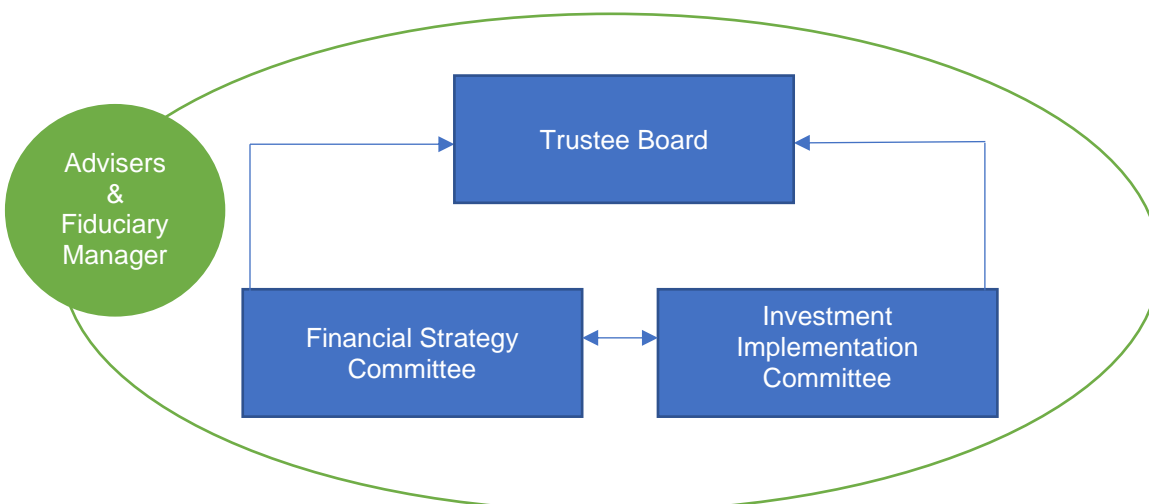
Dedicated RI agenda items have been added to the FSC and IIC business plans. To ensure that RI matters are central to decision-making, we've nominated an ESG champion, who is responsible for flagging key developments in ESG, identifying risks and opportunities that warrant further discussion, and guiding conversations at committee meetings.

We receive advice and support on climate-related matters from Hymans and WTW. Hymans is responsible for embedding climate-related risks and opportunities into the evolution of the investment strategy. WTW is responsible for engaging with the underlying managers, with a particular focus on the Scheme's key RI priorities.

The Trustee, IIC and FSC received regular training from our advisers throughout the year on climate-related risks and opportunities. Over the last 12 months, we have held dedicated training sessions on risk management, climate opportunities and WTW's research due diligence process. Alongside these sessions, we have worked with WTW to understand how the composition of the investment strategy is expected to evolve over time to achieve our net zero ambitions alongside our financial return and liquidity requirements. In particular, we have held discussions with WTW on how we will monitor and assess our progress relative to our 2050 net zero target as well as our interim targets. Consequently, we're satisfied that there is sufficient knowledge and understanding to appropriately take climate-related issues into account within our decision-making for the Schemes.

Through the various committees, we maintain an ongoing dialogue with the sponsor to ensure all parties are aware of the current approach for assessing, managing and monitoring climate-related issues. The Trustee board has access to the Chief Financial Officer of Jaguar Land Rover and receives periodic updates from the company.

The governance structure remains unchanged from last year's report and is illustrated below. The FSC and IIC are comprised of members of the Trustee board and have company representation.



Roles and responsibilities in assessing and managing climate-related risks and opportunities

The Trustee board is ultimately accountable for ensuring that climate-related risks and opportunities are appropriately assessed and managed. However, the supporting committees are responsible for building knowledge and understanding and proposing policies and processes for Trustee board approval. We've developed a set of RI beliefs and an RI policy. Climate change is a key theme running through both documents. The documents are owned by us, and we review them to ensure they remain fit for purpose.

WTW is a fiduciary manager for the Return Seeking (RS) and cashflow-driven investment (CDI) portfolios of the Schemes. They have delegated authority to appoint underlying fund managers and purchase assets on behalf of the Schemes. The IIC is responsible for ensuring that WTW integrates climate change into the investment process, including the management of climate-related risks and opportunities. This extends to WTW's oversight of the underlying managers that they appoint. The IIC devotes time to scrutinising and challenging WTW's decision-making and reporting in this respect.

Hymans Robertson, in their role as strategic investment adviser, provide additional support to the sub-committees. We set the investment adviser a set of objectives that are reviewed annually. These objectives include a specific objective on assisting the Trustee in monitoring climate-related risks and opportunities by stating the Trustee's investment adviser "ensures the Trustee has the processes in place to meet TCFD regulations". The success of this objective is also monitored to ensure compliance with the relevant pensions legislation, including TCFD regulation and that the Trustee understands the Schemes' climate-related risks and the associated actions available to mitigate these risks. We also review our investment adviser regularly, to ensure they have the appropriate skills and experience to support us on climate-related issues.

We receive a weekly summary from Hymans providing the latest news and views across various RI related topics. There is also regular dialogue between the Schemes' ESG champion, Hymans and WTW on RI related issues. Some of the topics discussed over the year related to the evolution of climate scenario modelling, the impact of climate risk on global equity valuations as well as discussions post reporting year end on building a framework for assessing and monitoring diversity, equity and inclusion practices of the Schemes' advisers.

The Schemes' actuarial advisers are responsible for identifying any RI considerations that should be incorporated into the funding strategy. We review the actuarial adviser regularly, again to ensure they have the appropriate skills and experience to support us in identifying, assessing and mitigating climate-related risks. The implications of climate change from a funding perspective will be considered as part of the 2024 actuarial valuation process.

We also analyse climate change from a covenant perspective. Electrification is one of the most significant risks to covenant, and the sponsor's progress on this topic relative to peers is considered quarterly as part of the integrated risk management monitoring dashboard produced by our covenant adviser.

Some of the climate-related issues that the IIC have considered and developed in recent years include:

- Monitoring climate metrics across the Schemes' RS and CDI portfolios quarterly. We have also worked with WTW to develop carbon journey plan reporting including a climate dashboard to assist in monitoring progress towards our net zero goals described below.
- Improving ESG and climate change credentials when evolving the investment grade credit part of the CDI portfolio and rebuilding the liquid parts of the RS portfolio .
- Implementing a net zero journey plan framework and assessing how the Schemes' expected investment strategy evolution will impact the Schemes' ability to achieve its stated net zero targets.
- Increasing the monitoring of the due diligence conducted by WTW including the integration of ESG and sustainability criteria into the investment process.
- Requesting periodic updates from WTW on the success of the engagements that they have carried out on behalf of the Schemes based on the agreed RI priorities.

Strategy

The climate-related risks and opportunities we have identified over the short, medium and long term

We define climate risk to be the potential impact on future financial returns that may arise from climate change. Climate risk is typically split into two parts:

- Transition risk: the impacts that may arise from policy change and technological advancement
- Physical risk: the risk from changing weather patterns or the greater frequency/severity of extreme events.

We are a long-term investor. Our current long-term goal is to have a 99% probability of paying all benefits in full by 2045 without further reliance on the sponsor. Climate change is likely to be a material consideration for the delivery of our long-term objective, and so it is crucial that we manage climate risk appropriately.

In the context of our journey planning and investment horizon, we have defined short, medium and long term as follows:

- Short term: in line with our actuarial valuation cycle – three years
- Medium term: half-way point to the long-term target – currently 10 years to 2034
- Long term: consistent with our long-term funding target date – currently 21 years to 2045

As the Schemes continue along their journey plan, the above timescales will be re-assessed and amended as appropriate.

We expect transition risks to feature more prominently over shorter time periods. This view is driven by the likely escalation in climate-change regulation over the short to medium term. This also extends to the sponsoring employer of the Schemes, who needs to adapt their business model to meet regulation in respect of car electrification. Our quarterly covenant report considers the employer’s progress towards full electrification based on current volumes by powertrain, how the employer is positioned relative to peers and actions taken to address this specific ESG risk. This analysis is used to determine the overlap between the major transition risks facing our employer and the major transition risks facing the mandates held within the Schemes’ investment strategy. In the longer term, we expect physical risks to feature increasingly.

We assess climate-related risks at an overall strategy level and at an individual mandate level. The table below sets out a summary of the key risks currently identified and monitored for each area of the Schemes’ strategy.

Risk areas	Climate Risks			
	Identified risks	Impact		
		Short term	Medium term	Long term
Investment	WTW invests in strategies that are overly exposed to climate risk. Underlying investment managers do not take account of climate risks. WTW’s approach to climate risk is inadequate.	Low	Low	Medium

Funding	Longevity impact from climate change and potential uncertainties in the funding assumptions introduced by climate risk.	Low	Low	Medium
Covenant	Keeping pace and aligning with consumer demand and changing global policies from a climate change perspective (eg electrification) is one of the key risks facing the sponsor.	Low	Medium	Medium

Please note that the level of risk is assessed after expected mitigating action.

Our assessment of investment and funding related risks at a strategic level has remained unchanged from last year. Our assessment of covenant risk has moved from Medium to Low following a much-improved corporate position since the last valuation such that the covenant assessment has moved from ‘tending to weak’ to ‘tending to strong’ at the most recent covenant review which occurred after the review period.

However, we continue to monitor the impact of different climate change related risks together with other risks through an integrated risk management lens and whether any additional mitigation steps need to be taken.

Several climate-related risks and opportunities have already been identified by WTW in considering the implementation of strategy. The key risks and opportunities that they have identified, assessed and discussed are summarised below:

Climate risks

Real assets – agriculture/timber

Within our RS portfolio, we invest in two mandates that provide separate exposure to agriculture and timber – these mandates equate to around 1% of the overall investment strategy for JPP and LRPS. The key climate-related risks for timberland are fire, drought, wind, hurricanes and disease, all of which may be exacerbated by climate change. Furthermore, extreme weather events (e.g. wildfires and droughts), coupled with rising global temperatures, will significantly affect agriculture production. Therefore, these assets are structurally exposed to physical climate risks. The impact from these physical risks is expected to be more prevalent in the long term.

It’s also worth noting that these investments represent a climate-related opportunity. For example, carbon sequestration in trees will play a significant role in achieving net zero transition pathways, so it’s important to allow existing trees to grow and plant new forests on suitable and available land. We receive updates from WTW on the ESG policy of the manager, with a particular focus on water security and fire risk to ensure that these risks are appropriately managed. The underlying investment manager has confirmed that they focus on regions with optimal climate and infrastructure to grow their high-conviction crops.

Opportunistic private markets – energy

In our RS portfolio, we invest in one mandate that invests across the energy industry. Importantly, it has the flexibility to switch between power generation, midstream and environmental assets and service. However, the manager does hold some gas pipelines that are exposed to transition risks. Reductions in the costs of renewables and increasing regulatory pressure to reduce gas usage are the key drivers of transition risks for this sector.

Given the increasing ambitions related to climate change, these transition risks are expected to emerge in the short to medium term. As part of the reporting received by WTW, we ask them to notify us of any RI exposures that are not optimal when viewed from a wider portfolio context. Gas pipelines represent a small proportion of this fund, and the mandate itself is only around 0.2% of the Schemes’ overall investment strategy. Furthermore, the

manager has the flexibility to invest in different segments of the energy sector, so we believe this transition risk will have a negligible impact on the Schemes ability to achieve its long-term objective.

Climate-related opportunities

Secure income assets – renewable energy

Within our CDI portfolio, we have exposure to a fund that gives investors access to a diversified, low-risk and highly cash-flow-generative portfolio of renewable energy. This mandate represents 2.5% of JPP's investment strategy and 1.4% of LRPS's investment strategy.

Over recent years, there have been rapid technology improvements, while renewable solutions have become cheaper. This has made renewable energy an attractive investment opportunity.

In the short to medium term, this mandate provides opportunities to access cashflow-generative assets. Furthermore, these assets are expected to result in lower expected volatility in the CDI funding level. Over the longer term, this mandate provides exposure to long-term energy-producing assets. We've considered the risk of stranded assets as part of the transition to net zero, and we've made the deliberate decision to invest in assets that provide exposure to renewable sources of energy. We expect to see an increase in the number of liquid renewable solutions in the coming years – this is a particular focus area for the Scheme given our financial, climate and liquidity objectives.

The inclusion of this renewable energy strategy within the secure income portfolio has helped the Scheme achieve its objective of doubling the allocation to climate solutions relative to the 2019 baseline position.

Real assets – energy transition

We continue to be invested in strategies that help finance the global energy transition through infrastructure investments. There is a significant need for capital to reduce carbon emissions and increase the efficiency of industry – technology is expected to continue to play an important role in achieving global net zero targets and therefore WTW is constantly monitoring new opportunities that can help achieve the Schemes' financial and climate objectives.

How climate-related risks and opportunities impact the Schemes' business, strategy and financial planning

Climate-change risk has the potential to reduce returns across all asset classes, as well as having a macroeconomic impact that could affect all Schemes. Equally, the need to transition to a low-carbon economy and the innovation that this will require presents several investment opportunities.

In recent years, we have evolved our business plans to ensure that the assessment of climate related risk is embedded within our investment processes. We aim to monitor climate related risks at all stages of the investment lifecycle and consider how our engagement helps to mitigate the risk that certain companies and sectors are facing from a climate change perspective. This has largely been in the form of engaging with WTW and scrutinising their processes and reporting. For example, we have:

- Focused on data quality for carbon footprint metric to ensure an accurate baseline position can be established to determine appropriate engagement areas.
- Identified initial monitoring priorities based upon data availability
- Discussed how to evolve our climate metric reporting to better capture progress relative to targets and the climate metrics monitored.
- Considered the alignment of net zero targets between different stakeholders, i.e. sponsor vs fiduciary manager (WTW) vs underlying companies held by investment managers.
- Included specific references to ESG and climate-related risks within the objectives of our strategic advisers.
- Assessed how ESG considerations are integrated into specific asset classes and individual mandates via the quarterly asset class review conducted by WTW.
- Assessed how the sustainability profile of the Schemes' investment strategy was improved via the introduction of a new investment grade corporate bond manager and the inclusion of sustainability criteria into the investment guidelines.
- Discussed the current limitations of climate scenario modelling and the specific scenarios that are relevant for the Scheme, based upon the key risks impacting funding and investment strategy.
- Explored additional narrative-based climate scenario analysis which focused on a climate induced, food shock event and the pathways that could ensue.
- Received frequent training on climate-related risks and opportunities.

The Schemes are invested in several climate-related mandates. WTW continue to monitor this market closely to identify attractive opportunities. We expect the allocation to climate opportunities to increase over time – given the planned evolution of the investment strategy, we anticipate deploying capital into both liquid and illiquid climate solutions. This is something that we monitor through our quarterly climate reporting provided by WTW.

WTW have adopted a strategic plan with the overarching goal of being carbon neutral by 2050 across all offices, and within investment portfolios operated for clients under fiduciary management agreements. WTW is also aiming for a 50% reduction in carbon exposure by 2030, compared to 2019 levels. We've agreed to adopt the same targets for the Schemes, though this is subject to periodic review.

As commented on further in the next section, we have placed great focus on climate change within our stewardship policy, and review this annually in full. We received updated reporting from WTW in Q4 2023, which has the intention to aid us in discussing the necessity to evolve and refine the process used to identify, manage and monitor climate-related risks and opportunities.

How resilient is our investment strategy to climate change risks?

As part of our broader integrated risk-management (IRM) framework, we consider plausible tail risk scenarios. These scenarios are designed to stress test the interconnections in the asset strategy, covenant and funding. The purpose of these scenarios is to bring to life the risks inherent in the Schemes' strategy and how we could respond if they materialise. The five base scenarios considered are:

1. Collateral
2. Climate change
3. Longevity shift
4. Credit crisis
5. Swift covenant deterioration

These scenarios are used as a tool to determine whether any amendments to the composition of the investment strategy is needed to mitigate specific tail risks. The FSC plan to revisit the existing scenarios to determine if they should be refreshed.

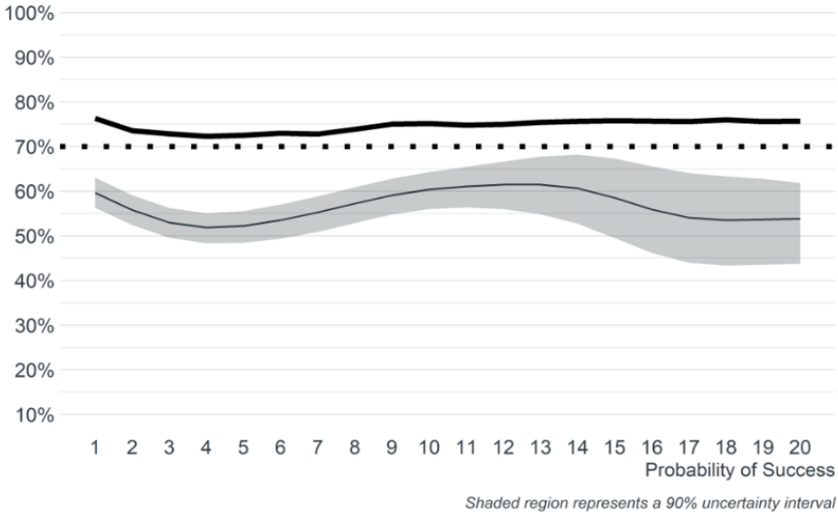
Narrative based climate scenarios

During the year, the FSC chose to focus on the climate change scenario and in conjunction with Hymans explored the possible impact of a severe climate shock scenario. This scenario considered a climate induced, food shock event and the pathways that could ensue. To make the climate scenario narrative realistic, we considered how different actors within the global system would respond to the scenario in conjunction with the human response to environmental or other stimuli. As a climate induced food shock would create an initial series of policy responses, multiple pathways were assumed to be created in response, creating different outcomes. The FSC focused on three pathways (green growth where there was a policy-driven transition, technological triumph where there was an innovation-driven transition and climate catastrophe where there was no transition). The FSC assessed the impact this would have on the Schemes' funding levels.

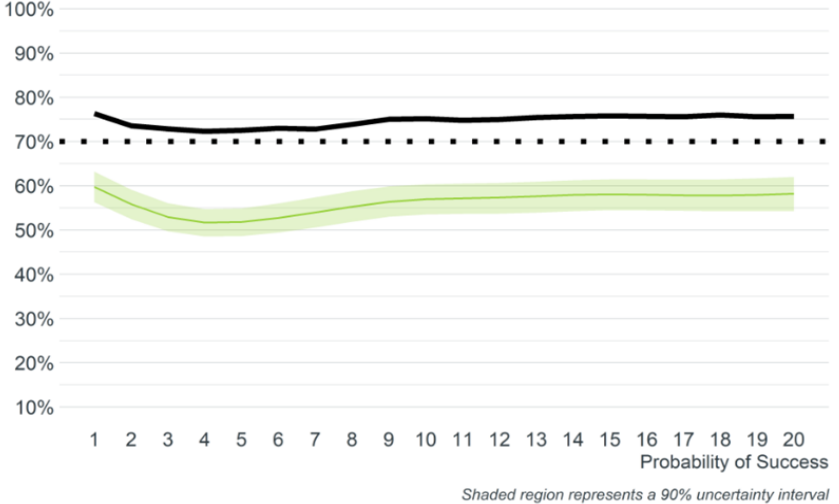
An example of the output for LRPS is shown on the following page. The charts illustrate the likelihood of the Scheme's funding level being over 100% in any given year and how this could change under the climate scenario for the given pathway. The shaded region represents the potential variability in this assessment, i.e. it may be 5% higher, or 5% lower.

As can be seen, under the three climate scenario pathways, there is a lower probability that the Scheme will be more than 100% funded at any time. This is to be expected as we have considered extreme adverse scenarios. As part of this exercise, we considered whether we would be comfortable with the lower likelihood of success and placing a higher reliance on the sponsor covenant, recognising that the potential implications for the covenant under these scenarios would also need to be assessed. We also discussed the drivers behind the scenario and whether a funding buffer would be an appropriate risk control measure. In addition, we considered the potential to adjust the investment strategy to target a higher level of return to improve potential outcomes under each scenario. Overall, we concluded that no amendments to the investment strategy were appropriate, but that we would periodically assess different scenarios when significant change in the environment identified additional risks or opportunities.

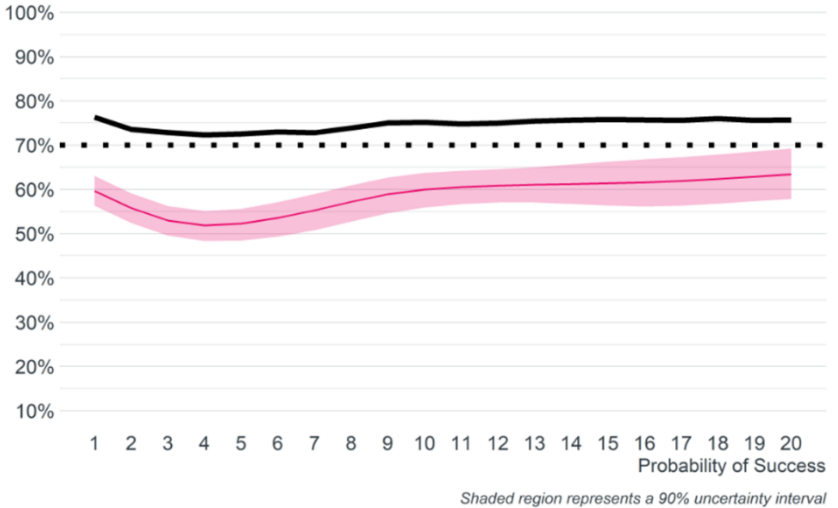
LRPS: Climate catastrophe pathway



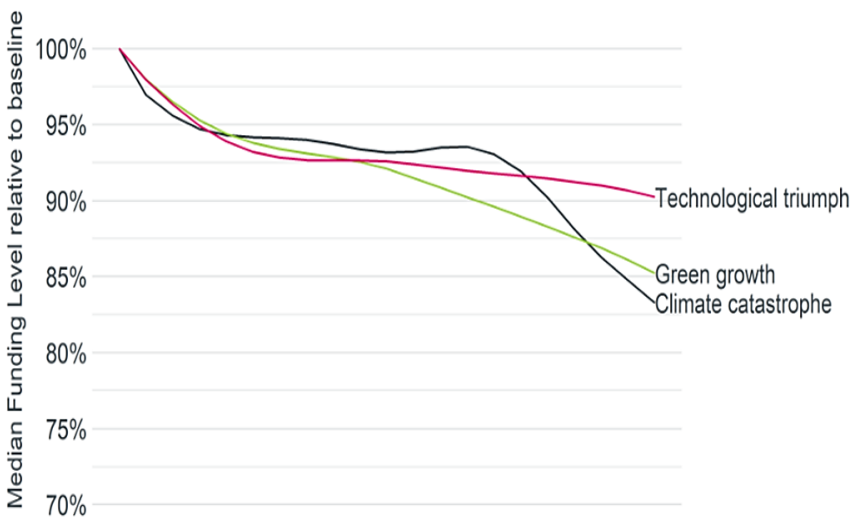
LRPS: Green growth pathway



LRPS: Technological triumph pathway



LRPS: Average impact



Thick black line represents the base case using the Scheme’s current assumptions. This is compared to the different scenario pathways with the shaded region in the charts representing the potential variability in this assessment, i.e. it maybe 5% higher, or 5% lower.

In addition to the scenario analysis described above, we carried out climate scenario analysis for our 2022/23 TCFD report, considering the Schemes' assets and market conditions as at 31 March 2023. We have decided not to refresh the analysis for this report, given the short time period since the analysis was last conducted and lack of material changes to the Schemes' investment strategy.

Therefore, we would expect any further modelling to yield relatively similar results and are comfortable that the analysis, and conclusions, prepared for the 2022/23 report remain relevant. Our intention is to carry out climate scenario analysis on at least a triennial basis, alongside each investment strategy review. In addition, we will consider annually the merit of refreshing the climate scenario analysis and introducing further additional stressed scenarios as appropriate. Further detail on this analysis is set out in Appendix 1.

Climate scenarios – Conclusions

We explored with our adviser the limitations of the standard climate scenario modelling undertaken by pension schemes and worked with them during the year to develop a method to better reflect more extreme climate scenario shocks and their impact on the Schemes' ability to achieve its long-term objective. The results from this analysis showed that there were varied outcomes across the three pathways. As to be expected from an adverse scenario such as a global food supply shock, each pathway created the potential to place greater reliance on the covenant as there was a lower expectation the Schemes' will be more than 100% funded at any time. This narrative based scenario analysis was less quantitative in nature and challenged us to discuss if we were accurately reflecting underlying climate risk drivers in our reporting and effectively challenging WTW on climate risk. We've also included the climate scenario modelling included in the 2022/23 report within Appendix 1.

Climate Transition Value at Risk (CTVaR)

WTW has developed a methodology to consider the potential value lost (or gained) by companies in the transition to a low-carbon economy. CTVaR is used to better understand how the Schemes' investments are exposed to climate transition risk and assesses the financial impact of climate change. This metric employs bottom-up scenarios to assess the effect of changes to policy, technology and consumer behaviours. It models the financial impact of climate transition on businesses assets and gives us a useful guide to understanding the true impact on the composition of the Schemes' investment strategy.

CTVaR measures how much a company would be revalued or a company's market cap repriced based on a full climate transition; this should drive investment to companies and segments that will lead the transition. This analysis compares the expected Value at Risk (VaR) from a well below 2°C scenario materialising versus a business-as-usual scenario. Therefore, it lets us better manage and mitigate the transition risks that could affect various aspects of the investment strategy.

CTVaR also addresses many of the limitations of existing carbon metrics. This is a forward-looking tool that examines how companies are positioned to manage transition risk, rather than focusing on historical carbon emissions data. It also considers the impact of the transition to a low-carbon economy on asset prices, rather than focusing solely on carbon emissions as a proxy for climate risk.

Based on upon information available as at 31 December 2022, the CDI portfolio has low climate transition risk as measured by CTVaR both in absolute and relative terms. This is primarily attributed to the exposure to renewable energy assets within the secure income portfolio. Whilst the CTVaR score indicates that the portfolio is well positioned to navigate climate transition risks, we acknowledge that a large proportion of the data used for the CDI portfolio is proxied and therefore it is important to use this information in conjunction with other metrics to determine a more robust picture.

Similarly, the latest CTVaR analysis shows a positive picture for the RS portfolio. This can be explained by the asset class positioning and the focus on climate risk within the underlying mandates. However, the Schemes' RS portfolio allocation is currently skewed towards opportunistic private markets where there is limited actual data available and therefore proxied data has been used. We will continue to monitor this metric from both an absolute and relative perspective as data quality improves.

Risk management

The processes we use for identifying and assessing climate-related risks

We have identified climate change as one of our top priorities. The importance we place on managing and mitigating climate-related risks has been relayed to WTW and forms the basis of ongoing engagement.

Climate-related risks can be identified by various parties, including the Trustee board, its sub-committees, investment managers, WTW or the Schemes' advisers. ESG risks can be identified via the following processes:

- **Individual mandates and investments**
 - Investment managers developing processes to identify existing ESG risks and adopting a forward-looking approach to identify emerging risks.
 - WTW is tasked with engaging with the underlying investment managers to ensure their processes are appropriately developed to identify and assess these risks. We expect the Schemes' investment managers and WTW to identify and disclose these risks in the following ways:
 - During their presentations when meeting with the Trustee board or sub-committees
 - During dedicated ESG-focused training sessions
 - As part of the WTW's quarterly FundWatch reports
 - By providing climate metric data in line with the TCFD requirements
 - By providing any relevant scenario analysis
 - We note that WTW has developed a proprietary climate transition VaR methodology, which they use to support their decision-making.
- **Investment strategy reviews**
 - Investment advisers are tasked with incorporating ESG considerations into their advice when discussing the long-term evolution of the investment strategy. We've emphasised our expectation that long-term strategic evolution advice papers cover ESG risks and highlight any key risks that could materialise in any potential strategy amendments.
- **Asset classes**
 - When assessing the merits of introducing new asset classes or retaining existing exposure, potential ESG and climate risks will be assessed by WTW. WTW will notify the Trustee board of any material conclusions from their assessment as they deem appropriate, including exceptional engagement activity or divestment.
- **Selection of investment managers:**
 - When appointing a new manager, the capabilities of the investment managers from an ESG perspective are assessed by WTW. WTW considers in advance whether climate-related risks and opportunities are appropriately integrated within the manager's investment philosophy.
- **Actuarial valuation**
 - ESG risks are analysed as part of the triennial valuation. The actuarial adviser provides comments on the impact from ESG factors on the valuation of the Schemes' liabilities.
 - Climate scenario analysis is undertaken to assess the potential impacts of climate-related risks on the funding and investment strategy.

- **Covenant**

- The covenant advisers are tasked with summarising ESG and climate risks to the employer and the implications that this may have over different time periods on the strength of the covenant.
- Potential impacts will be factored into the development of our funding and investment strategy.

We receive detailed reporting quarterly, which covers climate and other metrics across the different portfolios. Some of these are included in the metrics and targets section below. Each metric is then assessed under a 'red-amber-green' traffic light system to draw out areas of concern. We have worked extensively with WTW manager and Hymans in developing reporting tailored to our needs. We appreciate that accurately assessing and calculating climate-related risks is continually evolving, and techniques to measure these risks are still developing. Over the last year, we received updated reporting from WTW in the form of carbon journey plan reporting including a climate dashboard to improve the monitoring of progress towards our net zero targets.

The process we use for managing climate-related risks

Climate change prioritisation has formed the basis of our dialogue with WTW and Hymans and shaped our policies and processes (including reporting, as mentioned above). We manage risk in the Schemes through our risk register and via ongoing strategic discussions with WTW and Hymans. These include the investment risks required to have the highest level of confidence in delivering the long-term objective.

We've gone to great lengths to become comfortable that WTW is embedding climate risk as part of their investment process and when assessing investment managers for inclusion within the RS and CDI portfolios. We note the following about the way in which our assets are selected and then overseen via the exercise of stewardship:

- Long-term asset themes relating to sustainability (eg transition to a low-carbon economy) are developed by WTW's asset research team and ultimately feed through into asset manager selection and portfolio weightings.
- Sustainability is a key lens within WTW's portfolio construction process and is integrated into this process at three levels:
 - Top Down: key sustainability topics which are material for clients are identified and portfolio level targets are set for these.
 - Bottom up: an assessment of how sustainability is integrated into a managers decision
 - Portfolio construction: this process brings together the above consideration and weights the various key lenses, of which sustainability is one, based on client preference.
- As noted above, WTW has developed its own proprietary analysis of climate-related risks (Climate VaR) to support its decision making.
- WTW have made a commitment to aligning all client portfolios to be net zero by 2050, with the aim of halving carbon emissions by 2030.
- WTW have appointed Hermes equity ownership services (Hermes EOS) to provide proxy voting advice and corporate engagement for the Schemes' equity holdings, as well as public policy engagement. We have an opportunity, via WTW, to input to the voting and engagement priorities of Hermes EOS.
- Hermes EOS has climate change as one of its four priority themes, consistent with one of the Trustee's main priority areas.
- WTW are willing to downgrade and remove a manager if insufficient progress (relative to an agreed engagement action plan) is made on RI or stewardship issues.

We also expect our underlying managers to exercise stewardship to help reduce climate-related risks, and for WTW to oversee this and report back to us. Our voting policy makes clear that we expect votes on resolutions related to climate and other environmental actions to be considered carefully based on the specific request being made and the context of the company in question. We expect a high level of support for votes requiring greater disclosure or setting a business transition strategy consistent with the Paris Agreement. WTW is expected to monitor this and explain any cases where such votes are not supported.

We expect engagement with underlying company entities to take place on our behalf, and we receive reporting from WTW to provide comfort that this is the case. Our objective for climate change to be prioritised has been shared with WTW. In the case of EOS, which WTW have appointed to conduct engagement on behalf of most of our equity holdings, climate change is also one of their four priority themes. When reviewing the engagement undertaken by WTW and its stewardship partners, the Trustee board focuses on the topics discussed, agreed action plans and monitoring protocols, rather than the number of engagement activities undertaken.

How our processes for identifying, assessing and managing climate-related risks are integrated into our overall risk management framework

The Financial Strategy Committee (FSC) sets the funding strategy for the Schemes, taking an integrated risk-management approach, with input from covenant, investment and actuarial advisers. Part of the FSC's role involves considering the impact of scenario analysis, this includes the impact of various climate scenarios. The latest scenario analysis undertaken by the Schemes is set out in the previous section.

The FSC receives covenant advice quarterly. As part of the quarterly covenant updates, our covenant adviser assesses key risks (such as car electrification, supply challenges and the importance of China) and the extent to which the investment strategy could mitigate these risks to the covenant. We consider the funding and investment implications of such risks as part of our quarterly FSC meetings. We also consider the implications of covenant risk as a key risk area that will impact the Scheme's strategies at our IIC meetings, how this may impact the current market outlook and any actions that should be taken off the back of this from a strategic perspective. We also held a dedicated portfolio resilience training session over the year which considered how the investment strategy can be structured to deliver the required returns, integrate sustainability considerations and mitigate periods of heightened economic volatility.

Metrics and targets

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

We receive reporting quarterly, covering various climate-related metrics. We believe it's important to consider metrics on a holistic basis, covering both forward- and backward-looking metrics. We focus on metrics that help us better understand the risks faced and make informed decisions about the resulting actions to be taken. All metrics are used to assess the portfolio and challenge WTW. Metrics are analysed separately for the RS portfolio and CDI portfolio to identify the key priorities for different components of the investment strategy.

This report focuses on the mandatory metrics that all schemes are asked to monitor and report against for TCFD purposes. We appreciate that no single metric is perfect, and therefore we monitor a suite of metrics as part of our broader RI dashboard. This approach enables us to take a comprehensive view of the risks facing the Schemes' investment strategy. In addition, this approach enables us to focus on specific metrics within certain aspects of the portfolio, should a metric not be trending in the desired direction or not progressing as quickly as desired or agreed. Therefore, these metrics aim to identify trends and investigate certain areas where necessary.

The metrics considered within this report are summarised below:

Type	Metric	Measurement
Absolute emissions metric	Total Greenhouse Gas (GHG) emissions	The volume of scope 1 and scope 2 emissions from the Scheme's assets – measured in tons of CO ₂ e.
Emissions intensity based metric	Carbon footprint	The volume of scope 1 and scope 2 emissions per unit of capital invested from the Schemes' assets – measured in tons CO ₂ e per \$m invested.
	Weighted Average Carbon Intensity (WACI) – assessment of the efficiency of portfolio carbon emissions.	The volume of scope 1 and scope 2 emissions per unit of sales for each portfolio company, weighted by the size of allocation to each company within the Schemes' assets – measured in tons CO ₂ e per \$m sales.
Additional climate change metric (non-emissions based)	Data quality – A measure of the level of actual data available from the Schemes' managers.	Measured per mandate: % of mandate for which actual data has been used to calculate carbon footprint.
Portfolio alignment metric	Science based targets	Measured as the % of portfolio classified as Aligned or Aligning based on guidance set out in the IIGCC's Net Zero Investment Framework.

Emissions data we have gathered so far (Scope 1 and 2 only)

Data in respect of our RS and CDI portfolios is provided by WTW, in their capacity as fiduciary manager for both portfolios. The below table provides an illustration of the data analysed for each plan/scheme.

Metric (31 Mar 24)	Land Rover		
	RS	CDI	LDI ^[i]
Total carbon emissions	36,465 tCO ₂ e	62,340 tCO ₂ e	50,279 tCO ₂ e
Carbon footprint	36 tCO ₂ e / \$m invested	42 tCO ₂ e / \$m invested	61 tCO ₂ e / \$m invested
WACI	112 tCO ₂ e / \$m sales	89 tCO ₂ e / \$m sales	127 tCO ₂ e / \$m sales
Data quality	26%	24%	99.7% ^[ii]
Science based target	40%	47%	N/A

Source: WTW and LGIM. RS and CDI portfolio as at 31 March 2024. [i] the climate data for the LDI portfolio solely considers government bonds, index-linked government bonds and cash and excludes any derivatives held in the portfolio. [ii] details the data coverage of the portfolio and is not directly comparable to actual data collected from individual companies.

Metric (31 Mar 24)	JPP		
	RS	CDI	LDI ^[i]
Total carbon emissions	30,141 tCO ₂ e	75,432 tCO ₂ e	32,633 tCO ₂ e
Carbon footprint	36 tCO ₂ e / \$m invested	40 tCO ₂ e / \$m invested	61 tCO ₂ e / \$m invested
WACI	113 tCO ₂ e / \$m sales	84 tCO ₂ e / \$m sales	127 tCO ₂ e / \$m sales
Data quality	24%	26%	99.7% ^[ii]
Science-based target	38%	52%	N/A

Source: WTW and LGIM. RS and CDI portfolio as at 31 March 2024. [i] the climate data for the LDI portfolio solely considers government bonds, index-linked government bonds and cash and excludes any derivatives held in the portfolio. [ii] details the data coverage of the portfolio and is not directly comparable to actual data collected from individual companies.

Metric (31 Mar 24)	JEPP	
	RS	LDI ^[i]
Total carbon emissions	3,088 tCO ₂ e	3,270 tCO ₂ e
Carbon footprint	40 tCO ₂ e / \$m invested	57 tCO ₂ e / \$m invested
WACI	84 tCO ₂ e / \$m sales	118 tCO ₂ e / \$m sales
Data quality	42%	97.8% ^[ii]
Science-based target	47%	N/A

Source: WTW and LGIM. RS and CDI portfolio as at 31 March 2024. [i] the climate data for the LDI portfolio solely considers government bonds, index-linked government bonds and cash and excludes any derivatives held in the portfolio. [ii] details the data coverage of the portfolio and is not directly comparable to actual data collected from individual companies.

These metrics are monitored quarterly with data refreshed on a bi-annual basis. As part of the reporting provided by WTW, a heatmap is applied to certain metrics to identify trends and progress relative to the agreed comparators. We accept that there is a large degree of subjectivity with respect to the thresholds selected for each metric. Therefore, we have agreed that the colour heatmapping will be monitored and revised over time, as appropriate.

The latest analysis shows that the RS and CDI portfolios are performing broadly in line with their comparators across most metrics analysed. The carbon emissions across the RS portfolio have materially decreased from last year's report due to the Schemes' allocation to private markets decreasing as the Schemes' looked to increase liquidity across the portfolio. This resulted in the illiquid private markets, which tend to have a higher structural carbon footprint relative to other asset classes, being a smaller overall proportion of scheme assets. This decrease is also attributable to a decrease in reported emissions of the investments themselves, notably for the illiquid assets within JPP and LRPS but also across the range of asset classes held.

The carbon emissions and carbon footprint across the CDI portfolio increased slightly over the period with the WACI for the portfolio reducing owing to the re-introduction of investment grade credit mandates, which have a lower WACI compared to some of the existing assets.

The WACI metric remains higher for both the RS and CDI portfolios relative to the comparator used – this is primarily due to assets held within the portfolio. For example, the comparator used for the CDI portfolio is a sterling corporate index, while the CDI portfolio consists of secure income assets, alternative credit and corporate bonds. Adjusting for the types of assets held within the investment strategy, we are comfortable that the WACI figure for the Schemes' investment strategy is good relative to its peers.

The LDI emissions data solely considers physical holdings i.e government bonds and cash. More specifically, this analysis excludes any derivatives held in the portfolio. Given the nature of the assets held in the LDI portfolios, the funds are performing in line with expectations from an emissions perspective.

We have not reported on Scope 3 emissions. This approach was taken following confirmation from WTW that meaningful data continues to be very limited in terms of both coverage and quality and therefore current data will not provide a reliable assessment of the Schemes' emissions. WTW is working on our behalf to improve the coverage of scope 3 emissions across our holdings and are exploring the possibility of introducing this data in time for our 2024/25 report.

Over the last 12 months, we have engaged with WTW to better understand the data quality metric. This has resulted in more granular reporting being provided such that we can see the split between actual strategies holdings data, proxied strategies holdings data and no available holding data. This updated methodology means that the output from the data quality metric in this year's report is not directly comparable to the information included in last year's reports. Going forward, this updated approach will be included within the regular reporting that we receive from WTW.

The targets we have set to manage climate-related risks and opportunities

We have agreed to set a target in relation to the CDI portfolio due to its expected importance in the long-term investment strategy for the Schemes. Specifically, we have set a target of reducing carbon emissions intensity by 2030 (relative to 2019 levels). This target was set after considering various components:

- What is the company’s position?
 - While reviewing the sustainability targets for Jaguar Land Rover is useful, we believe that it is appropriate to set targets in the context of our own RI beliefs and strategic objectives.
- What climate pledges have been made by WTW?
 - WTW has already announced a goal of reducing carbon emissions by 50% from 2019 levels by 2030. In addition, they have committed to doubling the allocation to climate solutions in the investment strategies that they manage.
 - We have considered whether there is merit in adopting a more aggressive and challenging target than that set by WTW. This focused on whether having an earlier target date will change behaviours in a manner that is in our best interest. We concluded that currently alignment with WTW is appropriate.
- What limitations are there with respect to setting targets?
 - We considered the expected evolution of the investment strategy as we approach our long-term time horizon and whether this will impede our ability with respect to setting targets.
 - We analysed data availability and the use of proxy information in certain asset classes and whether certain metrics might be overstated or understated by data challenges.

We held a session with WTW during the reporting period which discussed the RI reporting provided by WTW and how this can be evolved so that we can more easily monitor the Schemes’ progress against their net zero targets. We’re aware that best practice is continually evolving, and so agree that the metrics assessed will be monitored on an ongoing basis.

This reporting showed that we are on track to achieving our target of reducing carbon footprint by 50% by 2030 relative to the 2019 baseline level as shown below.

Date	JPP CDI carbon footprint (tCO2e / \$m invested)
31 Dec 2019	82
31 March 2024	40

Source: WTW

This reporting also showed that our CDI portfolio is ahead of WTW’s carbon journey plan of achieving net zero emissions by 2050 as at end 2022; however, we would note that data is currently limited across some asset classes (with reporting covering 76% of the portfolio with 27% actual data and 49% proxied). As data availability improves, we may see more volatility in the reporting over the short term. We would note that at the time of the reporting, the CDI portfolio was undergoing structural change following significant disinvestments as part of the gilts crisis in late 2022. This may also contribute to further volatility in the reporting in the short term. Going forwards, our focus is to work with WTW to ensure improvement in the quality and quantity of data being received from the underlying investment managers. We will continue to work with WTW to ensure that this reporting evolves to best suits our needs.

Appendix 1 – Scenario analysis – results and assumptions

Scenario analysis results based on the Schemes’ assets and market conditions as at 31 March 2023.

The scenario analysis was carried out using a model produced by the Schemes’ investment adviser. It considered the impact under three scenarios, which differ by how quickly and decisively the world responds (or fails to respond) to climate change. We summarise these scenarios alongside the results below.

Climate Scenarios

Green Revolution	Delayed Transition	Head in the Sand
<p>Concerted policy action starting now eg carbon pricing, green subsidies</p> <p>Public and private spending on “green solutions”</p> <p>Improved disclosures encourage market prices to shift quickly</p> <p>Transition risks in the short term, but less physical risk in the long term</p> <p>Assumes a high likelihood of achieving an emissions trajectory consistent with limiting the average global temperature increase to at or below 2°C</p> <p>The intensity of the disruption is high and immediate</p>	<p>No significant action in the short term, meaning the response must be stronger when it does happen</p> <p>Shorter and sharper period of transition</p> <p>Greater (but delayed) transition risks but similar physical risks in the long term</p> <p>Assumes a high likelihood of achieving an emissions trajectory consistent with limiting the average global temperature increase to at or below 2°C</p> <p>The intensity of the disruption is high and in the medium term</p>	<p>No or little policy action for many years</p> <p>Growing fears over ultimate consequences leads to market uncertainty and price adjustments</p> <p>Ineffective and piecemeal action increases uncertainty</p> <p>Transition risks exceeded by physical risks</p> <p>Assumes a very low likelihood of achieving an emissions trajectory consistent with limiting the average global temperature increase to at or below 2°C</p> <p>The intensity of the disruption is very high and in the long term</p>

Results

LRPS

Probability of being 100% funded on CDI basis			
	Short term 3 years	Medium Term 11 years	Long term 22 years
Current strategy	Base: 69%	Base: 72%	Base: 73%
	Green Revolution: 70%	Green Revolution: 73%	Green Revolution: 73%
	Delayed Transition: 68%	Delayed Transition: 75%	Delayed Transition: 74%
	Head in the Sand: 70%	Head in the Sand: 73%	Head in the Sand: 73%

Average Funding level of 5% worst case modelling outcomes			
	Short term 3 years	Medium Term 11 years	Long term 22 years
Current strategy	Base: 87%	Base: 76%	Base: 48%
	Green Revolution: 88%	Green Revolution: 77%	Green Revolution: 54%
	Delayed Transition: 88%	Delayed Transition: 79%	Delayed Transition: 52%
	Head in the Sand: 86%	Head in the Sand: 75%	Head in the Sand: 41%

JPP

Probability of being 100% funded on CDI basis			
	Short term 3 years	Medium Term 11 years	Long term 22 years
Current strategy	Base: 86%	Base: 83%	Base: 82%
	Green Revolution: 87%	Green Revolution: 84%	Green Revolution: 83%
	Delayed Transition: 87%	Delayed Transition: 85%	Delayed Transition: 82%
	Head in the Sand: 85%	Head in the Sand: 81%	Head in the Sand: 81%

Average Funding level of 5% worst case modelling outcomes			
	Short term 3 years	Medium Term 11 years	Long term 22 years
Current strategy	Base: 92%	Base: 81%	Base: 59%
	Green Revolution: 93%	Green Revolution: 83%	Green Revolution: 63%
	Delayed Transition: 92%	Delayed Transition: 83%	Delayed Transition: 62%
	Head in the Sand: 91%	Head in the Sand: 81%	Head in the Sand: 52%

JEPP

Probability of being 100% funded on TP basis			
	Short term 3 years	Medium Term 11 years	Long term 22 years
Current strategy	Base: 70%	Base: 73%	Base: 78%
	Green Revolution: 64%	Green Revolution: 72%	Green Revolution: 78%
	Delayed Transition: 69%	Delayed Transition: 72%	Delayed Transition: 79%
	Head in the Sand: 70%	Head in the Sand: 69%	Head in the Sand: 75%

Average Funding level of 5% worst case modelling outcomes			
	Short term 3 years	Medium Term 11 years	Long term 22 years
Current strategy	Base: 85%	Base: 67%	Base: 7%
	Green Revolution: 84%	Green Revolution: 64%	Green Revolution: 2%
	Delayed Transition: 85%	Delayed Transition: 69%	Delayed Transition: 15%
	Head in the Sand: 85%	Head in the Sand: 63%	Head in the Sand: 0%

The analysis has been conducted by Hymans on our behalf. Their Economic Scenario Service (ESS) model produces stochastic projections for a wide array of asset class returns and other economic factors, which can be used as part of any quantitative risk management exercise. The ESS models are regularly updated to capture the latest market conditions and are maintained and documented by a dedicated specialist team. The models don't make explicit assumptions for climate change or any other economic/political factors like trade wars, pandemics, etc.

However, climate change can be factored in indirectly by weighting the existing ESS outputs to ‘tilt towards’ possible climate scenarios. For each climate scenario, each of the 5,000 trials run for the ALM exercise is assigned a specific weight – one weight per trial per model calibration date. Weights are determined to achieve higher volatility in the periods specified. In each scenario (green revolution, delayed transition and head in the sand), a disruptive period of high volatility is assumed. This disruption is either linked to the response to climate risk (transition risks) or the effects of it (physical risks). The specific volatility criteria used for each of the scenarios is summarised in the below table:

ESS input	Volatility criteria			
	Year 1-5	Years 6-10	Years 11-15	Years 16-20
Green revolution	Very high	Moderate	Moderate	
Delayed transition		Very high	High	
Head in the sand			High	Very high

The impact of climate change on longevity and sponsor covenant is **not** included in the analysis.

Appendix 2 – metric explanation

Absolute emissions

The formula for this metric attributes a share of each underlying investment's GHG emissions to the Schemes based on the Scheme's share of that investment, as follows:

$$\sum_{i=1}^{i=n} \frac{\text{Scheme's value of asset}_i}{\text{Total equity and debt of asset}_i} \times \text{GHG emissions of asset}_i$$

This metric is dependent on the issuer's disclosure of its GHG emissions – the GHG emissions used for the RS portfolio and CDI portfolio considers only Scope 1 and Scope 2. While this metric is relatively straightforward to calculate and communicate, there is no normalisation between funds. Subsequently, it's important to consider carbon intensity metrics.

Carbon footprint

The carbon footprint is effectively the total GHG emissions normalised by the size of the portfolio. The formula used for this metric is as follows:

$$\frac{\sum_{i=1}^{i=n} \left(\frac{\text{Scheme's value of asset}_i}{\text{Total equity and debt of asset}_i} \times \text{GHG emissions of asset}_i \right)}{\text{Current portfolio value}}$$

This metric provides the Scheme with the ability to monitor relative carbon intensity at an overall strategy level, sector level and company level. However, this metric does not take into account differences in the size of companies and hence the importance to monitor this metric in conjunction with Weighted Average Carbon Intensity (WACI).

WACI

The weighted average carbon intensity measures the exposure to carbon intensive assets expressed in tons of CO2e per millions of pounds of revenue. The formula used for this metric is as follows:

$$\sum_{i=1}^{i=n} \left(\frac{\text{Scheme's value of asset}_i}{\text{Current portfolio value}} \times \frac{\text{GHG emissions of asset}_i}{\text{Issuer's revenue}_i} \right)$$

This metric relies on historical carbon data and analysis and is, therefore, backwards looking. This means that it doesn't take into account any action plans that companies have agreed to reduce their carbon emissions or achieve environmental objectives. Therefore, this metric needs to be reviewed in conjunction with forward looking metrics.

Portfolio alignment – Science-based targets

The proportion of the portfolio that is covered by science-based targets, as verified by the Science Based Targets Initiative (SBTi).

Data quality

The formula used for this metric is calculated as the percentage of the portfolio for which emissions data has not been estimated. The purpose of this metric is to consider how often actual holdings data has been used relative to estimated data in order to determine the accuracy of the information.

Appendix 3 – Climate Scenario Modelling – Reliances and Limitations

This modelling is a form of asset-liability modelling (ALM).

The Trustee's adviser's ESS (Economic Scenario Service) produces stochastic projections for a wide array of asset class returns and other economic factors, which can be used as part of any quantitative risk management exercise – whether that be carrying out ALM, strategic asset allocations (SAA), or any other exercise designed to quantify financial risk exposure. The ESS models are regularly updated to capture the latest market conditions and are maintained and documented by a dedicated specialist team. The models don't make explicit assumptions for climate change or any other economic/political factors like trade wars, pandemics, etc.

However, climate change can be factored in indirectly by weighting the existing ESS outputs to 'tilt towards' possible climate scenarios. For each climate scenario, a weight is calculated for each of the 5,000 projections run for the ALM exercise so that the projections with higher volatility in the specified time period are emphasised in that scenario.

All scenarios involve a period of 'stress', which happens at different points over the selected modelling horizon. Each period of stress encompasses a combination of transition and physical risks, but whereas the early periods are assumed to be nearly all transition risk, the later periods include more physical risk as the impact of climate change is felt. It has, therefore, been assumed that the later the stress happens, the more intense the climate risk impact will be.

The approach taken is to assess the impact of climate change on the whole range of projected outcomes for the Group's funding position (assets and liabilities combined) and the Trustee has not carried out detailed analysis of the impact on the assets and liabilities independently. The impact of the various scenarios tested is that the range of funding outcomes becomes wider and more uncertain, rather than having a direct impact on Group assets or liabilities independently.

Please note that the impact of climate change on longevity and sponsor covenant is **not** included in the analysis.