

Inaction is not an option

Legal & General Group Plc
2021 Climate Report

in line with recommendations by
the Task Force on Climate-related
Financial Disclosures (TCFD)



Our purpose is to improve the lives of our customers, build a better society for the long term and create value for our shareholders – we call this inclusive capitalism.

NTR single turbine wind portfolio in County Mayo, Republic of Ireland. Our capital investment business owns a stake in NTR and our investment management business has partnered with NTR.

Our climate goals

1

We support the goal of limiting global warming to the 1.5°C 'Paris' Agreement¹, which requires net zero carbon emissions by 2050, alongside rapid, deep and sustained reductions in other greenhouse gas (GHG) emissions.

2

We will decarbonise both the assets on our balance sheet and our operations to align with the 'Paris' objective.

3

We will set ambitious near-term science-based targets to support our long-term emissions-reduction goals.

4

We advocate for urgent action to mitigate the climate emergency from governments and the companies we are invested in.

5

We will use our influence as a large investor to support the transition to a low-carbon economy.

6

We recognise the critical role that nature has in achieving the 'Paris' objective, and embrace the challenge of eliminating financing of commodity-driven deforestation across our investment portfolios.

1. In alignment with the IPCC Special Report on Global Warming of 1.5 degrees (SR 15).

At a glance

The three pillars of our climate strategy are how we invest, influence and operate.

Investments

Renewable energy investments to date

£1.4bn

(2020: £1.4bn)

Implied temperature alignment

Measures the implied warming potential of a company

2.72°C

(2020: 2.85°C)

Influence

Companies rated by our Climate Impact Pledge³

1,000

(2020: 1,000)

✓ United Nations Principles for Responsible Investment member

✓ Glasgow Financial Alliance for Net Zero member

Investment portfolio carbon footprint (Scope 3 investments)

Measures the GHGs associated with our investment portfolio¹

74 tCO₂e/£m

(2020: 89 tCO₂e/£m)²

✓ Tightened exclusion policies

Number of climate-specific engagements

246

(2020: 407)

✓ Launched LGIM products with accelerated net zero targets

✓ Developed an independent model with climate scenario capabilities

Operations

Operational footprint (Scope 1 and 2 (location))

30,706 tCO₂e⁴

(2020: 31,640 tCO₂e)⁵

✓ Relunched our business travel policy, focusing on sustainability

✓ External assessments of our core occupied offices' net zero needs



Annual Report:
group.legalandgeneral.com/annualreportsummary

1. Carbon dioxide (CO₂) is the most significant contributor to global anthropogenic GHG emissions, which also include other gases such as methane and nitrous oxide. The equivalent warming impact of non-CO₂ GHG emissions are measured as tonnes of CO₂ equivalent (tCO₂e).
 2. 2020 figure restated, see page 51 for further details.
 3. Figure is approximate.
 4. Our total Scope 1 and Scope 2 (location) emissions have been subject to independent limited assurance by PwC. The basis of preparation (or reporting criteria) for our group carbon footprint is available at group.legalandgeneral.com/sustainabilityreports and PwC's assurance report is available on page 45 of this report.
 5. 2020 figure restated, see page 38 for further details.

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Chairman's statement



A 'just transition' must be an inclusive transition

Addressing climate change is a strategic priority for Legal & General and I am pleased to report that during 2021 we made further progress in our commitment to the environment. Our climate-related goals have been strengthened and we are committed to decarbonising the assets on our balance sheet and our operations to align with the Paris Agreement, which we interpret as limiting global warming to 1.5°C. We are in the process of setting and externally validating science-based targets (SBTs) and will disclose our targets in early 2023.

In this report we have shown our intended journey to net zero, detailing our climate goals, commitments and the milestones to deliver them. We view this as an important step towards our transition plan. The Board strongly believes that transparency and accountability are vital in delivering our commitments and it is therefore the Board's intention to present an advisory vote on the Company's transition plan to the Company's shareholders at our 2023 Annual General Meeting (AGM), assuming that agreed industry standards are sufficiently developed.

We will, of course, continue to use our influence as a large global investor to promote a 'just transition' to a low carbon economy. A 'just transition' must be an inclusive transition. We regard active engagement as an effective

way of achieving climate goals rather than divesting from high-carbon companies. Leaving the toughest issues to others is not the kind of inclusive capitalism that we regard as the best platform to achieve net zero by 2050.

To drive positive change, better information and harmonised measurements and standards can continue to build confidence in sustainable investing. We welcome the formation of the International Sustainability Standards Board which will develop sustainability disclosure standards to meet investors' information needs.

2021 saw the UK host the 26th Conference of the Parties (COP26). The Glasgow Climate Pact can have the effect of narrowing the gap between the current path and limiting the rise in global temperature to 1.5°C, so long as delivery matches commitments. In Glasgow, we listened and we spoke on climate change, biodiversity and the role finance can play in achieving net zero. We will reflect on what we have learned as we continue to plan for, and navigate, the challenges presented by the changing climate.

The complexity of the COP26 negotiations, and the number of interconnected issues, should remind us all that there is no monopoly of wisdom on addressing climate change; COP26 relied on the power of cooperation and

collaboration. We have broad and deep partnerships through forums such as Glasgow Financial Alliance for Net Zero (GFANZ), the Sustainable Markets Initiative and Get Nature Positive. When LGIM was a founding signatory of the Net Zero Asset Managers initiative in December 2020, it had 30 signatories representing over \$9 trillion of assets under management; now it has 236 signatories representing \$57.5 trillion of assets under management.

During the year a number of changes were made to enhance the governance around our environmental commitments and activities. Nilufer von Bismarck (Non-Executive Director) has a specific focus on climate and Simon Gadd, our former Chief Risk Officer, is now our Group Climate Change Director. We have also introduced a climate risk policy that is embedded throughout the group.

I trust that you find the report helpful and we welcome your feedback.

Sir John Kingman
Chairman

Chief Executive Officer's statement

We will support the transition to net zero through how we invest, influence and operate



The real legacy of COP26 will evolve in the years to come. The promises made in Glasgow are crucial, but future generations will write about what happened, not what was signed and planned. As the Glasgow Climate Pact makes clear, it is vital to turn promises into actions.

We will support the transition to a net zero economy through how we invest, influence and operate. We are making progress towards reducing our group balance sheet's portfolio carbon intensity by half by 2030 and are targeting net zero by 2050. In partnership with clients, our investment management business (LGIM) will target 70% of assets under management to be managed in alignment with net zero by 2030¹.

We manage £1.4 trillion of assets for our clients and, since 2016, our Climate Impact Pledge (CIP) has used engagement with consequences to call out 'leaders and laggards'. We know that achieving net zero by 2050 will involve complex choices, particularly for companies operating in sectors where scientific research is evolving or which require significant capital investment.

Responsible stewardship means committing to solve problems rather than simply divesting. Our scale, scope and ambitions result in a duty to influence our peers and our stakeholders to mobilise and progress on environmentally and socially systemic issues. Over the past 18 months Michelle Scrimgeour (CEO, LGIM) co-chaired the COP26 Business Leaders Group, whose work has established the sectoral approach to climate action that will now drive each nation's efforts. We continue to engage with key global leaders, including Mark Carney and Alok Sharma to ensure that the voice of the business community is prominent.

For the last two years I have been Chair of the Innovation Working Group of the Prudential Regulation Authority and Financial Conduct Authority's Climate Financial Risk Forum. The project, in its current form, has concluded but its work and legacy will ensure a continued focus on promoting the 'greening finance' agenda by highlighting the benefits of moving towards a net zero and more resilient economy.

Sustainability is central to our purpose and we will continue to do everything we can to help translate the COP26 promises into realities over the coming years. Change on such a scale requires the mobilisation of private sector finance and expertise. Creating the net zero economy is a great national and international effort and it is also the greatest investment opportunity in our lifetimes.

We have an established track record of action on climate. We have been 'building back better' for the last decade and we have invested £1.4 billion in clean energy. Our capital investment business has also made targeted investments into both start-ups and more established specialist businesses, whose innovation and enthusiasm is already building the infrastructure of the decarbonised economy.

Glasgow kept 1.5°C alive, just, and we will remain at the forefront of greening finance and financing green. Achieving net zero will require an astonishing feat of international cooperation and coordination – perhaps the greatest ever.

Sir Nigel Wilson
Chief Executive Officer

1. Excludes sovereign and derivative securities until such time as agreed methodologies exist.

Introduction

In 2021 we witnessed the impacts of climate change around the world: from record temperatures in North America, to extreme flooding in China and wildfires in Greece. Global average temperatures have already increased by over 1°C and to avoid the most extreme impacts of a changing climate, we must collectively limit global temperature rises to 1.5°C.

The science is unequivocal and the landmark Intergovernmental Panel on Climate Change (IPCC) Report in 2021 has been called a “code red for humanity”.

Following COP26, we are cautiously optimistic about the possibility of limiting global temperature rises to 1.5°C. However, this will require societal change on an unprecedented scale over the next decade. Inaction is not an option.

Our business

We provide retirement and protection solutions, investment management services and are an alternative asset creator. We manage £1.4 trillion of assets on behalf of our clients, of which £97.6 billion are our proprietary assets, and we provide life insurance to over nine million customers.

Our climate strategy

The three pillars of our climate strategy drive positive change throughout the group:



Invest



Influence



Operate

Key updates

- We tightened our exclusion policies for investments.
- Our first retirement community enabled to operate at net zero carbon is under construction in Bedfordshire.
- We have developed an independent model with climate scenario capabilities, including a 1.5°C net zero scenario.
- We launched investment products with accelerated net zero targets.
- CALA, our largest housebuilding business, committed to achieve industry-recognised best-practice ‘2030’ targets for embodied carbon in all new homes in the UK by 2025, having already met this target in Scotland.
- Michelle Scrimgeour (CEO, LGIM) co-chaired the COP26 Business Leaders Group.
- We relaunched our business travel policy, focusing on sustainable modes of transport.
- We undertook external assessments of our core occupied offices’ net zero needs.
- Work is ongoing to set and validate SBTs.
- We have appointed Simon Gadd as Group Climate Change Director and Nilufer von Bismarck has a specific focus on climate in her position as Non-Executive Director.

Warming stripes

This visual of ‘warming stripes’ shows the average global temperature from 1850–2020. Each stripe represents the global temperature averaged over a year (red is warmer, blue is colder).

The visual’s simple design encourages conversations about our warming world.

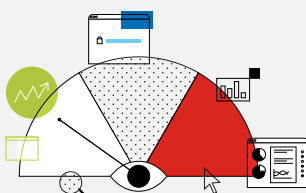
Source: Climate Lab Book
Credit: Professor Ed Hawkins (University of Reading) <https://bit.ly/WarmingStripes>

Our approach to climate

Our climate report provides investors and other stakeholders with an understanding of our exposure to climate-related risks, our strategic resilience to these risks, and the climate-related opportunities we have identified.

This is our fourth report prepared in line with the recommendations made by the Task Force on Climate-related Financial Disclosures (TCFD) and it supplements our 2021 Annual Report and Accounts. In preparing this report, we have given consideration to the sector-specific supplementary TCFD guidance on implementing the recommendations.

Whilst reading our climate report, the following are key considerations:



1. Strategic purpose drives our approach

Our purpose is to improve the lives of our customers, build a better society for the long term and create value for our shareholders. This inspires us to use our long-term assets in an economically and socially useful way to benefit everyone in our communities.

We can – and will continue to – use our scale and influence to invest in clean energy solutions that will power a sustainable and long-term future for our customers, wider society and generations to come. There is no single solution to transitioning away from carbon and we are building our approach to support better long-term outcomes, such as transforming the built environment and investing in new technologies that can lead to real change.



4. Moving away from carbon

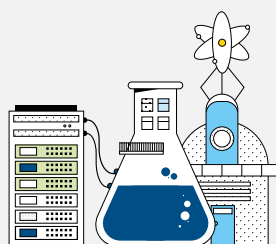
We play an active role in the move away from carbon through our engagement with investee companies and managing our own investments. Reporting resilience to climate risk is clearly important, but we believe there should be equal emphasis on recognising the growth opportunities arising from tackling climate change.

By investing in technology and infrastructure solutions, we are supporting the transition to a low-carbon economy and managing resilience to climate risk. Ultimately, the successful positioning of group assets to support 'Paris' mitigates the associated transition risks and creates benefits from this energy transition.

2. Funded emissions

As a financial institution, the emissions that we fund through the assets that we invest in are significantly larger than the direct emissions from our own operations. While we have a suite of transition targets that include our own operations, the most material impact that we can have is through our investments.

Our commitments are made in the expectation that governments will follow through on their own commitments to ensure that the 'Paris' objective of limiting global temperature increases to 1.5°C is achieved. We are dependent on the delivery of policy actions and the climate-reduction targets of the firms we invest in. This is why we advocate for urgent action to mitigate the climate emergency.



5. Evolving practices

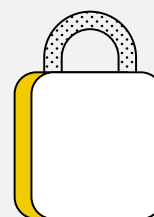
Our understanding of the risks from climate change and the actions that are needed to mitigate them is based on science. This continues to evolve. The actions that the world is taking will to some extent inform the actions that we can take. Disclosure of climate and emissions data is evolving and remains a 'best endeavours' analysis. We have made progress in our understanding and quantification of climate risk, but this is an evolving landscape.

It is not yet clear where the financial sector will eventually align on metrics, calculation methodology, time frame and scenario definition. We disclose our metrics in this report and provide further supporting information of the changes to our methodology in the Additional information section.

3. A strong long-term business model

Our business model is robust and does not fundamentally change under a range of climate scenarios. The transition to net zero creates both risks and opportunities, which will impact how we execute our strategy.

Scenarios inform risk management and investment strategy. Understanding how climate change will affect assets, and the associated risks, is an important part of our business, investment strategy and advice to clients. We continue to invest in our own models and skilled experts to build our capabilities.



6. Proprietary assets versus managed assets

This is a group report, covering the £97.6 billion of proprietary assets that Legal & General owns. We have control over the investment strategy of these assets.

It is important to distinguish these assets from the £1.4 trillion of LGIM's total assets under management. Of this, we manage £1.3 trillion on behalf of external clients, where we do not make investment decisions. However, we influence and assist these clients by providing appropriate low-carbon products, ESG assessments of their portfolios, and engage with investee companies, informing our voting practices based on those companies' climate change credentials.

Strategy

Addressing climate change is one of our six long-term growth drivers and it is embedded in how we run our business. Our success is underpinned by careful risk management and our robust business model is not expected to be significantly disrupted by climate change. It does, however, impact on how we execute our strategy if not actively managed.

We use our long-term assets to generate positive outcomes for shareholders, customers, wider society and the environment.

Our approach to climate change is built on three strategic pillars:

Invest

How we invest our assets: we believe that the key source of climate risk to our business is through our proprietary assets.

Influence

Using our scale to influence, support the transition to a low-carbon economy and reduce the risk of potential adverse physical outcomes.

Operate

How our businesses operate: through reducing the carbon footprint of both the assets that we create and our direct carbon footprint, we can support our long-term resilience.

There is a broad set of climate risks and opportunities across our balance sheet. We focus on our assets' transition risk as we consider this to have the greatest potential impact on our business.

To provide us with a better understanding of the risks and opportunities which climate change poses to our business, we have developed a bespoke model, Destination@Risk, which continues to shape our strategic response (see further detail in the Scenarios section).

We believe that our transition strategy and the policies we have in place to mitigate climate risk will support our resilience.

In this Strategy section, we:

- identify climate-related opportunities and risks
- demonstrate the steps towards our journey to net zero by 2050
- explain how climate is integrated in our wider strategy, including investment strategy
- highlight the opportunities arising from climate change in our investment management and capital investment businesses.



As an energy transition investor, we are aiming to support the scale-up of innovative businesses capable of delivering the solutions needed to reduce emissions throughout the economy.”

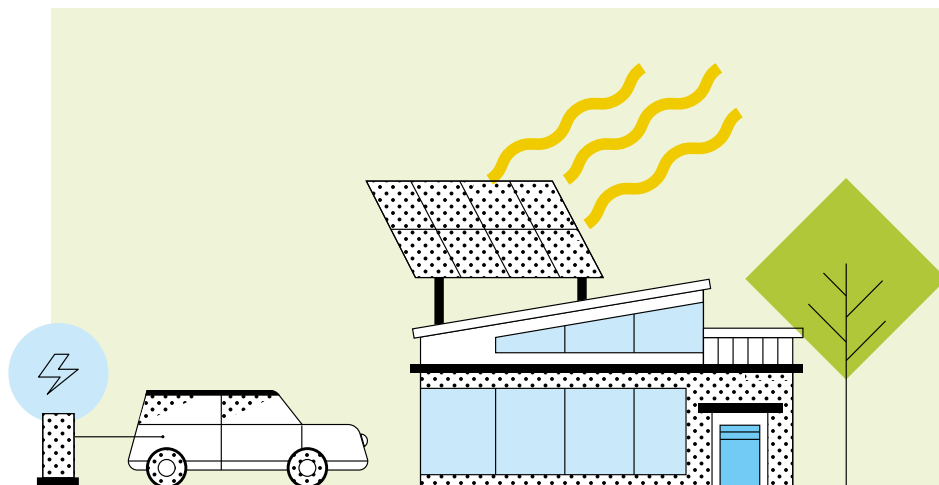
John Bromley
Head of Clean Energy,
Legal & General Capital



Measurement of emissions

Our climate goals target net zero carbon emissions by 2050, alongside rapid, deep and sustained reductions in other GHG emissions.

In line with best practice and the GHG protocol, our emissions are currently reported as CO₂ equivalent (CO₂e), covering both CO₂ and a converted score for all other GHGs. Interim targets are set to reflect these measurements.



Housing fit for the future

In December 2021, our capital investment business invested £3.5 million in Sero Technologies, an energy technology and services company supporting the transition to net zero across the residential housing sector. Sero has created a digital tool which works with landlords, mortgage lenders, housebuilders and more, to plot a pathway to net zero for homes.

Climate-related opportunities and risks

There are undoubtedly risks from climate change, yet the transition to net zero also creates opportunities. The tables below highlight key examples of climate-related opportunities and risks.

Opportunities

We are well placed to play an active and profitable role in the decarbonisation of the economy and are already embracing the opportunities in many areas. The world needs to take more action and move faster than it is currently but there are many barriers to overcome and behaviours that need to change. As the response to climate change emerges, so will the development of new markets and the scale of the opportunities.



Short, medium and long term

- Our **short-term** horizon looks at a three-year period.
- Our **medium-term** horizon looks at the opportunities and risks up to 10 years, allowing us to shape the overall strategy of our business.
- Our **long-term** horizon looks at the opportunities and risks that we seek to understand in a longer-term time frame, up to 2050. This time frame strives to challenge and shape the very nature of our business as well as the overall strategy and links closely to wider long-term views of the impacts of our changing climate.

Strategic pillar	Potential opportunities	Business area impacted
Invest	<ul style="list-style-type: none"> • Investments in the technology and infrastructure required to transition away from high carbon, such as renewable energy sources, low-carbon properties, low-carbon heating, electrification of transport and nature-based solutions. 	Institutional retirement, retail retirement, investment management, capital investment, insurance
Influence	<ul style="list-style-type: none"> • Support clients to decarbonise their own portfolios, for example through net zero-aligned investment products and funds, and provision of data, analysis and tools. • Offer funds to provide clients with financing opportunities in transition technology and infrastructure. • Increase engagement with companies and with governments to encourage a faster and 'just transition'. 	Investment management
Operate	<ul style="list-style-type: none"> • Develop homes and commercial properties enabled to operate with net zero carbon emissions. • Reduce embodied carbon in construction. • Develop real assets with high levels of climate resilience. 	Institutional retirement, retail retirement, investment management, capital investment

Risks

Focus on climate change will continue to increase. This will have many impacts across the group and will create a dynamic environment to be managed. The risks listed below reflect this long-term evolving uncertainty.

Strategic pillar	Potential risks	Business area impacted
Invest	<ul style="list-style-type: none"> • Investments in sectors or companies which are adversely exposed to a transitioning economy lose value or are downgraded. • Disruptive technology may affect the value of our investments. • Mortality or longevity risk may change as a result of extreme weather events, increased air pollution or new vector borne diseases. • Increased frequency or severity of extreme weather events may impact on the value of physical assets. 	Institutional retirement, retail retirement, capital investment, insurance
Influence	<ul style="list-style-type: none"> • Competitors may develop more quickly or provide better solutions for clients, resulting in a loss of market share. • Solutions may not meet rapidly evolving client needs. • Litigation or regulatory sanction from funds not meeting climate-related promises. • Reputational risk from publicly naming companies which we do not consider to be transitioning fast enough, not meeting our own commitments, or if activities across the group are not aligned. 	Investment management
Operate	<ul style="list-style-type: none"> • High delivery costs of low-carbon solutions for residential and commercial properties may reduce margins. • Property values fall due to increased risk of extreme weather impacts, higher insurance costs or poor energy efficiency. 	Institutional retirement, retail retirement, investment management, capital investment, insurance



TCFD recommendation

Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

Our journey to net zero

Climate goals

We have six climate goals, supported by commitments and milestones.

- 1** We support the goal of limiting global warming to the 1.5°C 'Paris' Agreement¹, which requires net zero carbon emissions by 2050, alongside rapid, deep and sustained reductions in other greenhouse gas (GHG) emissions.
- 2** We will decarbonise the assets on our balance sheet and our operations to align with the 'Paris' objective.
- 3** We will set ambitious near-term science-based targets to support our long term emissions-reduction goals.
- 4** We advocate for urgent action to mitigate the climate emergency from governments and the companies we are invested in.
- 5** We will use our influence as a large investor to promote a transition to a low-carbon economy.
- 6** We recognise the critical role that nature has in achieving the 'Paris' objective, and embrace the challenge of eliminating financing of commodity-driven deforestation across our investment portfolios.

The diagram below shows how we aim to deliver a net zero carbon footprint asset portfolio and operate at net zero by 2050 through:

- Commitments we have already delivered
- Additional climate-related activity undertaken
- Future commitments (indicated in **green**)
- Milestones to deliver future commitments.

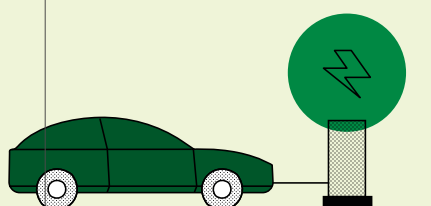
Note that this diagram is a summary to illustrate our journey to net zero. For full detail on our commitments and milestones, refer to page 47 and 48 in Additional information.

Progress to date:

Invest

How we invest our £97.6 billion of proprietary assets

Commitments delivered



2021

- Climate scenario analysis informs investment strategies
- Reduced our portfolio GHG emission intensity by 18.9% (compared with 2% target)²
- Coal exclusions extended, including avoiding investment in new coal mining, plant or business operations
- Joined the Net Zero Asset Owner Alliance

Influence

How we influence as one of the world's largest asset managers with £1.4 trillion of assets under management

Constructed active and index portfolios with climate objectives

Quantified climate risks and temperature alignment for clients

Used our market-leading Climate Impact Pledge to drive change

Founding signatory of the Net Zero Asset Managers initiative

Engage with clients to build strategies aligned to net zero by 2050

A number of funds have set accelerated net zero targets

Improved quality and coverage of occupier data

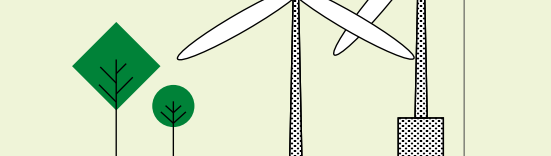
Established a roadmap for how we will achieve net zero carbon across real estate equity assets by 2050

Actively engaged with top emitters (and rating those responsible for >50% of emissions from listed companies)

Operate

How our businesses operate

Set climate-related targets in our executive remuneration



Relaunched our business travel policy, focusing on sustainable modes of transport

External assessment of our core occupied offices' net zero needs

CALA are already delivering new homes in Scotland which meet LETI and RIBA 2030 targets for embodied carbon³

Appointed a Climate Change Director and NED with specific focus on climate

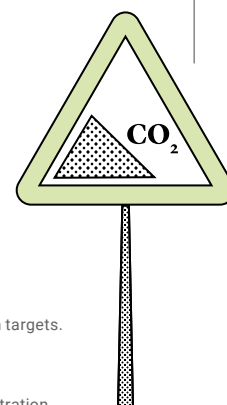
1. In alignment with the IPCC Special Report on Global Warming of 1.5°C (SR 15).
 2. Refer to page 39 for detailed explanation of reduction in our portfolio GHG emission intensity.
 3. LETI 2030 target: <300kgCO₂e/m² Upfront carbon A1-5, excl sequestration. RIBA 2030 target: <625kgCO₂e/m² Embodied carbon A1-5, B1-5, C1-4, incl sequestration.

Our journey to net zero continued

Future commitments (green) and milestones:

Year	Invest	Influence	Operate
2022	<p>Invest</p> <p>How we invest our £97.6 billion of proprietary assets</p> <p>Investment policies to address exposures to agricultural¹ commodity-driven deforestation by the end of 2022 ✓ Disclose deforestation risk and mitigation activities in our portfolio by 2023 ✓</p> <p>Set SBTs by the end of 2022 and publish in 2023</p> <p>By the end of 2022, reduce portfolio GHG emission intensity by 12% (from a YE 2019 baseline)³ ✓</p>	<p>Influence</p> <p>How we influence as one of the world's largest asset managers with £1.4 trillion of assets under management</p> <p>Publish a Real Estate Climate Resilience Strategy by the end of 2022 ✓ Continue to actively engage with clients to build strategies aligned to net zero by 2050</p>	<p>Operate</p> <p>How our businesses operate</p> <p>Develop our Future Ways of Working to align with our net zero carbon and SBTs by 2023 ✓ Establish a roadmap to achieve net zero emissions from business travel by 2023 ✓</p> <p>Monitor and report on the embodied carbon associated with the construction of our homes from 2022 ✓</p> <p>Set SBTs by the end of 2022 and publish in 2023</p> <p>Monitor and report on lifetime carbon emissions from homes delivered by the end of 2022 ✓</p>
2025	<p>By 2025, report on milestones to reduce agricultural¹ commodity-driven deforestation and increase investment in nature-based solutions</p> <p>By the start of 2025, reduce portfolio GHG emission intensity by 18.5%⁴ and increase financing of low-carbon technology and infrastructure ✓</p>	<p>By 2025, report on milestones to reduce agricultural¹ commodity-driven deforestation</p>	<p>All homes delivered by CALA across the UK will meet the LETI and RIBA 2030 target for embodied carbon from 2025⁶</p>
2030	<p>Phase out investment-related² coal and oil sands exposures by 2030</p> <p>By 2030, reduce portfolio GHG emission intensity by 50%⁴ and increase financing of low-carbon technology and infrastructure ✓</p>	<p>Net zero operational carbon within the Sustainable Defined Contribution Property Fund by 2030 ✓ Remove fossil fuels within areas of commercial property we control by 2030 ✓</p> <p>70% of AUM to be managed in alignment with net zero by 2030⁵ ✓</p>	<p>From 2030, our operational footprint (occupied offices and business travel) will operate with net zero carbon emissions ✓</p> <p>All new homes delivered from 2030 will be enabled to operate at net zero carbon ✓</p>
2050	<p>Net zero asset portfolio, in line with a 1.5°C 'Paris' objective by 2050</p>	<p>Net zero carbon for all LGIM real estate equity assets by 2050 or sooner</p> <p>Reach net zero GHGs by 2050 or sooner across all AUM</p>	<p>Net zero operational carbon footprint by 2050</p>

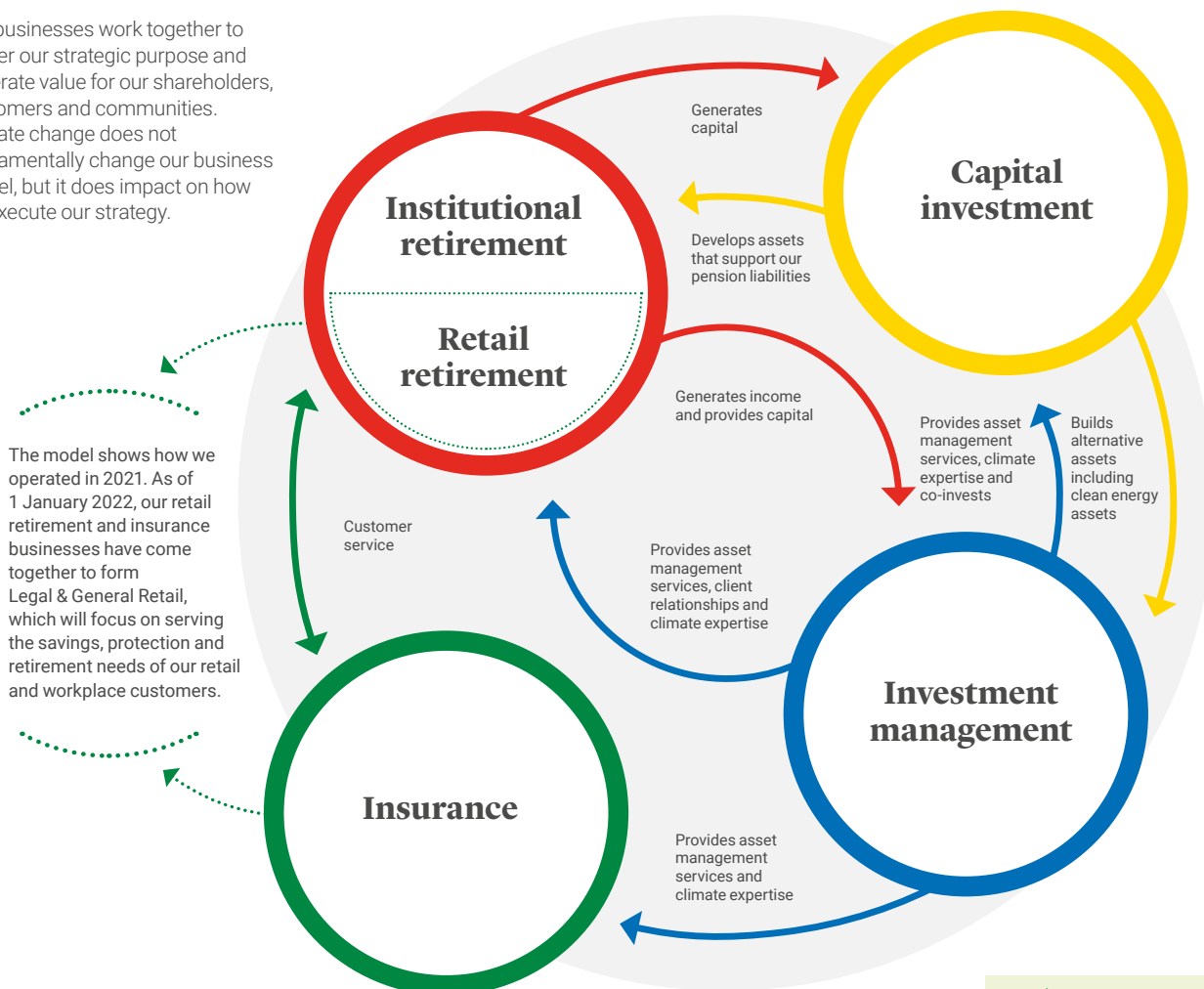
Net zero




1. Focusing on palm oil, soy, beef, pulp and paper.
 2. Investments with more than 5% revenue exposure by 2030.
 3. We note this target is above our year end 2021 score. Our 2021 portfolio GHG emission intensity will have included a material reduction due to temporary Covid-19 impacts which we expect to at least partially unwind during 2022. Our 2022 target reflects this unwind but keeps us on track for our mid to long term targets. Further details are provided in the Metrics and targets section.
 4. From 2019 baseline.
 5. Excludes sovereign and derivative securities until such time as agreed methodologies exist.
 6. LETI 2030 target: <300kgCO₂e/m² Upfront carbon A1-5, excl sequestration. RIBA 2030 target: <625kgCO₂e/m² Embodied carbon A1-5, B1-5, C1-4, incl sequestration.

Our climate strategy






Our businesses work together to deliver our strategic purpose and generate value for our shareholders, customers and communities. Climate change does not fundamentally change our business model, but it does impact on how we execute our strategy.



The model shows how we operated in 2021. As of 1 January 2022, our retail retirement and insurance businesses have come together to form Legal & General Retail, which will focus on serving the savings, protection and retirement needs of our retail and workplace customers.

 **TCFD recommendation**
Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

The table below summarises our individual business' climate strategies and strategic focus.

Business	Divisional context	Focus	Climate strategy
Retirement Institutional (LGRI) Retirement Retail (LGRR)	LGR (institutional and retail) holds c.90% of the group's £97.6 billion proprietary assets that Legal & General own to cover the liabilities of our retirement and insurance businesses.		<ul style="list-style-type: none"> Decarbonise the group's proprietary assets to align with 'Paris', targeting a net zero carbon footprint of the portfolio by 2050. Continue to evolve our interim targets against this objective, including investment in low-carbon infrastructure.
Investment management (LGIM)	LGIM are one of the world's largest asset managers, with a market-leading investment stewardship team.		<ul style="list-style-type: none"> Use our influence to promote a transition to a low-carbon economy. Work in partnership with our clients to set decarbonisation goals and develop investment solutions to support them.
Capital investment (LGC)	LGC generates profit for shareholders and creates assets for LGR and third parties, whilst aiming to deliver positive social and environmental impact.	 	<ul style="list-style-type: none"> Invest in clean energy technology and infrastructure. Deliver homes and buildings that operate at net zero carbon and reduce embodied carbon. Decarbonise all our assets, across all investment sectors.
Insurance (LGI)	LGI provides life insurance in the UK and in the US.		<ul style="list-style-type: none"> Continue to review our approach to climate issues and take action, including through technology, where appropriate.

Investment strategy



We consider our main exposures to climate change risks and opportunities being through our £97.6 billion of proprietary assets¹, which are held across different divisions, as described below and set out in Table 1.

Legal & General Retirement (LGR)

- LGR covers c.90% of the group's investment portfolio, the vast majority of which (£81.8 billion) relates to listed and unlisted bond investments.
- Listed bond investments are generally split between government and corporate bonds, with UK, US and Euro portfolios split across multiple sectors.
- Unlisted direct investments include infrastructure loans, commercial real estate loans and the lifetime mortgage business.
- Property assets in this business (£5.3 billion) are mostly commercial properties.
- LGR's assets are predominantly managed through LGIM, with associated strategies detailed on the following pages.

Legal & General Capital (LGC)

- LGC holds a Clean Energy portfolio, covering both growth equity and infrastructure.
- LGC also invests in SME finance, urban regeneration and digital infrastructure assets and a traded portfolio of listed investments.
- Housing businesses (including CALA) are reflected in the 'Other assets' line.
- Further detail on the LGC strategy is given in the Divisional strategy section below.

Other shareholder investments

- Predominantly made up of a portfolio of US-denominated bonds, held to cover US life insurance business.



Focus on assets

We believe that the key source of climate risk to our business is through the assets on our balance sheet, a large proportion of which support our payments to retirement and insurance customers with a smaller portion (Shareholder Funds) which covers the Regulatory Solvency Capital Requirement (SCR).

We have carried out a detailed risk identification and analysis of our balance sheet as noted in the Risk management section.

Table 1. Total group investments

Group assets (December 2021) analysed by investment class

	LGR investments 2021 £m	LGC investments 2021 £m	Other shareholder investments 2021 £m	Total 2021 £m	Total 2020 £m
Equities	80	2,845	260	3,185	3,086
Bonds	81,812	2,157	2,834	86,803	85,502
Derivative assets ²	13,135	68	–	13,203	20,936
Property	5,286	424	–	5,710	4,672
Loans ³	1,899	372	61	2,332	4,248
Financial investments	102,212	5,866	3,155	111,233	118,444
Cash and cash equivalents	1,983	984	629	3,596	3,616
Other assets ⁴	96	1,765	–	1,861	1,798
Total investments	104,291	8,615	3,784	116,690	123,858
Proprietary assets¹	87,274	7,191	3,094	97,559	95,058



Focus on proprietary assets

We control the investment strategy of our proprietary assets so we can reduce their risks to our balance sheet and the emissions they fund.

1. We define proprietary assets as total investments to which shareholders are directly exposed, minus derivative assets, loans, and cash and cash equivalents from Table 1.
 2. Derivative assets are shown gross of derivative liabilities of £14.1bn (31 December 2020: £21.2bn). Exposures arise from use of derivatives for efficient portfolio management, especially the use of interest rate swaps, inflation swaps, credit default swaps and foreign exchange forward contracts for assets and liability management.
 3. Loans include reverse repurchase agreements of £2,240m (31 December 2020: £4,117m).
 4. Other assets include finance leases of £86m (31 December 2020: £88m), associates and joint ventures of £375m (31 December 2020: £288m) and the consolidated net asset value of the group's investments in CALA Homes and other housing businesses.

Divisional strategy

Investment management

Our investment management business, LGIM, is taking action against climate change and works with our clients on harnessing the opportunities that this also presents. This can be summarised across three key areas:

- 1. Leading engagement on climate issues for our clients**
- 2. Supporting our clients in evidencing their climate progress**
- 3. Partnering with clients on their climate goals**

1. Leading engagement on climate issues for our clients

LGIM continues to build on our market-leading position on climate through our award-winning Investment Stewardship team. Following the expansion of the Climate Impact Pledge in 2020 we have continued to meaningfully engage on climate issues with global companies, representing c.60% of all GHG emissions from the largest listed companies as of April 2021. These engagement activities are integrated into LGIM’s active investment analysis through our Global Research and Engagement Groups.

LGIM was a founding signatory of the Net Zero Asset Managers initiative and set an interim target in 2021 to work with clients to align 70% of all eligible assets to net zero by 2030¹. LGIM was also selected as part of the UN Principles for Responsible Investment’s ‘leaders group’ on climate.

2. Supporting our clients in evidencing their climate progress

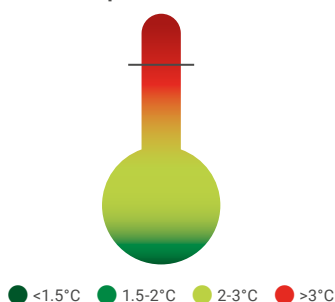
We are committed to transparency on individual portfolio profiles and on our overall firm-wide activities. Clients are increasingly provided with reporting to understand their portfolio’s climate exposures over time and the associated voting and engagement activity. In addition, we provide thought leadership and education to help deepen client expertise on their regulatory obligations and climate goals, to encourage adoption of investment strategies that improve their climate exposures and seek out opportunities.

3. Partnering with clients on their climate goals

Using our Destination@Risk framework and TCFD-aligned outputs, we partner with clients to demonstrate their exposure to climate-related risks and design and implement portfolios to achieve their preferred climate and traditional investment outcomes. Chart 1 is an example of the analysis produced by our Destination@Risk model for an emerging markets equity portfolio.

Chart 1. Example analysis of an emerging markets equity portfolio from L&G’s Destination@Risk model

Implied temperature alignment of a client portfolio



3.8°C

Number of instruments: 1,086
Total fund coverage: 77.93%

Source: L&G Destination@Risk

Approaches to climate-integrated solutions across LGIM’s key asset classes

Active	Index	Exchange-Traded Funds (ETFs)	Multi-Asset	Solutions	Real Assets
We integrate the Destination@Risk framework to drive explicit sustainable fund objectives and align to net zero outcomes.	We embed climate considerations into index methodologies, such as setting a decarbonisation pathway to align to net zero outcomes.	We implement broad based market exposure strategies which follow the Index approach to net zero methodologies. This is supplemented by targeted climate-themed exposures, such as green bonds.	A range of climate and net zero considerations are embedded in defined contribution schemes, as well as offering specific sustainability-focused multi-asset funds.	As with Active, we integrate the Destination@Risk framework to drive explicit sustainable fund objectives and align to net zero outcomes.	We have a net zero carbon roadmap for real estate equity fund strategies. In time this will evolve to include private credit strategies. We also have new funds with explicit climate objectives.

1. Excludes sovereign and derivative securities until such time as agreed methodologies exist.

Divisional strategy: Investment management continued

Climate collaborations

To maximise our influence, we work alongside other large investors and specialist advisory groups focused on raising best practice standards across the market. The group's strategy is for our investment management business, LGIM, to lead on engagement on behalf of the group.

We are a member of the Aldersgate Group – an alliance of leaders from business, politics and civil society that drives action for a sustainable economy and engages with policymakers in the EU and the UK.

LGIM is a long-standing member of the Institutional Investor Group on Climate Change and a member of Climate Action 100+ (CA100+), an initiative engaging with some of the world's largest companies on their management of climate-related risks. As part of the work with CA100+, LGIM co-leads engagements with oil major BP, as well as the energy company Fortum.

Through our partnership with the US non-governmental organisation, the Environmental Defense Fund, we have been strengthening our position on methane regulation.

As signatory to the Net Zero Asset Managers initiative, LGIM sits on its Advisory Committee and is actively involved in the initiative's Stewardship Working Group. LGIM also worked on sustainable finance as an active member of the United Nations Principles for Responsible Investment, FAIRR, and with organisations such as the Investment Association and Council of Institutional Investors.

We engage with regulators and policymakers globally on climate change issues, including the UK Department for Work and Pensions, Financial Conduct Authority, Department for Business, Energy and Industrial Strategy, Her Majesty's Treasury, the Financial Reporting Council and the Prudential Regulation Authority, as well as the US Securities and Exchange Commission and the European Commission.

LGIM's CEO, Michelle Scrimgeour, is the co-chair of the UK government's COP26 Business Leaders Group, an important forum focused on creating business and sector breakthroughs in how we deliver net zero. Michelle also represents Legal & General on the CEO Principals Group of the Glasgow Financial Alliance for Net Zero (GFANZ) – a global coalition of leading financial institutions committed to accelerating the decarbonisation of the economy.

LGIM is an active member and signatory to the Better Building Partnership (BBP) Climate Change Commitment to achieve net zero carbon by 2050 and the Head of ESG, LGIM Real Assets (Shuen Chan), also co-chairs the BBP Climate Resilience Working Group. The BBP is a coalition of some of the largest commercial real estate managers in the UK. The Head of LGIM Real Assets, Bill Hughes, is a trustee of the UK Green Buildings Council (UKGBC), whose mission is to improve the sustainability of the built environment. The LGIM Real Assets net zero commitment also follows the UKGBC framework.

Our climate collaborations include:

- Aldersgate Group
- Bank of England Biennial Exploratory Scenario
- Bank of England Climate Risk forum
- Better Building Partnership
- Climate Action 100+
- FAIRR
- Get Nature Positive
- Glasgow Financial Alliance for Net Zero
- Institutional Investors Group on Climate Change
- Net Zero Asset Managers initiative
- Net Zero Asset Owner Alliance
- Sustainable Markets Initiative
- UK Green Building Council
- United Nations Principles for Responsible Investment



The SEC in Glasgow, venue for COP26

COP26

We recognise the role of international leadership and collaboration in delivering a decarbonised future. In 2021, we were at the heart of COP26, helping to push the private sector to do more on the transition to net zero and to galvanise climate action in the public sector.

Our engagement at COP26 was a natural extension of the work we already do to influence change in our industry and across

global markets and we have been part of a number of initiatives and commitments, adding our voice to others in the industry that are calling for change.

Among these, was our signing of the Get Nature Positive campaign, in recognition of the role that protecting and restoring biodiversity will play in creating a more sustainable future.



At Legal & General, we've long believed that actions are more important than words, so we've taken practical steps to set ourselves up for success in tackling climate change. We're moving in the right direction and the momentum is on our side. Now it's time for everyone to step up and deliver."

Michelle Scrimgeour

CEO, Legal & General Investment Management

Divisional strategy

Investment management (Real Assets)

LGIM Real Assets, a business unit within LGIM, is a leading investor and owner-operator, managing £39 billion of assets across real estate equity and private credit investment solutions.

As part of the group's commitment to mitigate climate change and to promote a transition to a low-carbon economy, we have been aligning our real estate, infrastructure, and corporate debt investments with a low-carbon future for many years, putting sustainability at the heart of our investment strategy.

Real estate equity

LGIM is responsible for £22.4 billion assets under management of UK real estate equity investment. This includes management of direct investments in specialist commercial real estate on behalf of our capital investment business, which creates assets for the group and third-party clients.

The built environment contributes around 40% of the UK's total carbon footprint¹. Almost half of this is from energy used in buildings and infrastructure. Transition risks have therefore been identified as a key and immediate risk to our real estate equity portfolio, and we continue to scale up and implement programmes and practices to mitigate this.

Roadmap to net zero

In 2019, LGIM pledged to achieve net zero carbon for the real estate equity platform by 2050 or sooner, an essential step in anticipating policy responses to the climate crisis and future proofing our assets. In 2020, LGIM released a roadmap to achieving our net zero goals, outlining our delivery strategy and interventions².

During 2021, LGIM has continued to accelerate the implementation of its net zero roadmap strategy. This included a review of its SBTs to 2030, as part of the group's wider commitment. These updated targets will continue to drive ambitious carbon reductions over the next 5 to 10 years. They will cover the Scope 1 and 2 emissions associated with the properties we operate, along with material Scope 3 emissions sources.

Acquisitions

- To ensure that the assets that we purchase have high sustainability credentials, LGIM Real Assets have introduced net zero carbon audits for all new acquisitions. These specify best practice standards with a robust due diligence process.
- Standard lease agreements have included sustainability clauses since 2011. During 2021 we started the process of updating these to reflect industry-wide developments, such as carbon reduction and Minimum Energy Efficiency Standards.

Existing assets

To increase the sustainability performance of our existing assets, including the transition towards net zero carbon, we have continued to build upon our sustainable property management framework. This includes the following measures:

- All assets are required to have an Asset Sustainability Plan which is part of an integrated environmental, social and governance (ESG) reporting platform, providing full transparency and accountability.
- An annual operational plan has been put in place for the office sector asset class, with an annual ESG plan for each asset that supports the fund-level ESG targets.
- A new occupier engagement tool, Vizta, was launched in 2021. Vizta is a technology platform that enables occupiers to directly access a range of services, including energy performance information. We have also been piloting new routes to obtaining occupier energy and utility data, including technology-based sub-metering solutions.
- During 2021, we started to rollout a series of net zero carbon audits across targeted assets in our existing portfolio. These help in identifying the practical considerations and costs of transitioning the assets to net zero.
- Sustainability-related key performance indicators continue to be included in property management contracts.



Major refurbishments

Achieving net zero across the real estate sector requires a shift in current investment and asset management practices, so it is important to find the right commercial models to implement cost-effective methods of retrofitting to net zero standards. As part of our net zero commitment, we continue to focus on ESG integration across the property lifecycle. This means being innovative and flexible in our approach and using technology to help us better measure and reduce emissions. We have operational and embodied net zero carbon requirements for all new developments and major refurbishments. Through retaining and renewing existing structures, rather than building new, our current project in North Quay House, Bristol (pictured), is on track to achieve around 30% lower embodied emissions than industry net zero targets.

1. https://bit.ly/UKGBC_Climate

2. <http://group.legalandgeneral.com/roadmaptonetzero>

Divisional strategy: Investment management (Real Assets) continued

Private credit

LGIM actively manages more than £16.6 billion of private credit investments on behalf of the group and other institutional clients across corporate and alternative debt, infrastructure and real estate debt.

We are integrating our commitments to support a low-carbon economy and society in our investment decision-making through criteria to determine the alignment of an asset to our climate change objectives. Proposed investments are assessed against these criteria in the pre-investment due diligence process and are further scrutinised in the investment committee. This includes negative screening criteria, enhanced due diligence for carbon intensive investment, and risk and review frameworks.

Screening criteria

We have introduced hard limits based on material ESG criteria, including criteria specific to carbon-intensive investments, for all clients. These are aligned with our policies on fossil fuel investments and derived from our views on potential stranding of certain energy assets. Given the pace of decarbonisation in different regions, the group's proposed investments are assessed against region-specific asset stranding criteria. Any investments deemed to be at a high risk within our investment horizon will be rejected at the due diligence stage.

Carbon constraints

The carbon intensity of all potential assets is calculated. Group investments are assigned carbon limits consistent with wider targets, taking into account carbon intensity, size and duration of potential investments. These are managed at asset and portfolio level. Carbon intensity limits are formulated to optimise portfolio allocation, balancing credit metrics, returns and longer-term energy transition risk. They are projected using short, mid and long-term decarbonisation targets and progress against these is reviewed regularly, with limits adjusted as necessary. Carbon intensity is also reviewed in the context of fund-specific carbon targets for other clients.

Enhanced due diligence for carbon intensive investments

LGIM continues to prioritise origination and investment into assets which actively promote decarbonisation and the group has invested more than £1 billion in clean energy projects across all clients, including solar and wind farms, geothermal plants, smart networks and energy storage assets. However, due to the nature and size of the group's annuity portfolio, we have some exposure to fossil fuel-related assets. This is mainly through investments in the utilities and energy sectors, where many companies own both renewable energy and legacy fossil fuel assets as they work towards their transition plans.

When considering investments with fossil fuel exposure, we apply additional due diligence criteria concerning the company's carbon intensity and decarbonisation strategy, in addition to other investment criteria. The robustness of this strategy is reviewed through analysis of, among others: capital expenditure budgets; market conditions surrounding future investments; and management commitment to energy transition alignment. This leverages knowledge across our business, from sector and ESG specialists, to credit and portfolio management teams.

Control and review framework

Portfolio performance against carbon and other alignment targets is monitored and reviewed regularly within the governance framework. This includes engagement with borrowers on their decarbonisation and transition plans to reduce the overall carbon intensity of the portfolio. We manage adverse performance of individual investments through a variety of actions, including introducing more stringent carbon constraints, engagement with borrowers and, in certain cases, divestment.



Landsvirkjun

Landsvirkjun processes approximately 75% of all electricity used in Iceland. They produce electricity exclusively through clean methods: including hydropower plants, geothermal plants and wind turbines. They are also committed to becoming carbon neutral by 2025 and carbon negative by 2030, which is equivalent to offsetting all internal flights within Iceland.

In 2018, LGIM made its first private corporate credit investment into Landsvirkjun's debut green US Private Placement.

Divisional strategy:

Capital investment

Clean energy

Our capital investment business, LGC, invests in clean energy, supporting the drive to a low-carbon economy and capitalising on the associated commercial opportunities. Since 2015, we have successfully invested in a diverse portfolio of businesses in key sectors of the energy transition.

There are two complementary strands to LGC's strategy, leveraging our capability and our successful track record of the past five years:

- 1. Growth equity:** early stage, start-up investment to support new technologies and businesses capable of delivering key assets or services to decarbonise the energy system across power, heat/buildings, transport and industrial sectors; and
- 2. Assets and infrastructure:** delivery of mature, proven low-carbon assets and infrastructure at scale, such as renewables, that will also be attractive for third-party investors, our retirement business (LGR) and our investment management business (LGIM).

We select partners and identify value growth areas where technology, business models or solutions require further development or capital to achieve scale. We carefully review their efficacy in the energy system, technical reliability, environmental benefits and sustainability of the business model. We also consider whether, in the medium to long term, they have potential to achieve scale and deliver associated assets and infrastructure capable of generating reliable yield income and returns suitable for LGR or LGIM clients.

LGC's Clean Energy team has deep sector knowledge, expertise in private market investment in the energy transition and market access. This helps to ensure a coherent approach across the group to the market and efficient use of capital.

Key developments in 2021

- We are working closely with LGIM to support the launch of a clean energy Article 9 renewables fund in partnership with renewable energy specialist NTR, in which we will have a minority cornerstone investment. The partnership will provide investors in the UK, Europe and Asia access to the €1 trillion European energy transition market.
- We helped guide Pod Point to list on the London Stock Exchange in November 2021, welcoming new investors to support its goal of delivering a smart network of charge points to enable the mass adoption of electric vehicles. Before the initial public offering, we held a 22% equity stake in Pod Point.
- We invested in Sero Technologies, an energy technology and services company, which will support the transition to net zero across the residential housing sector.

SME Finance Pemberton

We have a 40% equity stake in Pemberton, a €13.5 billion alternative credit manager, as well as growth capital invested into five Pemberton-managed funds as seed capital. Pemberton is an experienced pan-European institutional lender with a well-established approach to ESG. Of c.€8 billion deployed assets under management, over €2 billion is ESG-linked lending, with 17 investments in 2021 that

incorporated financial incentives for borrowers to meet carbon-reduction targets. It is a member of the Net Zero Asset Managers initiative.

Venture capital (VC)

We are the majority owner of VC asset manager, ADV, which is backed by the British Business Bank, and also have a well-diversified "fund of funds" limited partner programme spanning 22 funds and 13 managers. Together, this approach provides access to some of the most innovative start-ups offering climate solutions, such as Onto, the electric vehicle subscription service; VanMoof, the electric bike company; and Lilium who are working on the future of electric planes.



Inspired villages

In 2021, we announced that we had entered into a 15-year joint venture partnership with NatWest Pension Trustee Limited, the defined benefit pension scheme of NatWest Group, to invest £500 million of equity to build later-living communities, which will be developed and operated by Inspired Villages Group (IVG). IVG is on its way to fulfilling LGC's commitment that all new homes delivered from 2030 will be enabled to operate at net zero carbon (regulated and unregulated energy). Construction is underway at Millfield Green village, Bedfordshire (pictured); homes will be energy efficient, heated by Kensa (LGC clean energy investment; 36% stake) ground-source heat pumps and will benefit from mechanical heat recovery and on-site solar PV. IVG also has workstreams underway to decarbonise its existing portfolio by preparing to integrate solar PV and replacing gas boilers with heat pumps.

Divisional strategy: Capital investment continued

Housing

The regulatory and market context around climate and energy for housebuilding is evolving rapidly. National policy is scheduled to enforce improved energy performance in 2022 and 2025 and local planning policy is raising standards in many locations in advance of national requirements. Climate awareness amongst the public has risen and energy bills are front-page news, which may make sustainable, energy-efficient homes more attractive.

LGC's commitment is that all new homes we deliver will be enabled to operate at net zero carbon emissions (regulated and unregulated emissions) from 2030. This requires changes in design, delivery and culture to make the transition in an efficient and cost-effective way within each business. The commitment also provides opportunities for LGC's Clean Energy investments.

LGC has also committed to measure and reduce embodied carbon, which includes the production and transportation of materials and the construction process itself. Our largest housebuilder, CALA, is committed to achieve the industry-recognised best-practice '2030 target'¹ for embodied carbon in all new homes across the UK by 2025, having already met this target for Scotland.

Reducing construction site emissions will be an important part of meeting SBTs for some of our housing businesses. For others however, the focus will be emissions from their retained stock, including common areas and void periods.

LGC aims to ensure its housing businesses take a leadership position on climate risks and opportunities, enabling us to capitalise on changing customer expectations and guard against reputational and regulatory risks.

As policy seeks to address carbon from the existing housing stock, there is an additional driver to ensure our businesses that retain assets are not taking on a high-carbon liability.

Higher standards can create a challenge for housing delivery, given reliance on a fairly traditional supply chain. This may result in specific issues around skills, knowledge, technologies and challenges to the way in which project teams have traditionally worked together – requiring far greater collaboration.

The transition will almost inevitably increase build costs. We therefore look to minimise costs through good design, expert advice and knowledge sharing. When looking at the investment case, we seek to factor in the future costs of inaction. We also believe in the importance of working collaboratively with peers to advocate for higher standards through consistent policy, and encouraging voluntary leadership in advance of imposed requirements.

Urban Regeneration and Digital Infrastructure

Our Urban Regeneration business provides us with an opportunity to demonstrate our ambition for net zero in practice. We are seeing a greater appetite amongst occupiers of commercial property for highly sustainable, low and zero carbon space. This translates into new opportunities for both the Urban Regeneration and Digital Infrastructure mandates to accelerate the transition to net zero carbon – leveraging the skills and expertise of both teams.

LGC's remit and level of influence over assets varies across this portfolio, depending on the nature of our investment and our equity stake. However, a shared ambition on sustainability and net zero is core to a number of strategic partnerships, including our joint ventures

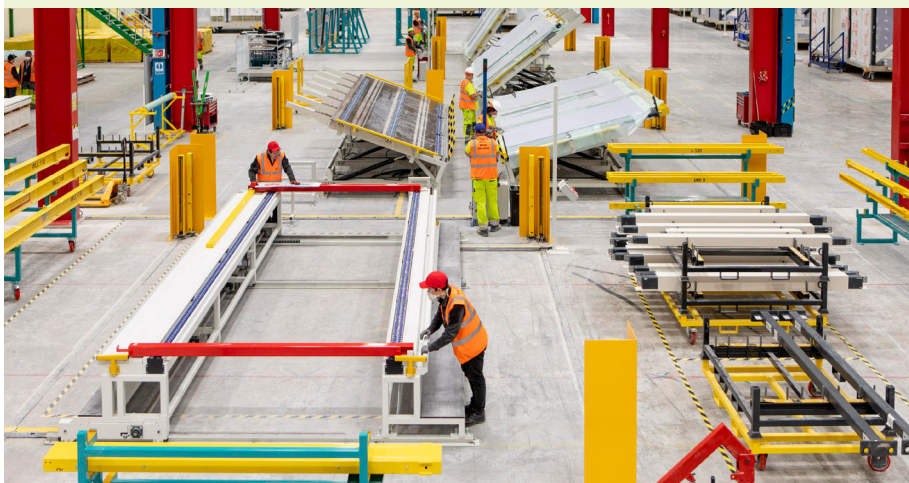
with Bruntwood and Oxford University, with whom we are collaborating to deliver high quality, sustainable places to live and work – driving down carbon emissions both embodied and in operation. Our Cardiff Interchange development will, by targeting BREEAM Outstanding and WELL Platinum, demonstrate our commitment to sustainability.

Traded portfolio

LGC invests £1.8 billion in listed equities and multi asset funds that target a 50% reduction in emissions intensity by 2030 (compared to a baseline of 2019). Around £890 million is invested in climate and ESG-aware funds, predominantly through LGIM's Future World product range. In 2021, LGC invested £100 million in a new LGIM equity fund which is constructed to meet the minimum requirements of the EU Paris-aligned Benchmark Regulations.

Approximately £225 million of LGC's listed equity investments are in our Climate Impact portfolio. This portfolio invests in listed clean energy stocks and other companies in the renewables space, which we estimate contributes a total carbon avoidance impact of more than 100,000 tonnes of CO₂e. This also complements LGC's clean energy strategy by investing across the clean energy value chain.

LGC's traded portfolio has some exposure to higher carbon assets such as utilities, energy and materials, all of which are covered by the group's commitment to reduce 2030 portfolio GHG emissions by 50%. This also includes some minor exposure to coal via legacy plants. LGC manages this in accordance with the Net Zero Asset Owner Alliance's expectations that all coal-fired plants will be phased out before 2030.



Modular

Our Modular Homes are all built to achieve an EPC 'A' rating. In 2021 approximately 2% of new-build homes in England achieved this level of performance. 2021 saw the first homes completed at our Selby site. We also started work on sites in Bristol and Kent. Both of these sites utilise an updated modular home design and are equipped with air source heat pumps and solar PV panels. This new design helps futureproof the business against regulatory change, including the Future Homes standard.

1. The 2030 target refers to the LETI and RIBA targets as follows: LETI 2030 target: <math><300\text{kgCO}_2\text{e/m}^2</math> Upfront carbon A1-5 excl sequestration. RIBA 2030 target: <math><625\text{kgCO}_2\text{e/m}^2</math> Embodied carbon A1-5, B1-5, C1-4, incl sequestration.

Scenarios

Our modelling framework

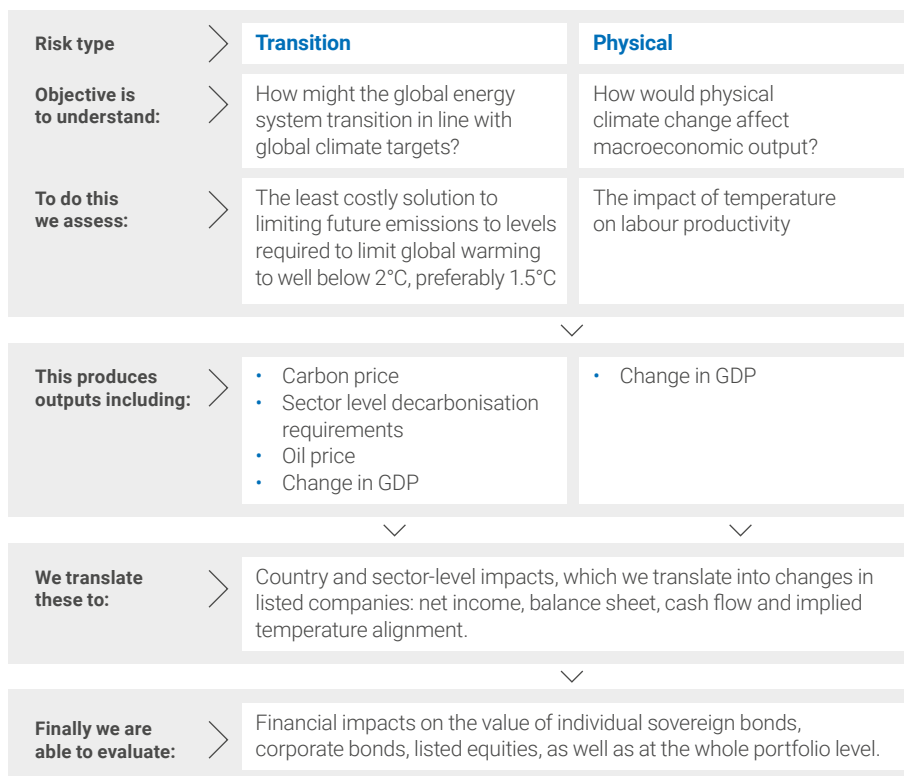
Scenario analysis helps us to understand the implications of possible climate pathways, including the key features of a transition to a net zero economy. We use scenarios to explore the role our organisation can play alongside policy and corporate action to mitigate climate risk and support climate opportunity. We develop our own bottom-up scenarios, called 'Destinations', of how the energy system may evolve over the next 30 years.

In trying to model plausible well-below 2°C futures, we must try to capture technology change across the entire energy system and make difficult trade-offs between minimising short-term policy impact and limiting long-term physical climate change.

Our Destination@Risk toolkit then translates these scenarios into company, sector and portfolio level implications. We use two main metrics. The first is climate risk, which describes the potential risk from various climate scenarios to asset valuations. The second is implied temperature alignment, which assesses the risk our assets pose to achieving the various climate outcomes. This metric assesses how much a company is contributing to the changes required to limit global warming or if its actions put these goals at risk.

The outputs of the Destination@Risk framework enable us to develop our broader strategy, including how we invest, influence and operate.

Destination@Risk framework



Summary

In the following pages we address each element of the Destination@Risk framework. The table below summarises each element and high level outputs.

Element	Inputs and process	Outputs
Transition risk	Our bespoke model analysing how the energy system could meet global climate targets. Inputs are based on: > 100 Unique public and proprietary data sources > 2 million Variables and assumptions including detailed energy technology costs	<ul style="list-style-type: none"> • Change in energy mix projected to 2050 • Carbon price • Cost to GDP See Chart 4
Physical risk	Academic studies on the impact of climate change on labour productivity and output.	<ul style="list-style-type: none"> • Cost to GDP See Table 2
Impact on countries, sectors and companies	Using the outputs of the transition and physical risk elements, we model the impact on countries and sectors, which we then translate to the company level.	<ul style="list-style-type: none"> • Net Income • Production • Asset value • Implied temperature alignment See Charts 5-7
Impact on our investments	Company and country-level outputs are then used to model the impact on financial assets, including listed equities, corporate and sovereign bonds.	<ul style="list-style-type: none"> • Value at risk • Credit rating change See Charts 9-10 and Tables 2-3

Pathways

Modelling net zero

We examined three scenarios in our climate report last year. This year, we have added a fourth, 'net zero' scenario that limits global warming to 1.5°C by the end of the century. There are significant differences in the long-term physical risks of 2°C and 1.5°C outcomes, as shown in the IPCC's special report on 1.5°C¹.

There are also material differences in the speed and quantum of actions required by the global economy to limit global warming to 1.5°C and therefore we believe valuable insight can be gained by separately modelling the well-below 2°C and 1.5°C scenarios.

Accordingly, the Paris Agreement sets out its goal as limiting global warming by 2100 to well-below 2°C, preferably 1.5°C above pre-industrial levels.

The scientific consensus on achieving a 1.5°C outcome is clear: anthropogenic CO₂ emissions must reach net zero globally around 2050, and non-CO₂ emissions, especially methane (CH₄), must be rapidly and significantly reduced.

We model four energy pathways to 2050:

1.5°C net zero	Well-below 2°C	Well-below 2°C disorderly	4°C
Approximate global warming by 2100	Approximate global warming by 2100	Approximate global warming by 2100	Approximate global warming by 2100
1.5°C	1.75°C	1.75°C	3.75°C
Immediate, highly ambitious action to address climate change leads to a reduction in CO ₂ emissions to net zero around 2050	Immediate, ambitious policy and investment action to address climate change succeeds in limiting global warming to well-below 2°C	Policy and investment action to limit global warming to well-below 2°C is delayed by 10 years, resulting in much more disruptive change from 2030	Global failure to act on climate change means emissions continue to grow at historical rates

When engaging with our scenario outputs, it is important to consider:

- 2050 horizon.** Our scenarios have a time horizon to 2050. There is a large degree of uncertainty associated with the energy transition and the associated global temperature increase and its impact. Approximate temperature outcomes by 2100 are estimated based on extrapolating our 2050 emissions trajectories.
- Scenarios are not projections.** The scenarios we model are not forecasts or predictions of the future. We do not assign probabilities to these outcomes and do not compare their likelihood of being realised. We are committed to the Paris Agreement's objective of limiting global temperature increases to 1.5°C, meaning this is our desired outcome. However, our new 1.5°C net zero scenario is only one of many ways this goal could be achieved.
- Non-energy and non-CO₂ emissions.** Our model explicitly covers CO₂ emissions from the energy sector and industrial processes. We do not currently include the land use sector in our projections. As a result, annual non-energy and non-CO₂ emissions

are not directly modelled but assumed to reduce by around 75% by 2050, compared with today. This is well within the range of outcomes from net zero scenarios developed with an explicit land use model, such as those released by the Network for Greening the Financial System (NGFS)².

- Use of carbon dioxide removal technologies.** Time to reach global climate targets is running out. Only around 10 years of current emissions remain before 1.5°C of warming will be reached. While we emphasise this should not be the default option, our scenarios all use some negative emissions from bioenergy with carbon capture and storage (BECCS) and, only in the disorderly scenario, direct air capture (DAC). We also rely on carbon capture and storage (CCS) technology in industrial sectors like steel and cement.
- Chronic physical risk.** Our scenarios currently incorporate chronic physical risk through the impact of temperature change on labour productivity. We do not estimate the impacts of acute physical risk, which are highly localised, as the impacts are too uncertain. For this reason, we do not apply the 4°C scenario to our portfolio.

Negative emissions

Nearly all 'Paris' aligned modelled scenarios use some form of negative emissions or carbon capture to get to net zero, as there will be some emissions which will not be viable to abate. The use of offsetting schemes and overly relying on negative emissions can be a distraction from the key priority to reduce absolute emissions.

In the short to medium term, we prefer to focus our efforts on credible reductions to our carbon footprint and encouraging others to do the same. However, negative emissions have a critical role to play in the long term.

New solutions are starting to be developed but much more investment and research will be required to scale both technological and nature-based solutions to meet future net zero demands. The access to negative emissions through the offsetting schemes' market also needs stronger international standards, certification and governance to be developed to ensure they are robust, transparent and well regulated.

1. https://bit.ly/IPCC_SpecialReport
 2. https://bit.ly/NGF_ScenarioPortal

Net zero world

This year we introduced a 1.5°C net zero scenario. There are a number of alternative routes to achieve net zero, and below we discuss just one example. We emphasise that immediate, highly ambitious action to address climate change is assumed in this scenario.

Charts 2 and 3 show key features of our four scenarios to 2050. Chart 2 shows the evolution of global GHG emissions and Chart 3 shows the implied global carbon price pathway. GHG emissions fall to around 6Gt CO₂ equivalent¹ by 2050, an almost 90% reduction on pre-pandemic levels. To achieve these reductions:

- **Global carbon prices** increase to \$160/tCO₂ by 2030, and \$640/tCO₂ by 2050².
- **Coal** use in power generation and industry immediately transitions to gas in the medium term (10 years) and renewables in the longer term (20 years).
- **Oil** demand falls immediately as the transport sector is one of the first to decarbonise. Around 50% of current production remains in 2050, continuing to supply a share of shipping and aviation, and providing feedstock to the chemicals sector.
- **Natural gas** peaks in 2030, having replaced coal in industry and power generation, after which it gradually declines to below today's levels as the power sector decarbonises.
- **Renewables** rapidly grow to contribute 70% of global power generation by 2050, compared with 29% in 2020.
 - 380GW of new solar generation capacity would be required every year from now to 2050 to achieve net zero; that is three times the 127GW added in 2020.
 - Similarly, 250GW of new wind generation capacity would be required annually, more than double the 111GW added in 2020.
- **Reliable baseload generation** must be available to fulfil peak demand when the sun is not shining, or the wind is not blowing. This entails significant scale-up of battery storage, nuclear and bioenergy with carbon capture and storage capacity.
- **Hydrogen** scales up to 8% of final energy consumed, largely driven by uptake in heavy-duty road transport.
- **Battery-electric vehicles** rapidly replace internal combustion engine cars, with 99% of cars in 2050 being electric.
- **Biofuels** enable partial decarbonisation of the shipping and aviation sectors. Around one third of fuel consumption in the shipping sector is replaced by ammonia by 2050.

- **Carbon capture and storage** is deployed starting in 2030, initially in biofuels and hydrogen production. Within five years, most carbon captured is from industry and power generation. Total carbon captured reaches 7Gt CO₂ annually by 2050.

In terms of macroeconomic impact, the disorderly scenario remains the most disruptive of climate policy scenarios. It results in an additional 10 years of growing emissions in line with the 4°C trajectory, before the world scrambles to deploy low carbon technologies.

Due to the delay, emissions reductions need to be quicker and less cost efficient than in the two immediate action scenarios. The disorderly scenario involves significant carbon dioxide removal to remove the impact of an additional ten years of emissions: nearly 12Gt CO₂, compared to 7Gt CO₂ in the 1.5°C net zero scenario. As a result, the disorderly pathway is two to six times more costly to economic output than our immediate action scenarios.

Refer to the Additional information section for further detail on our 1.5°C net zero scenario.

Chart 2.
Global GHG emissions

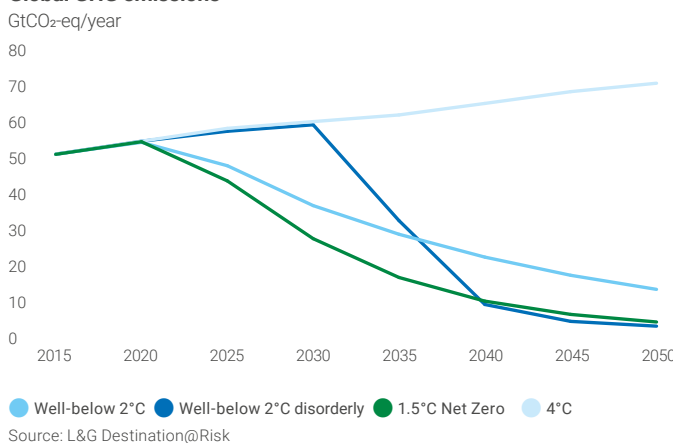
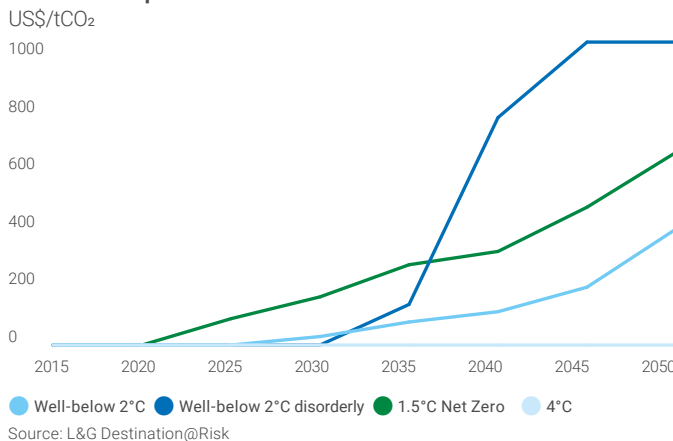


Chart 3.
Global carbon price



1. Carbon dioxide (CO₂) is the most significant contributor to global anthropogenic GHG emissions, which also include other gases like methane and nitrous oxide. The equivalent warming impact of non-CO₂ GHG emissions are measured as tonnes of CO₂ equivalent (tCO₂e).
 2. The model sets a carbon price in each period to limit emissions to within the global carbon budget, given the technology options available at that time. This means the carbon price is best thought of as the cost of the last, most expensive tonne of carbon globally abated in each period.

Our proprietary Destination@Risk framework

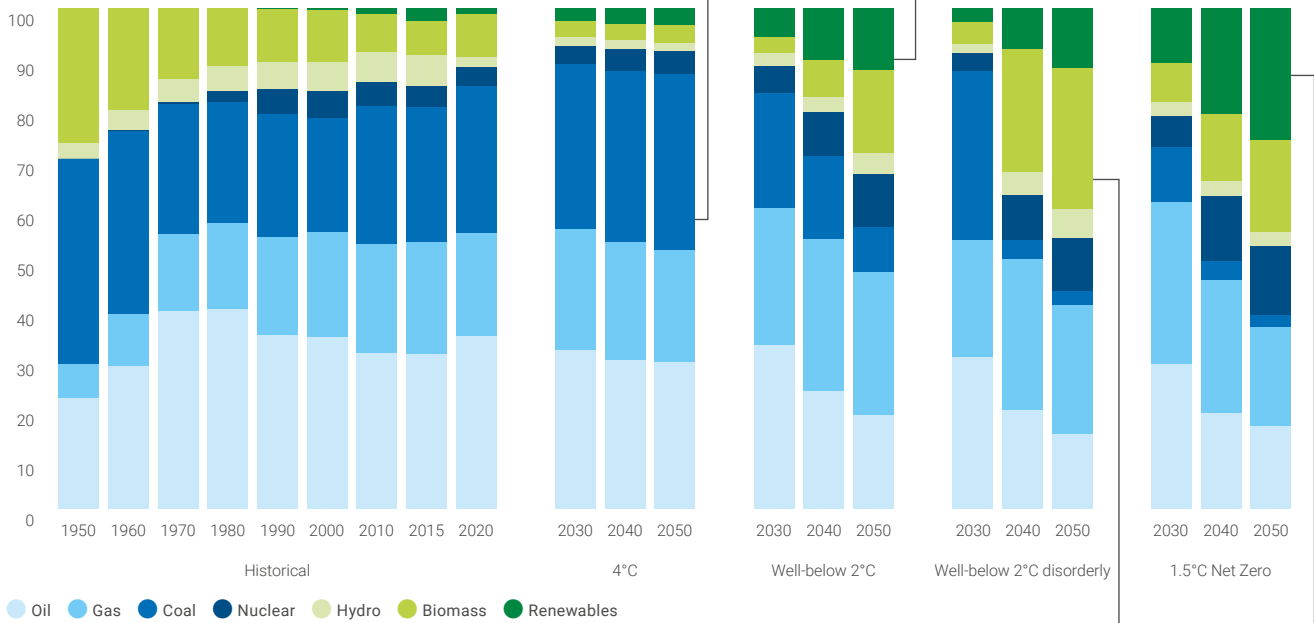
Chart 4 shows the global primary energy mix under our four climate scenarios. The bars on the left represent historical data points for 1950-2020 (note: 2020 data is estimated not actual), and the bars on the right represent our four scenarios.

Benchmarking
 We have benchmarked our 1.5°C net zero scenario against various external scenarios, including the three net zero 2050 scenarios provided by the NGFS in June 2021¹. We find that our scenario is within the range of outputs for the NGFS scenarios for most variables to 2050, such as biomass demand, solar and wind electricity generation capacity and CCS. One notable exception is hydrogen, which we see play a somewhat larger role than in the NGFS scenarios. Another is natural gas, for which our cumulative demand to 2050 is higher than the NGFS scenarios as we see it replace coal in the short term in power and industry before deeper reductions become feasible after 2030.

In the 4°C scenario, the energy mix stays relatively stable. Fossil fuels continue to play the largest role in primary energy demand: coal use continues to fall in the UK and Europe but grows in many emerging markets, increasing its share of global primary energy demand. Renewables, biomass and nuclear grow only modestly.

Our well-below 2°C scenario rapidly transforms the energy mix: coal and oil see their share of primary energy fall by two thirds and half, respectively. The share of gas remains relatively constant, while renewables and biomass triple their combined share of the energy mix to nearly 30% by 2050.

Chart 4.
 Destination global primary energy mix (%)



Source: L&G Destination@Risk

The disorderly scenario follows the 4°C scenario until 2030, then rapidly shifts towards decarbonisation. To remain within a well-below 2°C carbon budget, it deploys significantly more bioenergy with carbon capture and storage (BECCS) which produces some negative emissions. This leads to the share of biomass in the primary energy mix tripling to nearly 30%.

The Net Zero 1.5°C scenario requires a much faster phase-out of coal and oil than our well-below 2°C scenarios. While gas acts as a transition fuel initially, renewables must grow rapidly to deeply reduce emissions. Solar and wind electricity generation capacity doubles relative to our well-below 2°C scenario to ensure emissions remain within the restrictive 1.5°C budget. Nuclear grows significantly, mostly in Asian markets.

1. https://bit.ly/NGF_ScenarioPortal

Applying Destination@Risk

The Destination@Risk toolkit allows us to evaluate climate risk and alignment at a company, sector and portfolio level.

This is done by:

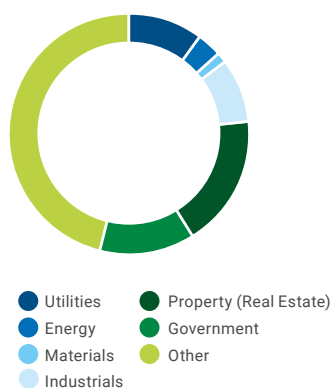
1. Converting scenarios into company and sector level impacts, providing financial impacts including net income, balance sheet and cash flows. This covers both transition and physical impacts of the scenario.
2. Using asset valuation models to convert these company financial impacts into corporate security impacts (i.e. equity and bond valuations).
3. Using our sovereign bond valuation model to convert corresponding country-level scenarios into sovereign bond valuations.

Further description on this modelling approach is given in the Additional information section on page 50. In this section we apply the approach to the c.£95.7 billion of group proprietary assets qualifying as Scope 3 – investment emissions¹.

The charts on this page show December 2021 group asset exposures based on sector asset values and sector carbon intensity².

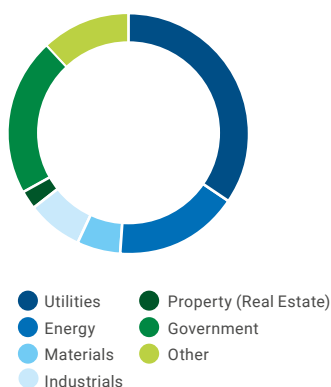
Chart 5 shows that weighted by value roughly 41% of the portfolio is exposed to the highest carbon sectors: Energy, Utilities, Real Estate, Industrials (including Transport) and Materials. In addition, 13% is allocated to Government holdings, which also have high carbon intensity.

Chart 5.
GICS sector by valuation %



When weighted by carbon intensity (Chart 6), we can see that the transition risk associated with these sectors represents 67%, with an additional 21% from Government holdings.

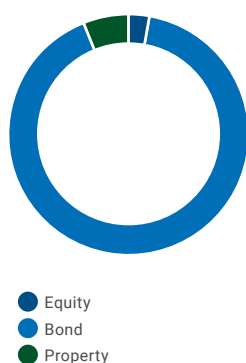
Chart 6.
GICS sector by CO₂e intensity %



The previous two charts show our exposure to the high carbon sectors, but this does not translate directly into the breakdown of our carbon sector exposure as most of our exposure is through investment-grade bond holdings.

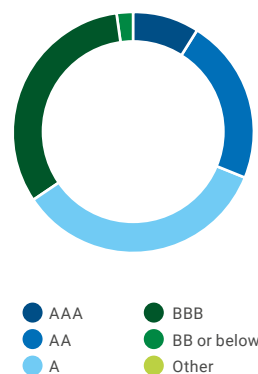
Chart 7 shows a breakdown by asset type, highlighting that bonds comprise 91% of the portfolio.

Chart 7.
Asset type by valuation %



The credit rating exposure of the bonds within the portfolio is shown in Chart 8, showing that 98% of the portfolio is “investment grade” (rated BBB and above). Of this, ‘BBB’ bonds, being those of most impact from a credit transition risk perspective, comprise 32% of the portfolio, and of those the ones from the high carbon sectors along with governments only comprise 12% of the bond portfolio. We would expect our holdings in high carbon “BBB” bonds to reduce over time as we decrease the carbon intensity of the portfolio and lower the chance of experiencing transition-driven downgrades.

Chart 8.
Bond ratings by valuation %



1. The emissions for the additional c.£1.9 billion of operating assets (our housing businesses) within our proprietary assets are captured in the operational footprint (on page 38).
 2. Sectors are defined and mapped using the Global Industry Classification Standard (GICS).

Scenario analysis of our listed bond and equity holdings

Our analysis shows that climate risk is not fully discounted in asset pricing and we expect some impact on prices as the risk is realised over time. A reduction in value can be expected on the most at-risk stocks and sectors (indicated by high carbon intensity or a high-risk location).

We use our Destination@Risk model to identify the impact on our securities depending on the pathway followed, and here we consider the three pathways leading to a lower temperature outcome. We do not evaluate our portfolio along the 4°C pathway, as this has the greatest impact coming from acute physical risk, which we do not estimate as it is highly localised with immediate impacts.

Group listed bond and equity holdings

We are constrained in what we can model fully by the availability of data (note the data caveat to the right). In this analysis therefore we restrict ourselves to considering the c.£30.6 billion (31%) of the £97.6 billion of proprietary assets that are listed equity and bond holdings that we had modelled on a line-by-line basis as at end June 2021. We have excluded cash, commercial property, and a number of non-corporate instruments. Portfolio impacts are weighted in line with our bond to equity holding ratio.

In addition to the analysis of the listed holdings shown in this section, we also use the Destination@Risk model to gain insights into the impact on our lifetime mortgage, real estate and private credit portfolios. This is described further in the risk management section.

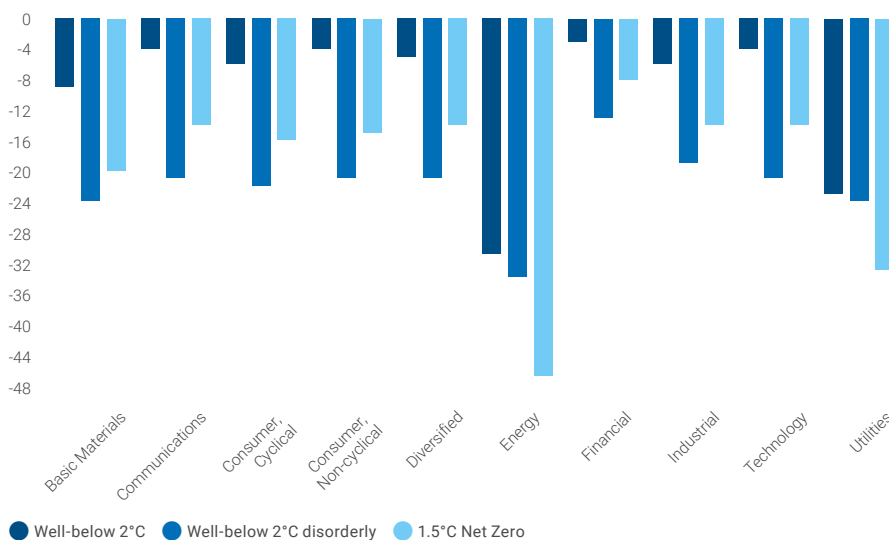
Company level and equity impacts

The equity valuation risks connected with our three scenarios are shown in Chart 9. For each equity sector it shows the total of the transition and chronic physical risks along each pathway, expressed as their total net present value (NPV) impact discounted to 2020¹. This chart shows only the impact on equity, the highest-risk broad asset class. The group portfolio impacts are shown in the tables on the following page.

These results show the broad sector impacts, but within each sector there can be a large range of impact with winners and losers over different time periods. This includes, for example, some utility companies that do not survive in the well below 2°C scenario while others experience near zero risk.

Chart 9.

Net present value (NPV) impacts of equities (%) Risk by sector



Source: L&G Destination@Risk

We are exposed across all these sectors as our exposure to listed equities is primarily through our holdings of market index funds, and not driven by security selection. However equities only represent a small component of our total exposure as noted above.

The bond exposure provides most of our modelled risk, and we now consider those exposures in greater detail. We saw on the previous page the credit rating breakdown of the portfolio, and noted the exposure to “BBB” securities. These are the bonds that would become sub-investment grade if they were to be downgraded, which would have negative implications for our balance sheet. Unlike equities, our bond holdings are in bespoke bond portfolios, giving us more freedom in their selection.

Data caveat

Outputs of our Destination@Risk model, which translates our Destinations into asset value risks, must be considered in the context of key modelling choices. The focus of the model is on risks to asset valuations given current exposure. This means the model holds both our portfolio’s composition and companies’ behaviour constant for the entire period to 2050, without incorporating projections of future growth or decarbonisation targets. It also means we do not assess opportunities associated with a low-carbon transition.

When it comes to emissions data, which is used for both implied temperature alignment and risk calculations, we rely on third-party data. There are still large segments of the listed company universe where we are forced to rely on estimated rather than actual emissions data, or where there is no data at all. Our modelling approach currently does not cover private companies for the same reason – there is not enough data available. We will continue to encourage companies to measure and report their emissions through our engagement activities.

1. We now discount the valuation risks back to 2020, which indicates the expected impact on valuations if they were to be fully priced into the market today. The results demonstrate that climate risk is not properly priced into markets. Timelines for climate risk are lengthy but our analysis suggests that risks are significant today in NPV terms.

Group portfolio scenario impacts over time

Scenario results are produced for the three pathways which are based on transition risks (well-below 2°C, well-below 2°C disorderly and 1.5°C net zero) focusing on the material asset classes of traded corporate bonds, equity and sovereigns. We do not apply the 4°C scenario to our portfolio as we do not estimate the impacts of acute physical risk, which are highly localised with immediate impacts.

Group portfolio impacts

Our analysis shows that our equity portfolio is much more exposed to climate risk than our bond portfolio. However, as the size of our equity portfolio is relatively small compared to our bond portfolio, it only adds modestly to the total risk. For this analysis we assume that the balance sheet mix of assets does not change.

Impact by risk type

Table 2 to the right, showing the net present value (NPV) impact by risk type, demonstrates that the majority of the risk impact is through transition risk, over the modelled time period, as expected and consistent with the 2020 report. In particular it is worth noting that the amount of physical risk, in both the 1.5°C net zero and well-below 2°C scenarios are minimal, while transition risk is by far the largest risk factor in all three scenarios.

Impact by asset class

Table 3 shows the NPV impact by asset type, which demonstrates the different impacts on equity and bond valuations in each scenario. We can see how the impact on our equities is almost three to over four times that on our bond portfolios. However, given the high proportion of bonds we hold compared to equities, the total portfolio impact is much closer to that of a bond-only portfolio than to that of equities. The disorderly scenario presents by far the highest impact, due to the delay in transitional action. However the 1.5°C net zero impacts are notably higher than the well-below 2°C given the significant extra action required to meet this scenario.

Bond downgrade analysis

This year, we are also able to demonstrate the impacts on the credit quality of our bond portfolio (Chart 10). Of the modelled bond exposure, the cumulative amount downgrading to sub-investment grade (assuming no active trading), is shown on the bottom right chart. We would seek to avoid these downgrades through our ongoing active credit risk management. The 1.5°C net zero scenario has the greatest amount of downgrades by 2030, while the disorderly scenario has the highest such downgrades, but not until the 2040s.

Table 2. NPV impacts by risk type

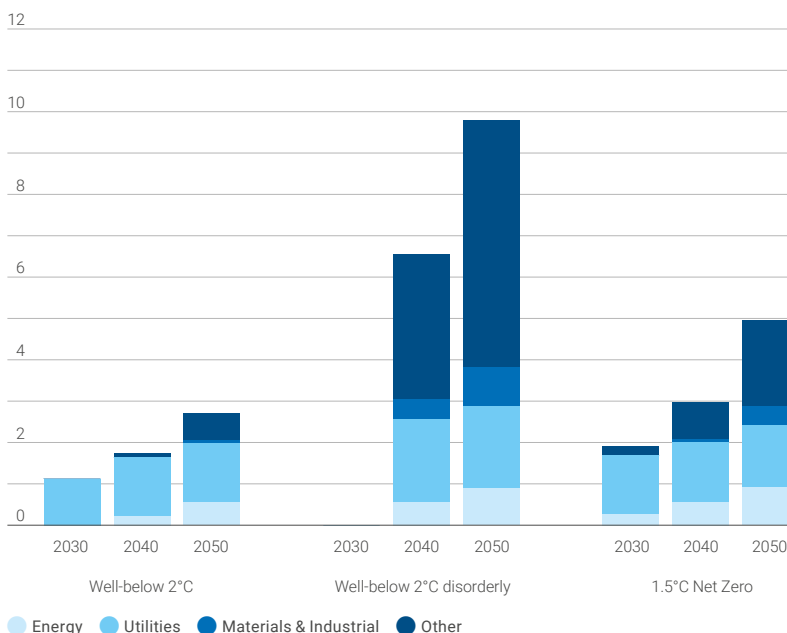
	Well-below 2°C	Well-below 2°C disorderly	1.5°C net zero
Physical risk	-0.1%	-1.0%	-0.1%
Transition risk	-1.8%	-6.4%	-3.6%
Total	-1.9%	-7.4%	-3.7%

Table 3. NPV impacts by asset class

	Well-below 2°C	Well-below 2°C disorderly	1.5°C net zero
Equities	-6.5%	-20.6%	-15.7%
Bonds	-1.7%	-6.9%	-3.2%
Total	-1.9%	-7.4%	-3.7%

Chart 10.

Cumulative downgrades to sub-investment grade (%)



Active trading

We have modelled the impacts on our portfolio assuming no active trading. In reality we take pre-emptive management actions to avoid downgrades through our ongoing active credit risk management.

Strategic resilience

Scenario risk analysis: strategic resilience

The nature of our business means we have identified four broad mitigations to our transition risk exposure:

1. Our exposure is largely through financial assets, many of which are listed, so we have significant flexibility to adapt by trading to the desired carbon position. This is the expected outcome should active engagement fail. This gives us more flexibility than businesses which have to fundamentally change their business models.

2. We hold mainly investment grade bonds, so the price risk is substantially lower compared to investors with portfolios holding greater exposures to equities. The extent of this is clearly seen in the difference between the group portfolio impacts and the equity-only impacts.

3. We will continue to carefully manage our balance sheet and actively manage our credit portfolio. As is normal practice, we continuously analyse our credit exposures, and where appropriate, seek out opportunities to improve credit quality at attractive pricing levels. We have incorporated climate considerations within our credit and market risk management and expect these to develop over time. We manage our transition risk from climate change through setting our portfolio decarbonisation targets. These pre-emptive management actions are expected to reduce the credit risk of the portfolio and are expected to reduce the impact of the credit stresses presented in these scenarios. Our decarbonisation strategy also covers our equity portfolio.

4. The balance sheet is well diversified across different sectors of the economy. Our initial assessment of our implied portfolio temperature alignment indicates that we do not have an overweight allocation to the highest carbon intensity names within the market sectors.

We have taken part in the Bank of England Biennial Exploratory Scenario on climate change, over 2021. This exercise seeks to test the resilience of the current business models of the largest banks, insurers and the financial system to climate-related risks and therefore the scale of adjustment that will need to be undertaken in coming decades for the system to remain resilient¹.



TCFD recommendation

Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.



The move to electric vehicles

In February 2020, we increased our stake in Pod Point, an electric vehicle charging business, to 22%, forming a joint venture strategic partnership with EDF and combining our investment, commercial and operational support for Pod Point's strong growth.

In November 2021, we were pleased to announce Pod Point's initial public offering (IPO) on the London Stock Exchange, welcoming new investors to support its goal of delivering a smart network of charge points to enable the mass adoption of electric vehicles.

1. https://bit.ly/BOE_StressTest

Governance

In 2021 the new role of Group Climate Change Director was taken up by Simon Gadd and Nilufer von Bismarck, NED, was asked to give specific focus to climate in her role.



We encourage and support the businesses in which we invest to take action themselves to decarbonise.”

Simon Gadd

Group Climate Change Director

Why was the position created and what are your priorities?

While Legal & General has been committed to addressing climate change for a number of years, my role is to help steer and coordinate the group's ongoing response to climate change. This involves overseeing the next stage of our transition to net zero as the focus increasingly shifts towards how we deliver our commitments.

How can Legal & General have the most impact on supporting a climate transition?

The pathway to a 1.5°C outcome is very narrow. To achieve this outcome, we need all sectors of the economy to make radical changes. Through managing our investments with a climate lens, we seek to make finance flows consistent with a pathway towards lower emissions. The carbon footprint of our assets is significantly larger than our operational footprint. This means that, while reducing our operational carbon footprint is important, the most material impact we can make is through our investments.

Achieving our decarbonisation commitments through allocating assets away from high-carbon

and towards low-carbon sectors alone is not enough to help the world transition. This is why we encourage and support the businesses in which we invest to take action themselves to decarbonise. This will be more challenging but it is why the engagement from LGIM's stewardship team is so important. We see making clear commitments on climate change as a necessary first step; now comes the hard work to deliver against them for us and the businesses we invest in.

What are the key risks Legal & General face from climate change?

The key risks depend on the climate pathway the world takes. For example, with higher temperature outcomes, the physical risks to our property assets from adverse weather events become more prominent in the long term. Legal & General has developed models to help us understand climate risks and plan our mitigation responses. A key part of the information used to support our management and oversight of the risks from climate change is our modelled range of climate scenarios and their impacts.



The group's focus will continue to be on areas which have the greatest impact for climate, society and the business.”

Nilufer von Bismarck

Non-Executive Director with focus on Climate

What was the main reason for having an independent director with a focus on climate change?

The Board has been actively overseeing Legal & General's response to climate change, but as the group looks to implement its commitments and targets, it was considered beneficial to have a non-executive Board member act as a single point of contact for the business and to act as a conduit for the Board. Addressing climate change is one of Legal & General's strategic growth drivers. Climate change is a broad and complex subject. Limiting global warming to 1.5°C requires radical systematic transformation that presents significant opportunities and risks. It is important that climate considerations are embedded in our strategy and that the business is held to account to deliver on its decarbonisation commitments.

Where do you expect your role (and the Board) to have the most influence?

As the opportunities and risks emerge and evolve from the world's response to climate change, I anticipate the Board contributing to how these continue to be integrated into our business strategy. While some aspects of seeking to address climate change may

be straightforward, there is also a range of dilemmas and challenges which we will continue to face.

With the wide range of values and ethical views of stakeholders, it is not possible to satisfy everyone, so helping the business navigate through these dilemmas and challenges will be another important aspect of the Board's role.

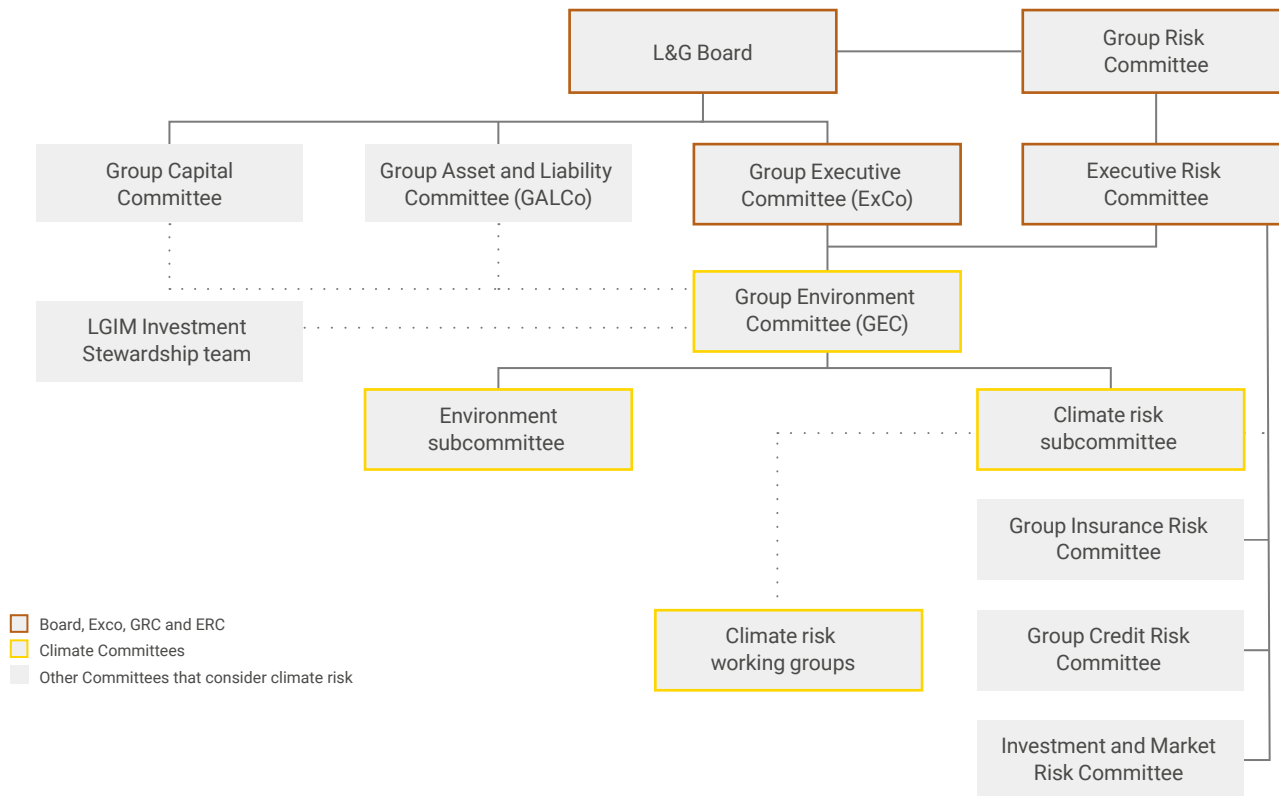
What is your perception of how Legal & General are approaching climate change?

Legal & General is committed to, and well positioned to, play an important role in decarbonising the economy. Addressing climate change is aligned with the organisational culture and core values of the group. Legal & General has established a leading voice through its stewardship team and has made a number of exciting investments in the technological solutions and infrastructure required to decarbonise.

The group's focus will continue to be on areas which have the greatest impact for climate, society and the business.

Group environment governance

Group environment governance



Board oversight

The Board is ultimately accountable for the long-term stewardship of the group. Responding to climate change and the risks and opportunities associated with it are of importance to the Board.

In early 2020 the group added 'addressing climate change' as one of our six strategic growth drivers, emphasising the importance of climate risk and the opportunities arising from the necessary energy transition. In recognition of the importance of this matter, the group Board appointed Nilufer von Bismarck as Non-Executive Director with a focus on climate.

Throughout the year, climate-related issues and events have continued to be featured in the strategic risk review and remain a priority for the Group Board.

The Group CEO Report, Divisional CEO Reports and Chief Risk Officer Reports to the Group Board highlighted and detailed the challenge of climate change and the significant new opportunities presented by it. Regulatory focus on the subject was also noted, and much public affairs work was focused on climate and COP26. The Board reviewed the group's strategic approach and progress on climate matters, highlighting areas of opportunity and challenge.

The Group Risk Committee (GRC) has added climate risks to its top strategic risks and developed a strategic risk appetite dashboard with associated measurement. A climate specific dashboard is included in the regular management information pack.

The Group Climate Change Director, a new position appointed in 2021, is responsible for coordinating the group response to climate change. Ensuring that an appropriate strategy is in place to understand, identify, measure, monitor, control and report risks from climate change in line with the risk strategy and risk appetite parameters set by the Group Board. The Group Climate Change Director also supports management in the development of appropriate processes to monitor and report exposures to the risks from climate change.

The Group Board, through the Group Risk Committee (GRC) and Executive Risk Committee (ERC), has delegated oversight of the management of the risks associated with climate change to the Group Environment Committee (GEC).



TCFD recommendations

Describe the board's oversight of climate-related risks and opportunities.

Describe management's role in assessing and managing climate-related risks and opportunities.

Group environment governance continued

Group Environment Committee

The GEC met six times in 2021 in accordance with its annual plan. The GEC is chaired by the Group Climate Change Director and includes the Group CFO, Group HR Director, Group CRO, Group Corporate Affairs Director, LGRI CEO, LGC CEO, LGIM CIO, and LGIM’s Investment Stewardship team. The senior membership demonstrates the importance we place on our response to climate risk and enables us to ensure that there is a single forum to provide oversight, ensure consistency and encourage debate on this topic.

The Group Climate Change Director has responsibility for climate risk identification and management for the group. The role of the Group HR Director and the Group Corporate Affairs Director is to ensure that the management of climate risk is consistent with the broader Group Corporate and Social Responsibility policy.

To ensure a consistent group-wide approach, and to support how we are implementing our ambitious strategy, the GEC has clearly defined relationships with other group oversight

committees. These interactions are designed to ensure that the management of the financial risks and opportunities from climate change is integrated across the group’s governance system and embedded into the existing risk management framework. The Committee also interacts regularly with Group ALCo, our committee responsible for managing all market risks on the group balance sheet, to enable a ‘joined up’ approach.

GEC’s role

The GEC is responsible for providing strategic direction for the management of environmental impact, with a particular focus on the delivery of our strategic response to climate change. This includes:

- Setting the group strategy for managing climate impact, including setting targets, monitoring and reporting on performance.
- Providing central oversight of the group’s management of climate impact to ensure that climate change informs strategic planning and decision-making across all group activities (including investments).

- Overseeing the management practices that are in line with the group’s risk appetite, our climate strategy and risk policy.
- Promoting internal awareness and understanding of climate-related threats and opportunities.
- Ensuring that the group’s actions and responses to climate change are proportionate; and
- Considering both the transition and physical risks and opportunities associated with climate change and their impact on listed and direct investment assets, equities and bonds, assets and liabilities, in both the short and long term.

The GEC is supported by subcommittees to review and challenge performance against tolerances and targets, one for climate risk and one for other environmental aspects. It is further supported by working groups to focus on specific additional regulatory requirements on the management of climate-related financial risks and opportunities.

GEC key decisions and discussions in 2021

Metrics and targets	<ul style="list-style-type: none"> • Approval of the approach to setting the 2021 carbon footprint reduction targets for the group’s proprietary assets. • Approval of the group’s investment portfolio carbon footprint methodology. • Oversight of the progress on setting SBTs across the group.
Assessing our exposure	<ul style="list-style-type: none"> • Approval of the climate scenarios to be used to model the impacts on the group’s balance sheet, and the results of the analysis (see Scenarios section). • Oversight of the group’s participation in the Bank of England Climate Biennial Exploratory Scenario.
Risk appetite	<ul style="list-style-type: none"> • Approval of enhancements to our climate-related risk appetite, including formally adding climate metrics to the group’s strategic risk appetite statements. This supports monitoring metrics and tolerances in relation to our activity to deliver climate-related commitments.
Setting our strategy	<ul style="list-style-type: none"> • Approval of our decarbonisation strategy to focus our efforts on credible reductions to our carbon footprint. • Setting the target of reducing the GHG emissions intensity of the group’s proprietary assets by 18.5% by 2025. • Setting the group’s strategy on engaging on critical climate actions and financial solutions. • Setting climate expectations within the strategic planning process.
Oversight	<ul style="list-style-type: none"> • Regular monitoring of the group’s progress in responding to the risks of climate change and the delivery of commitments within the group’s climate report. • Approval of the group’s offsetting policy, which recognises that carbon offsets should only be used to enable net zero targets to be achieved where all feasible reduction activities have been undertaken and residual carbon remains. There may be isolated examples where it is appropriate to use offsetting in the short term, but these should be tightly governed to ensure the highest standards of quality are maintained.

Risk management

We manage our business to align with the mitigation of climate change and to be resilient to the risk of different climate outcomes. Our key risk monitoring metrics are:

- Investment portfolio decarbonisation; and
- Operational footprint decarbonisation.

The risks from climate change represent another dimension of our existing risk exposures and must be embedded in the way we manage these risks. Our governance structure is used to support the group's understanding and

management of the risks from climate change. The uncertain nature of the risks from climate change, and the lack of historical data to support decision making, makes quantifying the risks more difficult.

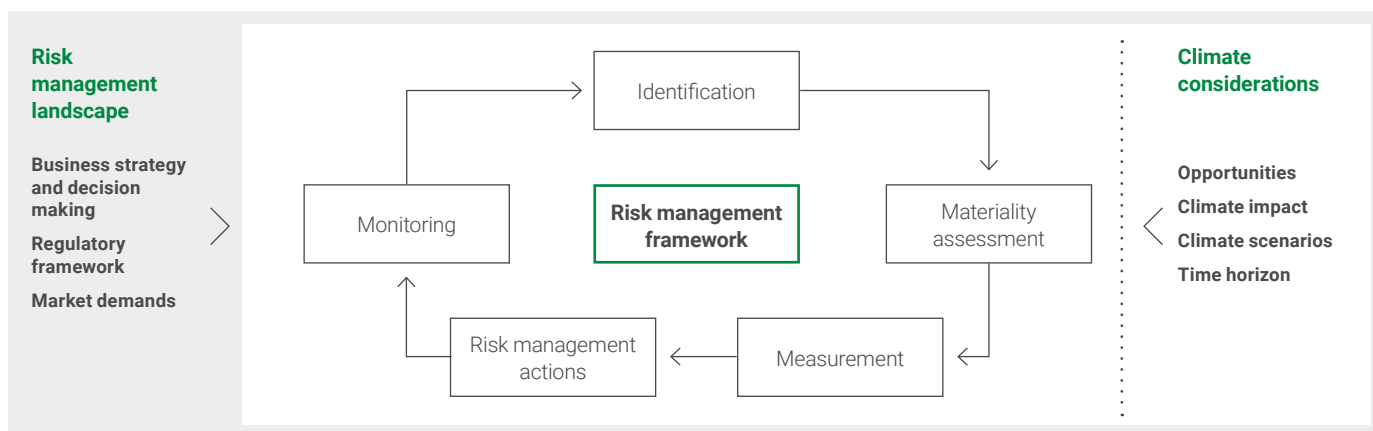
There is now widespread recognition that actions taken today can influence the likelihood of different climate outcomes, and impact on future risk exposures. This, alongside climate scenario analysis informs our risk management framework.



TCFD recommendation:

Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

Assessment framework



Our risk landscape

The risks that we are exposed to fall in three broad categories:

- **Physical risks:** impacts on asset holdings or changes to insurance liabilities as a result of more frequent and severe weather events and longer term shifts in climate.
- **Transition risks:** impacts on asset valuation and the economy from the process of adjustment towards a low-carbon economy.
- **Corporate risks:** impacts on the group from exposure to climate-related litigation risks, regulatory censure, or adverse customer perception of the group. This may be through loss of franchise value, directly through fines, costs or through adverse investor sentiment due to poor alignment with ESG rating expectations.

The risks from climate change will emerge through our current risk exposures and the respective risk management policies set out our approaches to identifying, assessing and managing these risks.

The evolving nature of the risks from climate change is reflected through the use of climate-related scenario analysis that is not linked to a probability of outcome. These scenarios incorporate the longer-term time horizon in the assessment of the risks. Informed by our scenario analysis, we have carried out a detailed assessment of how we could expect climate risk to emerge across our business model.

Our approach to risk identification

Our approach to risk identification

We have integrated climate risk management into our risk and governance framework and have carried out a detailed assessment of how we could expect climate risk to emerge across our business model.

From the products that we write

The financial risks from climate change are both far reaching and uncertain. Climate change poses a broad range of risks. As our balance sheet is based on assumptions and expectations of future experience, risks can materialise through both actual change in experienced profits or losses and changes in future expectations.

Longevity (for annuities): climate change could lead to changes in how long people are expected to live. Changes to these expectations would emerge gradually as the effects are experienced or through increased certainty around future climate pathways and the associated health impacts. Climate change could lead to a change in long-term mortality improvements, which may affect our long-term mortality assumptions.

Mortality/morbidity (for life/health insurance): similar to longevity, we expect the impacts on this risk to emerge gradually, and through a change in future assumptions earlier than through actual claims.

Reinsurance counterparty: while we would not expect climate change to pose significant risk to our short-term counterparty exposures, we do have a number of long-term reinsurance arrangements. Reinsurance counterparties would be expected to have a similar exposure to the prudential risks posed by climate change as outlined above, and further exposed to the physical risk from climate change due to their property and casualty business. This could change our assessment of the counterparty risk.

From the investments that we hold

Credit: climate change may impact on credit risk both through movements in credit spreads (due to a similar process as those driving changes in the equity valuation described below) and through credit rating transitions as a result of changes in either actual or anticipated default rates.

Market: climate change may impact on equity and property risk through asset values being exposed to a, potentially sudden, re-pricing to reflect transition risks to a low or carbon neutral economy, or due to more frequent and severe weather events and longer-term shifts in climate impacting on asset values. Both of these may be through actual experience or a change in anticipated future experience. Climate change may also present enhanced asset returns, such as increased equity valuation for a firm

enabling transition to a low-carbon economy. Climate change may impact on other market risk exposures through movements in macro-economic factors such as interest rates, inflation and foreign exchange rates.

Client funds: all investment objectives and risks associated with these portfolios are borne by the end investors. While the ultimate decision to choose a specific mandate or portfolio lies with the clients, one of the key ways we can have a positive impact is by helping clients, the owners and ultimate beneficiaries of the assets we manage, to take action on climate change.

We seek to achieve this through an assessment of the implications of climate change for our clients' assets. This aims to help our clients better understand the climate impacts and risks that may be held in their portfolio.

From the environment we operate in

Our operations: we have some direct exposure through our operational carbon footprint and the supply chain that supports our operations. This may be through physical impacts from climate change on our operations and offices or through transitional risks impacting on our operational processes and costs.

Investor perception: through recognising the strategic importance of addressing climate change, we have set ourselves ambitious climate goals. This introduces additional risks that we are not achieving our climate goals, either by not meeting our reduction targets, or through an acceleration in market expectations.

Reputational: we aim to create a positive impact globally by incentivising companies to support the transition to a low-carbon economy. We intend to play an active role in driving this agenda, especially through our asset management activity. We must hold ourselves to account and manage our business consistently with what we ask of others, including through our direct carbon footprint.

Evolving regulation and legislation: the markets in which we operate are highly regulated. The regulatory approach to climate is still evolving. New or evolving interpretations of compliance expectations require changes to our products or business processes. A breach of legislative or regulatory requirements may expose us to financial penalties, remediation costs and damage to our reputation.

The risk of inaction: our commitments assume that governments will implement required policy changes, the firms we invest in will deliver their targets, and there will be societal change on an unprecedented scale over the next decade.



Focusing on transition

We focus on transition risk because successful delivery of 'Paris' implies a fundamental change in the global economy over the next 10 years. We think this is the key near-term issue and source of risk for our business, specifically for our investment portfolio. Physical risks are still important, but as our insurance liabilities are not linked to losses due to damage of an underlying asset, these risks are mainly in relation to our assets and operations.



TCFD recommendation:

Describe the organisation's processes for identifying and assessing climate-related risks.

Risk management approach

Materiality assessment

Our risk management approach for the financial risks from climate change reflects our climate strategy, the materiality of the exposures and how we operate. When assessing materiality, we consider both how the group is affected by climate change and the group's impact on the climate.

Our scenario modelling enables us to assess how the impacts from climate change may emerge under a range of climate scenarios and time horizons. Given our business model, we assess the most material financial risks from the potential impact of climate change on the value and credit rating of our assets.

As detailed in the Scenarios section, we have invested in our capability to develop possible transition pathways to differing temperature warming outcomes, creating our own 1.5°C net zero pathway in 2021 to complement the previously disclosed well-below 2°C scenarios.

The scenarios presented show potential portfolio impacts under a given scenario. They are not forecasts or predictions, nor are we saying they are equally likely. However, these scenarios do inform our transition risk understanding, identifying key sectors where transition is likely to be more disruptive, and potential timelines over key transitional shifts.

As a signatory of the United Nations Principles for Responsible Investment (UN PRI), we also monitor the progress of the Inevitable Policy Response (IPR) scenario work.

Measurement

Through the use of our scenario analysis we measure the risks to assets and liabilities from different climate scenarios. This is measured by impacts on equity and bond valuations and credit rating in each scenario.

Portfolio carbon measurement and targets

We measure the contribution of our investments to global CO_{2e} emissions and have set reduction targets to align with the Paris Agreement. We calculate portfolio carbon emission intensities at both the group level and the divisions.

Last year we committed to reduce our group balance sheet portfolio's GHG emissions intensity by half by 2030, from a baseline of end of 2019, and annual targets are set in reference to this longer-term trajectory. While we achieved our 2% target reduction in 2021 within this trajectory, this was notably impacted by Covid-19 (due to the reporting lag in corporate emissions).

In addition, the group is committed to reduce our portfolio's GHG emissions intensity by 18.5% by the start of 2025 (from a baseline of end of 2019). These targets are overseen and monitored by the GEC and there is further detail on our progress against them in the Metrics and targets section.

Our assessment of our investment portfolio is dependent on good quality comparable cross-industry disclosures of climate-related metrics and financial impacts. The availability of high quality and comparable data – gathered across jurisdictions and from both the private and public markets – is key for our business. This enables us to steer sustainability investments successfully, identify and manage risks, deliver on our climate ambition of decarbonising our asset portfolio and comply with our disclosure objectives. In this regard, we are supportive of the need for global consistency with regards to reporting, disclosure and labelling.

Direct carbon footprint

We measure and monitor the direct carbon emissions of all of our operational businesses. We are in the process of setting science-based carbon reduction targets covering at least our Scope 1 and 2 operational emissions.

Management actions

We deploy a range of management actions to meet our risk management objectives.

1. Established commitment-setting framework.
2. Exclusions and high carbon escalation.
3. Review our existing tolerance framework to incorporate climate considerations.
4. Active engagement.

These actions seek to manage our exposure to climate-related risks associated with our investments and operations and the risks that we do not achieve our climate-related goals and targets.

1. Established commitment-setting framework

Achieving our group commitments will be challenging, reflecting the complexity around addressing climate change. Before making commitments, we undertake analysis of their implications at the underlying business level. This seeks to ensure that our commitments are integrated within divisional strategies.

We believe our commitments are consistent with science, and are credible and achievable. Our commitments are made in the expectation that governments will follow through on their own commitments and required policy actions to ensure they remain aligned to the 'Paris' objective of limiting global temperature increases to 1.5°C.

Our progress and long-term goals are supported by medium-term (interim) targets to enable regular monitoring of progress towards the commitment. Progress is reviewed and reported on at least annually.



TCFD recommendation:

Describe the organisation's processes for managing climate-related risks.

Risk management approach continued

Management actions (continued)

2. Exclusions and high carbon escalation

Within the wider set of ESG-related exclusions, our proprietary assets have climate-specific exclusions embedded into our Investment Management Agreements (IMAs) with our investment management business (LGIM). These exclusions focus on two key areas of transition risk: Climate Impact Pledge exclusions, and coal and oil sands activity.

Climate Impact Pledge exclusions

Stocks excluded by LGIM from the Future World product range, as called out under the updated Climate Impact Pledge, continue to be excluded in our business IMAs.

If companies do not meet the minimum standards LGIM have set out, engagement may translate into firm-wide voting sanctions and divestment consequences for LGIM funds adopting the Climate Impact Pledge exclusions.

These exclusions are also applied to the group's proprietary assets managed by LGIM. The companies in the current published exclusion list are excluded from these portfolios, helping to drive change in the market by supporting LGIM's engagement with the use of the group's own balance sheet capital. This list is reviewed annually and reflected in our proprietary assets. The rule applied to an excluded stock for these assets is 'do not buy'. If after 12 months' engagement we still have concerns about the company's strategy, the relevant business and the asset manager will agree a course of action.

More detail on the Climate Impact Pledge is given in the active engagement section on the next page.

Coal and oil sands activity

We continue to evolve our coal policy. We recognise that coal's role in the current energy mix is incompatible with the Paris Agreement, and that it is a dwindling aspect of the energy mix.

Given the historical role of coal in the global energy system and the size of our investment portfolio, we have c.£3 billion of exposure to companies, mostly utility companies, within our proprietary assets, which report some aspect of their revenue is linked to coal. Where coal-related activity makes up more than 10% of the company's revenue, this reduces to c.£0.6 billion. Our retirement businesses sold down their legacy exposures to issuers with more than 30% revenue linked to coal by the end of 2021¹. We do not have any significant exposures to oil sands.

We are a member of the UN-Convened Net-Zero Asset Owner Alliance (NZAOA) and are supportive of the Alliance's position on thermal coal as laid out in their 'Thermal Coal Position'² paper. Our exclusions are also aligned to the Power Past Coal Alliance (PPCA) guidelines. These exclusions apply to our proprietary assets. We have established a separate coal policy that applies to our investment management business, where LGIM invests on behalf of others. The group's coal policy goes slightly beyond the LGIM policy reflecting the increased level of investment control over the assets.

High carbon escalation

As part of delivering our carbon reduction commitments, we have established a process to escalate through further governance all proposed individual stock investments where the carbon intensity (emissions and/or reserves) is greater than a top quartile threshold across a number of relevant sectors. This gives us an early warning system and a degree of control over the accumulation of carbon risk through time.

The escalation process has had a real impact. In 2021, 22 issuers (out of a total of 34 considered) were added to the exclusion list, triggered by either high-carbon emissions or utility stocks where coal was between 20 and 30% of the issuer's activity. Issuers were excluded based on our assessment of the underlying transition and physical risks. Results of the escalation process are overseen by the Group Environment Committee.

In addition, where assets were transferred into the fund from new pension risk transfer business, a selection of high-carbon intensive issuers were sold.

Coal and oil sands policy

Building on our existing exclusions, in 2021 we have tightened our thermal coal exclusions for the group's proprietary assets as follows:

Coal mining:

- **No new investments** in issuers with more than **15%** revenue exposure.
- Exclusion trigger is expected to decrease to **5% by 2030** with the intention to **phase-out legacy investments** in issuers with more than 5% revenue exposure by 2030³.
- **No investments** in new coal mining and no further investment in companies that are investing in new coal capacity³.

Coal power generation:

- **No new investments** in issuers with more than **20%** revenue exposure.
- Exclusion trigger is expected to decrease to **5% by 2030** with the intention to **phase-out legacy investments** with more than 5% revenue exposure by 2030³.
- No new investments in companies with over **10GW** absolute coal capacity⁴.
- **No new investments** in new coal plants and no further investment in companies that are investing in new coal capacity⁴.

Oil sands:

- **No new investments** in issuers with more than **5%** revenue exposure.

These exclusions go slightly beyond LGIM's wider coal policy³. Where LGIM invests on behalf of others, its own coal policy, which includes coal and oil sands exclusions, is applied. We will continue to evolve our approach to investment restrictions on coal, setting the trajectory towards phasing out investments in coal by 2030 and ceasing investments in companies that generate 5% or more of revenues from coal and are investing in new coal capacity⁴.

1. Based on the existing dataset at the time of transaction.

2. <https://bit.ly/ThermalCoalPosition>

3. https://bit.ly/LGIM_Coal

4. Tracking absolute coal capacity and production metrics as well as expansion plans of companies is subject to datasets available on the market with varying quality and reliability and it is challenging for asset owners presently. The datasets might not have full coverage of issuers for a certain point in time that can somewhat hinder the efforts of investors to monitor their relevant exposure.

Risk management approach continued

Management actions (continued)

3. Review existing tolerance framework to incorporate climate considerations

The risks from climate change represent another dimension of our existing risk exposures. Our risk policies and tolerance framework have been reviewed and updated to incorporate climate considerations within the existing risk management framework. The group's climate governance has been designed to ensure that management of the financial risks from climate change is integrated across the group's governance system and embedded into the existing risk management framework.

4. Active engagement

Alongside close monitoring of the political and regulatory landscape, an important part of our strategy is to engage with policymakers, regulators and investee companies in support of climate action. This benefits our own stakeholders, the wider market and society. This is actively pursued by LGIM on the group's behalf, with climate change being the number one topic of engagement for the Investment Stewardship team in 2021.

Climate Impact Pledge

Through LGIM's dedicated engagement programme, the Climate Impact Pledge, we are committed to help companies to step up on their commitment to net zero, build resilient strategies for this transformative transition period and succeed in the low-carbon world. When launched in 2016, we focused our engagement on the largest, more influential companies in the sector. In 2020, aided by improvements in data availability, we expanded the coverage tenfold to cover substantially more sectors, with clear voting sanctions for the companies not meeting all our minimum standards.

We use qualitative and quantitative measures to assess the progress of companies. We publicly celebrate the successes we see in our companies, but also take voting and investment sanctions against companies falling behind. Our engagement has consequences. Climate ratings for c.1,000 companies are publicly available under a 'traffic light' system. This covers companies selected from 15 climate-critical sectors (from transport to food and chemicals) which are responsible for c.60% of all GHG emissions from the largest listed companies as of April 2021.

This targeted approach – using voting and investment sanctions to motivate companies to step up on sustainability – has contributed to companies making improvements to their climate targets and strategies. Several companies, including Kroger, were excluded from our Future World funds for poor climate performance but have since made sufficient progress to be reinstated.

In 2020, we sent letters detailing our assessment to several hundred companies identified as having poor scores relative to their size. At the 2021 annual general meeting season, through voting, we sanctioned 130 companies that fell short of our minimum standards. The stringency of our standards and sanctions will increase over time, with the possibility of divestment for persistent offenders.

Alongside the quantitatively driven engagement programme, we selected 58 companies for in-depth engagement, in which LGIM's investment team sector experts participated. These companies are influential in their sectors, but not yet leaders on sustainability; we believe they can and should embrace the transition to net zero carbon emissions in the next few years. If companies do not meet the minimum standards we have set out, engagement may translate into firm-wide voting sanctions and adopting the Climate Impact Pledge exclusions. In 2021, we kept nine companies on our sanction list from previous years and added four more companies. We removed one company from our sanction list and reinstated it in select funds.

Global Research and Engagement Groups

During 2021, work continued on the Global Research and Engagement Groups, which bring together cross-asset, sector expertise to identify the challenges and opportunities which will determine the resilience of sectors to climate change and the companies within them. Sector specialists from the Investments and Stewardship teams have regular working groups to assess the evolving materiality of climate and other ESG factors across different sectors, from industrials and health to technology, media and telecommunications. Climate change will remain an area of focus throughout 2022.

Monitoring

Monitoring and updating our measurements and management actions over time, is a critical aspect of enabling the risk management framework to adequately capture the extended time horizons associated with climate risks. Our understanding of the risks from climate change and the actions that are needed to mitigate it, is based on science. This continues to evolve. The actions that the world is taking will to some extent inform the actions that we can take. Climate reporting is an evolving structure and remains a 'best endeavours' analysis. Through monitoring these aspects and our internal analysis, we have made progress in our understanding and quantification of climate risk, but we are still at an early stage.

It is not yet clear where the financial sector will eventually align on metrics, calculation methodology, time frame and scenario definition. While we monitor and disclose our metrics, the underlying calculation methodology continues to evolve, reflecting the availability and quality of supporting data, regulatory expectations and emerging industry practices.



Through our Global Research and Engagement Groups, we use active engagement to meet our clients' goals of driving positive real world outcomes for climate action."

Sonja Laud

LGIM Chief Investment Officer



LGIM Active Ownership report

For more case studies of company and policy engagements on climate, please see LGIM's Active Ownership report: https://bit.ly/LGIM_ActiveOwnership

Divisional risk management: Lifetime mortgages

Lifetime mortgages

Our assets include c.£6.9 billion of lifetime mortgage loans (LTMs) held within our retirement asset portfolio. LTMs are a form of equity release mortgage that provide borrowers over the age of 55 a loan secured against their home, without the requirement for repayment until they either die or move out of their home into long-term care.

All LTMs provide a 'no negative equity guarantee', where the amount of loan required to be repaid is guaranteed to never exceed the securing property's sale proceeds. Our valuation of lifetime mortgages is linked to the residential properties collateralising the loans, and in turn their exposure to physical climate risks.

An increasing body of published scientific research indicates that climate change is linked to an increased risk of flooding in the UK¹, along with rising costs to deal with the damage caused. This is driving the need for increased scrutiny of flood risk through regular review. During recent years we have worked to ensure that we maintain an updated view of emerging physical risks associated with flooding. An assessment of flood risk is included as part of the initial underwriting assessment for new LTMs. This enables the flood risk to each property to be categorised and zoned.

Over 2020 and 2021 we have expanded our work with climate risk specialists XDI to assess the physical risk exposure in our LTM portfolio. We have used these models to assess a representative sample of our LTM portfolio's exposure to different climate hazards. This analysis can be scaled to estimate the total portfolio impact of up to c.1% reduction in asset value if there is no mitigating or abatement of climate impacts.

We are conscious of the need for improving the energy efficiency of residential properties in order to achieve the UK's climate targets. We have recently expanded our data and modelling capability when it comes to monitoring the energy efficiency of the LTM portfolio. In 2020, we launched the Energy Saver Cashback offer. This offered cash to borrowers who used part of their loan to make energy efficiency improvements to their home. Further product innovation will be explored as part of our collective journey to net zero emissions.

Our properties are well diversified over the UK and our analysis has shown that the potential impacts from physical risk are heavily skewed towards a small subset of properties (less than 5% of the total portfolio), which are largely in existing high flood-risk areas. This proportion is expected to reduce over time due to our enhanced new business underwriting controls.

Key physical risks: flooding of mortgaged properties.

Key transition risks: property values impacted by higher energy-efficiency requirements.



Making revolutionary solar technology mainstream

We are on a mission to serve the communities of tomorrow with sustainable solutions from innovative UK technology. Oxford PV are leaders in perovskite solar technology, which integrates photovoltaic technology with standard silicon solar cells to substantially improve their performance.

1. <https://bit.ly/MetOfficeFloodRisk>

Divisional risk management: Investment management (Real Assets)

Physical climate risk

Physical climate risk is expected to increase within our real assets portfolio within LGIM. To increase resilience to this challenge, we have further enhanced our approach to assessing forward-looking risks at the asset level and are embedding it into our investment processes. We partner with a global physical climate risk specialist, XDI.

XDI can assess asset level-exposure to eight different climate hazards¹ by placing a representative asset at each analysed address and computing the threshold at which its key components would fail if exposed to these hazards. The annual probability of damage caused by such events is calculated, upon which future probabilities of damage are assessed using global climate change model projections. This is used to calculate a Value-at-Risk percentage (VAR%): a relative metric derived from the replacement cost of the representative asset's components.

Initial analysis indicated that flood risk poses the biggest current and future threat to our UK-based portfolio. As such, we have initially focused on updating flood risk information across our real estate equity assets and improving its integration into risk management processes. An assessment of current flood risk was already included in the due diligence policy applicable to all acquisitions. This rejects properties in high-risk areas (Zone 3) unless a specific review confirms no risk to structure or operation. Properties in medium-risk areas (Zone 2) are investigated in detail for resilience.

Our enhanced flood risk approach aims to improve assessment granularity and the locational accuracy of our baseline by using unique property reference numbers (UPRNs)². We hold an extensive and diverse portfolio, which includes single-site assets and large sites spanning multiple postcodes. Using UPRNs ensures that any risks across multi-building sites are captured at a comparable granularity to single-site locations.

An assessment of future precipitation change has also been incorporated into our flood zoning approach, by projecting future flood zone distribution resulting from changes to intensity and frequency of riverine, surface and coastal flooding. This approach maintains language familiar to our stakeholders, whilst also communicating future risk.

A preliminary risk scan has shown that a number of low-risk assets (Zone 0 or 1) may move into the higher-risk Zones 2 and 3 (see Table 4)³.

Table 4. Percentage of total UPRNs located in each flood zone between 1990 and 2100.

Zone 0 indicates a very low flood risk; Zone 1 low; Zone 2 medium; and Zone 3, a high flood risk.

	1990	2020	2030	2050	2080	2100
Zone 0	88%	88%	88%	86%	84%	82%
Zone 1	3%	3%	3%	3%	3%	4%
Zone 2	2%	2%	2%	3%	3%	2%
Zone 3	7%	7%	7%	8%	10%	13%

Chart 11 shows how the distribution of high risk UPRNs⁴ is projected to change, identifying regions where future risk is more likely to be concentrated.

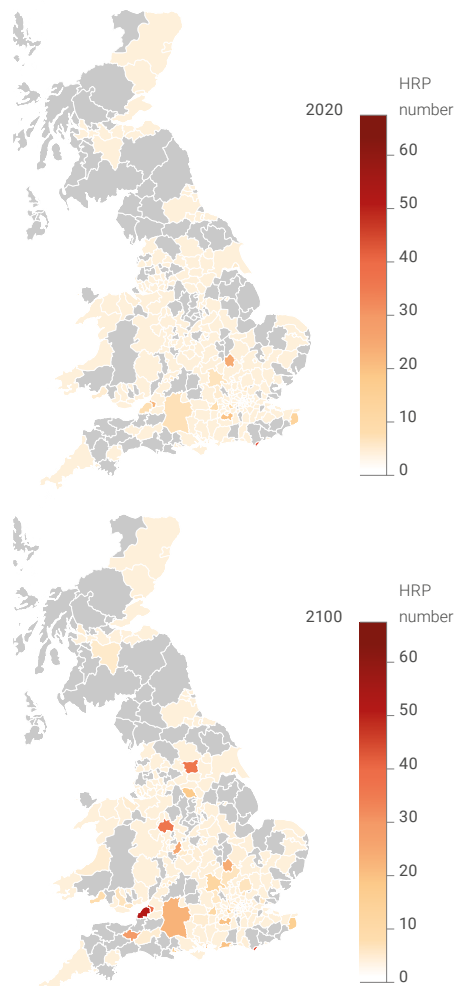
Key developments on enhancing climate resilience in 2021

The results of the preliminary risk scan have been used to identify the small number of assets needing further investigation. This next, more detailed, assessment will factor in further asset-specific characteristics, including existing adaptation measures. This will provide a clearer representation of the risk profile, enabling the development of more targeted adaptation strategies. A new Climate Risk and Resilience Strategy for Real Assets will be developed during 2022, which will capture this process.

We have recently developed a new forward-looking due diligence process with XDI, which has been piloted on some new acquisitions. Here, an initial high-level risk review is completed in the first instance, which may trigger more in-depth analysis if material climate risk issues are identified. We will continue to trial this in 2022 and will embed more formally into our acquisition strategy if successful.

Chart 11.

Distribution of high risk properties (HRP) from 2020 to 2100



Key physical risks: increased flood risk impacting on property value.
Key transition risks: market demands for net zero-capable properties (see Strategy section).

1. Climate hazards used in the assessment are: riverine flood, surface water flood, coastal inundation, heat, forest fire, wind damage, soil movement and freeze-thaw.
 2. UPRNs are unique identifiers for every addressable location in the UK.
 3. Based on Representative Concentration Pathway (RCP) 8.5 'business as usual' scenario by the Intergovernmental Panel on Climate Change (IPCC).
 4. A high risk UPRN, also called a high risk property (HRP), is considered as a UPRN with a VAR% over 1%.

Divisional risk management: Longevity risk

We have built a pragmatic model capturing the key interaction between temperature and mortality rates for the UK and the US.

Our modelling has focused on this link as it is an area with plentiful data and significant academic study. We have applied this model to climate scenarios produced for the Meteorological Office (UK) and Lawrence Livermore National Laboratory (US), covering the two territories where the bulk of our longevity risk is concentrated.

The link between temperature and mortality

Currently, climate in the UK is fairly stable and extreme weather events are relatively rare, but when exceptional temperatures occur, mortality rates rise sharply, particularly amongst the very elderly and those with serious underlying health conditions. Across the world, extreme cold claims more lives than extreme heat and we should therefore expect the net impact of higher average temperatures to be beneficial for mortality rates.

However, the above scenarios project a widening range of future temperatures as well as an increased average. This implies that heatwaves and cold snaps will become more frequent, at least partially offsetting the likely mortality benefits of a warmer overall climate.

The overall temperature impact on mortality, before allowing for other environmental changes, is a balancing act between:

- reduced winter deaths from a higher average temperature
- increased summer deaths caused by a higher average temperature and prolonged heatwaves
- increased summer and winter deaths caused by more frequent heatwaves and freezes.

The nature of this balance is sensitive to the assumptions we make in our modelling; different sets of plausible assumptions can produce opposite conclusions in relation to the net longevity impact.

When considering the direct temperature effect, we believe the overall impact is for future mortality to be heavier than previously expected in the US, but slightly lighter than expected in the UK.

Uncertainty in our work

The wider relationship between climate and mortality is inherently difficult to model, as there are many elements interacting with each other. There are several factors we have not yet explicitly modelled in our work which could affect our conclusion, notably:

- higher average temperatures impacting air pollution levels
- higher average temperatures allowing vector-borne diseases to thrive in a broader range of latitudes
- we cannot predict how society will respond to climate change.

For example, rapid adoption of new technology could counteract the health impacts of prolonged heatwaves or deeper cold snaps in the winter. Similarly, lifestyle changes such as lower meat consumption or greater use of zero emission cars could lead to health benefits – but whether these benefits are spread across society or concentrated in certain socio-economic groups may depend on government policy.

Other territories

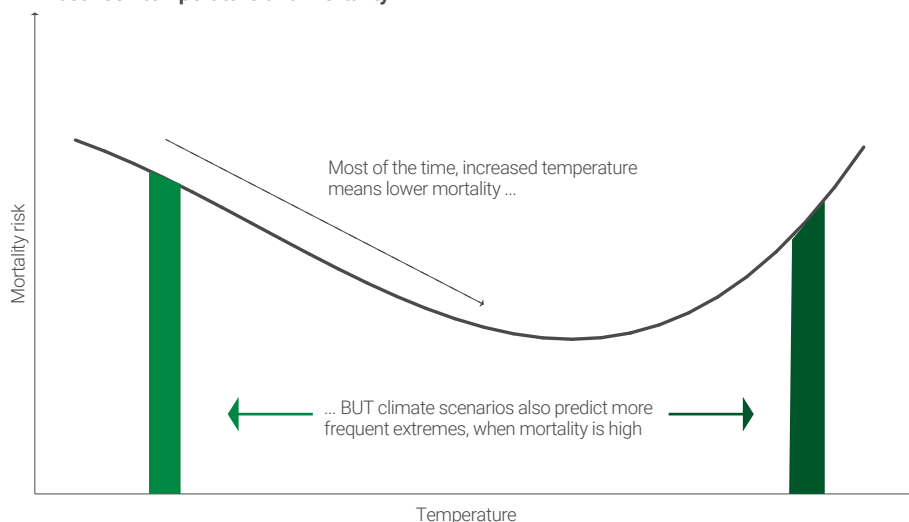
We have modelled the UK and the US separately. Our previous work focused on the UK, where our largest longevity liabilities are held, although we also have annuity business in Canada, Ireland and the Netherlands. We would expect similar outcomes in these territories, although the balance of heat-related versus cold-related deaths will vary at different latitudes. Other factors will also vary between territories, such as how governments and individuals adapt to the changing climate. There are also environmental factors, such as the prevalence of diseases that thrive in particular conditions.

Future work

Recognising that the relationship between climate change and longevity risk involves opposing forces, future iterations of our model will aim to capture additional factors whilst allowing for the uncertainty surrounding how these elements will play out in different scenarios. We will continue to refine our approach using plausible scenarios.

Chart 12.

Link between temperature and mortality






Key physical risks: changing temperatures' impact on future life expectancies.
Key transition risks: how changes in society's behaviour, motivated by climate concerns, impact on future life expectancies.

Metrics and targets

In this section, we focus on the metrics set out below to assess our climate-related risks and opportunities across our investing, influencing and operating activities. These link in with our business strategy and risk management controls outlined in earlier sections.

Scope 1: all direct GHG emissions
Scope 2: indirect GHG emissions from consumption of purchased electricity, heat or steam
Scope 3: other indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company.

Metric	What does it mean?	Metric measurement	Target	Progress to date
 Operational carbon footprint	This consists of the operations we directly control, such as the energy in our occupied offices, the energy from our landlord activities in Real Assets and our housing businesses, as well as the construction of new homes.	Tonnes of carbon dioxide equivalent (tCO ₂ e) emissions.	<ul style="list-style-type: none"> Net zero by 2050. Occupied offices and business travel operating with net zero emissions from 2030. Enable all new homes we build from 2030 to be capable of operating with net zero carbon emissions. Set SBTs by the end of 2022 and publish them in 2023. 	2021 Scope 1 and 2 (location): 30,706 tCO ₂ e (2020: 31,640 tCO ₂ e)
 Investment portfolio carbon intensity	This is made up from our ownership share of the emissions of the assets we invest in, be they corporations or governments. It includes equities and bonds, but not cash and derivatives, or any assets already covered in our operational footprint. It is measured per unit of investment.	Tonnes of CO ₂ e emissions/£1m investment. Primary metric using Enterprise Value including Cash (EVIC) as the stock divisor.	<ul style="list-style-type: none"> Net zero asset portfolio, in line with a 1.5°C 'Paris' objective by 2050. By 2030, reduce portfolio GHGs emission intensity by 50%¹. By start of 2025, reduce portfolio GHGs emission intensity by 18.5%¹. By end of 2022, reduce portfolio GHGs emission intensity by 12%^{1, 2}. Set SBTs by the end of 2022 and publish them in 2023. 	2021: 74 tCO ₂ e/£m (2020: 89 tCO ₂ e/£m) ³
 Implied portfolio temperature alignment	This measures the implied warming potential of the group investment portfolio aggregated up from its individual components.	°C	<ul style="list-style-type: none"> Set SBTs by the end of 2022 and publish them in 2023. 	2021: 2.72°C (2020: 2.85°C)

GHG emissions

We disclose our Scope 1, Scope 2 and Scope 3 GHG emissions. The risks associated with GHG emissions are discussed in the Strategy and Risk management sections.

Carbon dioxide is the most significant contributor to anthropogenic global GHG emissions (which also consist of methane, nitrous oxide and fluorinated gases). To measure the equivalent warming impact of GHG emissions, corporate

GHG emissions are quantified as tonnes of carbon dioxide equivalent (tCO₂e).

As a large asset owner, our investment-related Scope 3 emissions are the most significant category, and are predominantly due to the Scope 1 and 2 emissions from the companies and governments that we invest in. Although smaller in terms of total emissions, we also focus on our operational footprint, being the Scope 1, 2 and some non-investment Scope 3 emissions of the operating businesses.



TCFD recommendations

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

Describe the targets used by the organisation to manage climate-related risks and opportunities, and performance against targets.

1. From 2019 baseline.
 2. We note this target is above our year end 2021 score. Our 2021 portfolio GHG emission intensity will have included a material reduction due to temporary Covid-19 impacts which we expect to at least partially unwind during 2022. Our 2022 target reflects this unwind but keeps us on track for our mid to long term targets.
 3. Rebased for changes in methodology and data provider.

Operational carbon footprint

Methodology

Our core 2021¹ operational carbon footprint is shown in Table 5. This footprint includes the operations we directly control, such as the energy in our occupied offices, the energy from our landlord activities, as well as the construction of new homes within our housing business and our joint ventures².

In building our footprint we have reported on the emission sources required under the Companies Act 2006 Strategic Report and Directors' Report Regulations 2013 and have followed the requirements of the Streamlined Energy & Carbon Reporting (SECR) framework. The GHG emissions data is reported in line with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard 'Operational Control' method, and emissions factors for fuels and electricity are published at https://bit.ly/UKG_GHG.

Our emissions (in Table 5) cover 100% of our operational businesses and are reported for Scope 1 and 2 where we have operational control. Operational control is where we directly procure utilities for property we occupy, own and manage including through joint ventures² or where we have significant control over energy use.

Due to the continuing impact of the Covid-19 pandemic, it is difficult to draw meaningful comparisons with 2020 and 2019 as our occupied offices and investment properties were closed or operating with altered conditions during 2020 and 2021 to accommodate the impact of Covid-19 restrictions. However, some of our businesses have seen an increase in productivity during 2021: our housing businesses have completed 1,030 more homes in 2021 than 2020, which has an impact on our carbon footprint.

During 2022 and 2023 we expect our operational footprint to increase due to the recovery from Covid-19, as working patterns change and business travel increases.

However we will continue to manage and reduce the carbon from our operational footprint through identifying efficiencies and improvements in technology, increasing the consumption of onsite and offsite renewable energy, designing and building energy-efficient homes and buildings, reducing embodied carbon in construction and seeking to better understand and manage our need to travel for business. This supports the delivery of our core operational commitments.

Operational footprint: progress in 2021

During 2021 we have taken steps towards our net zero targets:

- **Business travel:** whilst the carbon from our 2021 business travel has remained lower (71%) than in 2019, due to the pandemic restrictions, we have still accounted for the carbon impact of our employees' journeys associated with business travel. We relaunched our business travel policy, focusing on sustainable modes of transport and enhanced our business travel booking system to enable users to understand the carbon associated with their journey.
- **Occupied offices:** we undertook Net Zero Carbon Audits of our core occupied offices, the outputs of which will feed into our future of work strategy, with the aim of achieving net zero emissions from 2030.
- **Renewable energy:** several of our businesses were impacted by energy suppliers ceasing to trade and as a result our Scope 2 – Market-based emissions have increased.

Table 5. Group operational carbon footprint

Emissions source	tCO ₂ e	tCO ₂ e
	Jan–Dec 2021	Jan–Dec 2020 ³
Scope 1	*13,350	12,407
– UK	13,324	12,365
– International	26	42
Scope 2 – Location	*17,356	19,233
– UK	16,537	18,295
– International	819	938
Scope 2 – Market	*2,700	1,122
– UK	1,881	184
– International	819	938
Fugitive emissions (included in Scope 1)	127	188
Scope 3 – Operations	5,466	4,946
– Business travel	2,070	3,045
– Homeworking	3,025	1,817
– Serviced offices	371	84
Intensity ratio: tCO ₂ e emissions per employee (Scope 1 and 2)	2.86	3.11

* Our total Scope 1, Scope 2 (Location) and Scope 2 (Market) emissions have been subject to independent limited assurance by PwC. The basis of preparation (or reporting criteria) for our group carbon footprint is available at group.legalandgeneral.com/sustainabilityreports and PwC's assurance report is available on page 45 of this report.

Notes

Data sources: carbon data is collected and aggregated to provide a group-wide footprint and is based on a combination of actual, extrapolated, estimated and benchmarked data. Data is sourced from meter readings, invoices, supplier reports, expenses and travel booking systems. Refer to our reporting criteria document for further details: group.legalandgeneral.com/sustainabilityreports.

Scope 1: All direct emissions from the activities under control.

Scope 2: Emissions from purchased or acquired electricity, steam, heat and cooling.

- Location based – reflects the average emissions intensity of grids on which energy consumption occurs.
- Market based – reflects emissions from electricity purposefully chosen. It derives emission factors from contractual instruments.

Fugitive emissions: Release of pollutants into the free atmosphere after they have escaped an attempt to capture them with a hood, seal or any other means for ensuring the capture and retention of these pollutants.

Scope 3: Indirect emissions from our value chain:

- Business travel: includes business mileage, flights and train journeys for European and US operations.
- Homeworking: assessment of the impact of employees working from home, based on EcoAct's White Paper: <https://bit.ly/Homeworking2020>.
- Serviced offices: energy data established from REEB benchmarks.



TCFD recommendation

Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

1. 2021: 1 January 2021 to 31 December 2021.

2. Joint ventures are included in our footprint where we are the majority shareholder, or have operational control.

3. 2020 data has been restated to account for an amendment in CALA Homes 2020 footprint (as previously disclosed, 2020 Scope 1: 15,163 tCO₂e, 2020 Scope 2: 20,319 tCO₂e).

Carbon intensity of our investments

Investments (Scope 3) are our greatest source of the group's financed carbon emissions. We have implemented targets to support our commitment to align with a 1.5°C 'Paris' objective.

Scope 3 Investment portfolio carbon footprint: methodology

Our primary metric is the GHG emissions intensity of the portfolio. This is the total of all the GHG produced by our share of the companies and corporations that we invest in, per unit of investment, and is reported using carbon dioxide equivalent (CO_{2e}) emission data. There are three components to this metric:

1. The GHG emissions, CO_{2e}, in tonnes for each entity in which we are invested coming from the underlying Scope 1 and Scope 2 emissions directly connected with its operations.
2. A unit of value to normalise the emissions by the underlying size of the entity we are investing in, measured in £m. For our primary metric we use:
 - EVIC for corporate issuers.
 - sovereign capital stock for sovereigns; and
 - market valuation for each real asset investment.
3. The size of our holding in the entity.

The investment portfolio emissions intensity is then calculated by weighting the normalised emissions (tonnes of CO_{2e} emissions per £m normaliser entity value as defined above) by the size of our investment and summing up for all the holdings in our investment portfolio. We have applied the emissions data equally to equity and bond assets as they are both used by corporates to raise capital and fund the operations and assets of the business.

Note that this year we have changed our primary metric for the size of corporate issuers to be EVIC, rather than EV (which excludes cash) which we had used for the 2020 climate report. This follows the review of the approach in 2021 in line with updated guidance from the EU Technical Expert Group. Along with this we have updated the corresponding value metric for sovereigns from GDP to sovereign capital stock, which is deemed the most consistent sovereign metric to a corporate EVIC measurement, thus providing consistency between the underlying corporate and sovereign constituents. The changes in methodology over 2021 are detailed further in the Additional information section.

While standards are still emerging, we continue to provide an alternative metric whereby the emissions are normalised by the revenues of the underlying entity in the case of corporate issuers, and GDP in the case of sovereigns. This provides us with a further point of comparison.

Scope 3 Investment portfolio carbon footprint: 2021 results

Table 6 shows the December (Dec) 2021 group investment portfolio GHG emission intensity score of 74 tonnes CO_{2e}/£1m invested, at -17.0% in 2021 and -18.9% from the December 2019 baseline.

When applied to the £95.7 billion¹ of assets in this analysis, this gives an absolute footprint of 7.0 million tonnes of CO_{2e} emissions, down from the 2020 equivalent number (8.3 million tCO_{2e}).

The reduction is well ahead of the original -2% target over the same period, although has been driven in part by Covid-19 and market volatility impacts. In particular, the impact of Covid-19 on 2020 emissions is partially seen in the 2021 numbers, due to the carbon data lag within the calculation, and we may see a partial reversal of this movement in future years.

Of the -17.0% reduction over 2021, -11.2% is attributed to a reduction in the updated portfolio emissions (from updated company carbon disclosures and from trading activity) by holding EVIC constant, as shown in Table 6. While Covid-19 impacts the reduction, company decarbonisation and portfolio trading activity, such as trading out of a selection of issuers with continued notable coal activity, have also acted to reduce the 2021 score.

The further -5.8% reduction in the 2021 score is then attributed to changes in the EVIC of the investments in 2021, illustrating the impact that market movements can have on the emissions intensity metric. This movement broadly offsets the +6.9% increase in the score seen in the 2020 results, attributable to 2020 market movements.

Scope 3 Investment portfolio carbon footprint: underlying data approach

Three categories of data are used for the calculation of the portfolio carbon footprint, being:

- carbon emissions data: the carbon emissions from the companies/sovereigns we invest in.
- normaliser data: the underlying size/revenues of the company or corresponding sovereign metric.
- portfolio value data: the market value of our holdings.

Further detail on the sourcing and application of the underlying data can be found in the Additional information section on page 51. Also note that we rely on third-party emissions data. There are large segments of our portfolio where we have to rely on estimated rather than actual emissions data, or where there is no data at all.

Use of proxy data

Where the underlying data is not available, we have adopted several proxy approaches with the aim of filling the coverage gap. For some key asset classes, asset-class specific ad-hoc approaches are employed while for others, we score companies not covered in the ISS database or sovereigns with sector-based proxies. Proxy approaches are used for the following other asset classes: real assets, lifetime mortgages, private debt and private equity. See the Additional information section for further detail on the data and material proxy methodologies utilised.

Table 6. Group investment portfolio GHG emissions intensity^{2,3}

Measure	Dec-20 ⁴	Dec-21	Dec-21 (constant EVIC)
Carbon intensity (EVIC basis)	89	74	79
Reduction from Dec-20 – actual		-17.0%	-11.2%
Reduction from Dec-19 – actual	-2.3%	-18.9%	
Reduction from Dec-19 – target	0.0%	-2.0%	
Carbon intensity (EVIC basis) ex sovereigns	85	67	
Carbon intensity (Revenue basis)	262	262	

1. This relates to the investments within the c.£97.6 billion of group proprietary assets qualifying as Scope 3 – investment emissions. The emissions for the additional c.£1.9 billion of operating assets (our housing businesses) are captured in the operational footprint (on page 38).
 2. Emission intensities measured as tonnes CO_{2e}/£m.
 3. Sovereign normaliser used consistent with choice of EVIC/revenues for corporates and equities.
 4. Data rebased for change in data provider.

Carbon intensity of our investments continued

Scope 3 Investment portfolio carbon intensity: mid- and long-term trajectories

In any one period, the portfolio carbon intensity is impacted by changes in the following:

- organic changes in the emissions from the entities we invest in (noting that the available data generally refer to emissions for the previous year for corporate issuers, and greater lags for sovereign emission data);
- the underlying size/revenues of the company or corresponding sovereign metric;
- the market value of our holdings; and
- changes in methodology.

Changes in the emissions coming from our investments and our investment activity are key to decarbonising our portfolios in the longer term. However in the short term, factors outside of our control, such as the carbon outcomes of the entity, market movements, and the lag in the reporting of the underlying emission data, have the potential to create significant volatility in the calculated metrics. We try to identify the underlying trends through techniques such as holding the company size constant over the reporting year.

Changes in methodology are, and will be, addressed through considering results on an unchanged basis, as well as using estimates where actual data is not available.

Scope 3 Investment portfolio carbon intensity: targets

We are committed to alignment with the 'Paris' objective in line with global efforts to limit warming to 1.5°C.

To achieve this, last year we set our targets for the carbon intensity of our portfolio of proprietary assets on the group balance sheet in order to monitor alignment with 'Paris', including reducing our portfolio GHG emission intensity by 50% by 2030, from a baseline of end 2019.

This year, we have extended LGR's interim target to cover all our proprietary assets¹, while amending the trajectory in line with the Net Zero Asset Owner Alliance (NZAOA) requirements, to target a -18.5% reduction in carbon intensity by the start of 2025. This trajectory and the progression to date is shown in Chart 13.

As mentioned earlier, changes in reported emissions due to Covid-19 and the resultant impact on the corporate or economic activity, are seen in our December 2021 results, and we may see an associated partial reversal of this movement in future years due to the lags in the reporting of the underlying emissions data.

As such, we have set a 2022 reduction target of -12%² from year end 2019 baseline, which partially accounts for progress made to date.

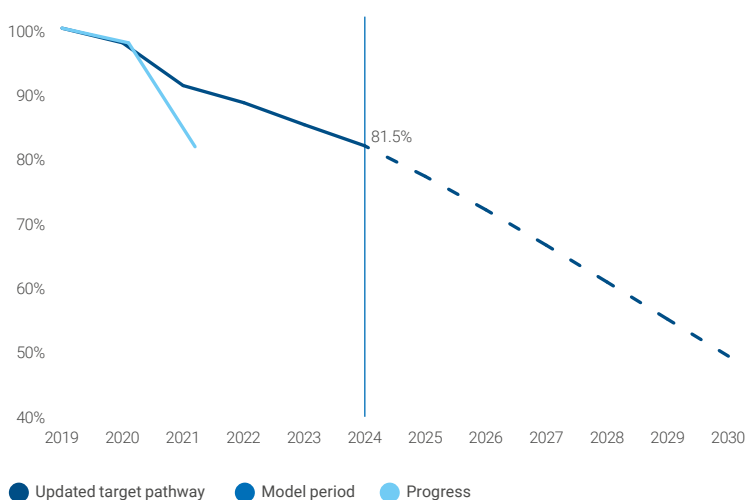
This target is above our year end 2021 score to allow for the expected post-Covid global emission increase but keeps us on track for our mid to long-term targets.

We believe that decarbonisation pathways need to be fully integrated into our investment strategy and business performance projections. We also want to ensure that the proposed decarbonisation pathway offers a realistic trajectory for decarbonisation and is reflective of our existing investment objectives in the portfolio.

Each of our core businesses are in the process of determining emissions-reduction ambitions by setting SBTs.

Chart 13.

Group investment portfolio target decarbonisation pathway



1. This relates to the investments within the c.£97.6 billion of group proprietary assets qualifying as Scope 3 – Investment emissions. The emissions for the additional c.£1.9 billion of operating assets (our housing businesses) are captured in the operational footprint (on page 38).

2. To be measured fixing the EVIC divisor at year end 2021 levels to remove the impact of 2022 market movements on the target metric.

Implied portfolio temperature alignment

Approach

To complement the portfolio GHG emissions intensity metrics, we have created an implied portfolio temperature alignment metric to measure and manage investment impact. This alignment metric measures the implied warming potential of a company (or aggregate portfolio) and a score is calculated for each of the underlying companies held within a portfolio and aggregated to give the associated portfolio score.

The implied temperature alignment metric shows what climate outcome the world would head towards if all companies' emissions evolved with the same trajectory. This approach reflects the direct link between global carbon emissions and the likely severity of global warming. It allows investors to measure their impact on climate change and evaluate their performance relative to SBTs, such as well-below 2°C or 'net-zero 2050'.

There are three key steps to the calculation of implied temperature alignment:

- project a company's carbon emission pathway to 2030
- project relevant science-based sector emission targets using decarbonisation pathways from climate scenarios
- rate companies' implied temperature alignment by assessing carbon intensity against science-based sector targets.

For the majority of companies, implied temperature alignment is calculated on the basis of Scope 1 and 2 emissions¹. Scope 3 emissions estimates are included for Financials and Oil and Gas companies using an LGIM methodology which is consistent across issuers. Midstream companies' alignments use a qualitative scoring methodology, noting business models with differing ownership structures. Electric utilities are assessed on their projected energy mix and the GHG emissions per unit of electricity (tCO₂e/MWh) relative to regional benchmarks.

Our implied temperature alignment methodology covers listed equities, corporate bonds, sovereign bonds and quasi-sovereign bonds. It does not cover real estate, alternatives or private equity due to data availability constraints.

For sovereign bond holdings, we rely on Climate Action Tracker² country alignment scores. These reflect the latest country targets and progress to date. The database is updated every 12 months, in January.

LGIM alignment scores are constructed to follow the recommendations of the TCFD and are a quantitative expression of LGIM modelling and assumptions around the energy transition.

We note that there are numerous portfolio temperature metrics in development across the industry and advise caution in comparing scores across different methodologies at this stage.

Gap risk to net zero

A temperature-aligned fund allocates capital to companies that are projected to decarbonise at a rate consistent with investors' climate commitments.

Yet given the current trajectory of the world, it is probably impossible to align a well-diversified portfolio with a net-zero emissions ambition, or even a 1.5°C outcome. This leaves investors with a potential 'net zero gap risk' – where projected portfolio emissions far exceed the implied carbon budgets of investor targets.

The implied temperature alignment measure can help investors close the net zero gap. Given the lack of net zero aligned companies today, it is more feasible to begin by aligning a portfolio to a 2°C or well-below 2°C temperature and gradually reduce the gap to net zero over time.

Group Investment portfolio implied temperature alignment

We have analysed c.£33 billion of listed assets (including government bonds), out of our £97.6 billion of group proprietary assets, where we have the relevant data. Our updated scores are shown in Chart 14³.

We can judge progress on the implied warming potential of our portfolio by comparing to well-known indices which serve as a proxy for 'the world as it is'. For bonds, we compare to the Barclays Agg 1% index (with 84% coverage), while we use MSCI World for equities (90% coverage).

This gives us a sense of where we are compared to both a net zero (1.5°C) objective and through the use of a benchmark, to the temperature alignment of the broader investment universe.

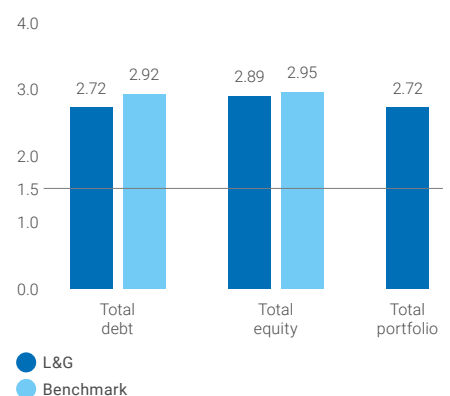
This means that on this portion of our assets we are more highly weighted in stocks transitioning more quickly than the average in the relevant sector of the chosen index.

Our current portfolio temperature alignment is above the net zero (1.5°C) target but at this point in the energy transition this is not surprising. The net zero (1.5°C) is a desired future outcome whereas the current portfolio largely reflects the opportunity set connected to the world as is.

The investment universe does not yet contain all the renewable assets and green technologies required to deliver 'Paris' and not all companies are evidencing a future strategy that is consistent with 'Paris'. We know that to mitigate transition risk our portfolio must align with the reduction in carbon emissions required to deliver the objective of the Paris Agreement. The policies and procedures we have in place to drive that change are described in the Risk management section.

Chart 14.

Implied portfolio temperature alignment °C
c.£33bn of listed equity and bonds



1. Scope 1 emissions are direct emissions from operations; Scope 2 emissions are those from purchased electricity, heat, steam and cooling; and Scope 3 emissions are not directly controlled by the company but indirectly impacted by the company's purchases, sales, and actions along its value chain.
2. <https://bit.ly/ClimateTracker2021>
3. Portfolio results are shown weighted by stock market values. Multiple portfolio weighting options exist. Further detail on the weighting methodologies are given in the Additional information section.

Engagement and remuneration

Engagement

Engagement metrics

Engagement on climate was our top issue across all investee meetings in 2021, with 246 of 773 engagements being triggered specifically due to climate considerations. We provide a more detailed breakdown of our engagements in our Active ownership report: https://bit.ly/LGIM_ActiveOwnership.

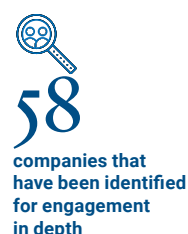
The Climate Impact Pledge (CIP) covers c.1,000 companies. During the 2021 proxy season, 130 companies were subject to voting sanctions for not meeting our minimum climate change standards.

By linking the votes to specific data points aligned with our principles-based approach, our aim was to exert our influence more consistently and widely across markets. However, we also recognise the

importance of deeper individual engagement. That is why, across the sectors under our CIP, we have selected 58 companies for in-depth engagement, in which sector experts from across LGIM's investment teams participate alongside our stewardship team. These 58 companies are influential in their sectors, but in our view are not yet leaders on sustainability; we believe they can and should embrace the transition to net zero carbon emissions.

Of the 58 companies we engaged with in-depth, over 20% have since set a net zero target, but significant variation remains, not least in terms of meeting our minimum 'red lines'. See our CIP report: https://bit.ly/LGIM_CIP.

We expect our metrics on engagement to evolve with our expectations of investee companies.



Remuneration

Last year we set climate-related targets in our executive remuneration:

Annual variable pay (AVP)

Purpose

AVP incentivises and rewards the achievement of annual financial performance and delivery of strategic priorities. 50% of AVP is received in cash and 50% of the AVP award is deferred into restricted shares for a further three years, reinforcing retention and alignment with shareholders.

Climate considerations

30% of AVP is based upon the achievement of strategic objectives, which includes ESG. For 2021, environmental performance measures were aligned to the key commitments in our 2020 climate report. This includes progress on:

- provisional SBTs set for key group businesses
- portfolio carbon emission intensity reduced by half by 2030, with a reduction of at least 2% in 2021
- net zero carbon emissions from our operational footprint (occupied offices and business travel) by 2030, with initial reduction pathway mapped during 2021 to align with SBTs.

Performance share plan (PSP)

Purpose

PSP provides a direct and transparent link between executive pay and the delivery of shareholder returns over the longer term. PSP is a conditional award of shares, subject to a performance period of no less than three years and a holding period such that no awards are released before five years from the grant.

Climate considerations

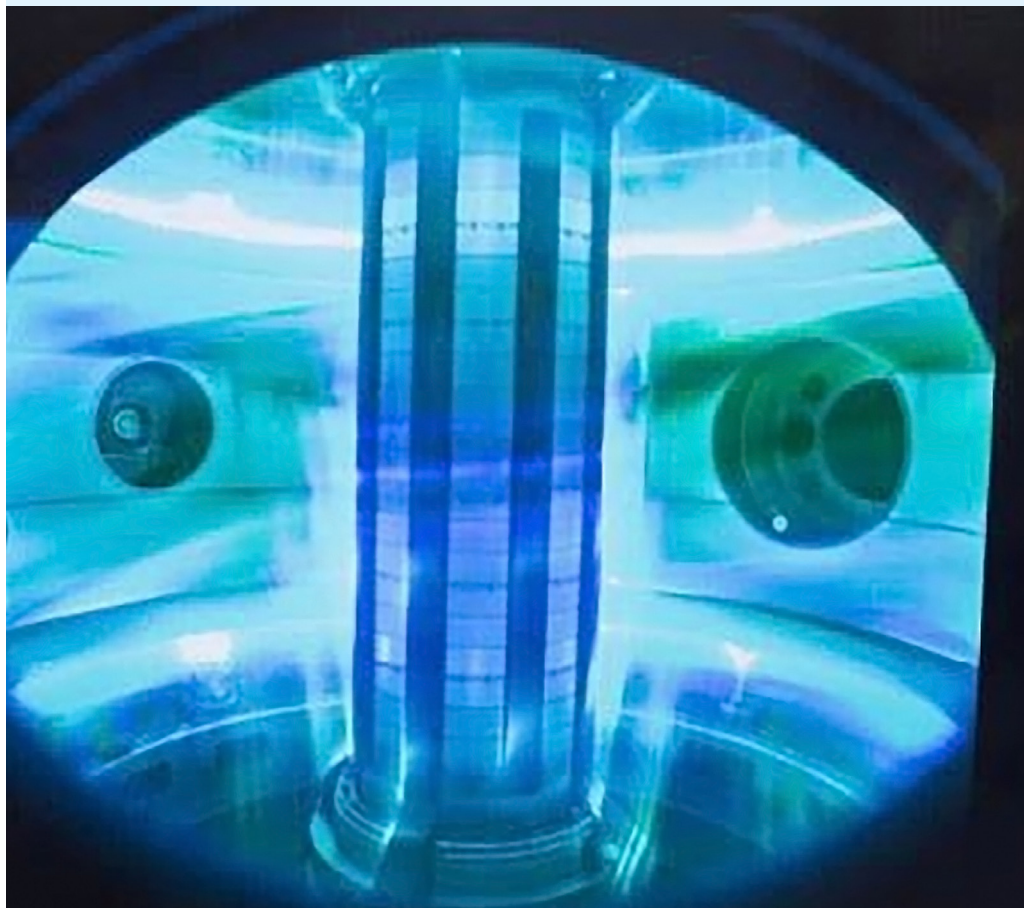
Up to 100% of the PSP is potentially at risk if ESG progress is considered by the Remuneration Committee to be insufficient. The decision is based on an assessment of progress towards the key commitments set out in our 2020 climate report.

Next steps

In this report we have shown our intended journey to net zero, detailing our climate goals, commitments and the milestones to deliver them. We view this as an important step towards our transition plan and, over the next year, we will develop this plan in conjunction with setting SBTs.

Our carbon-reduction targets cover at least our Scope 1 and 2 operational emissions and Scope 3 investment footprint and we will build out the medium-term trajectory (five to ten years) required to deliver the 2050 net zero ambition.

We will continue to support the transition to net zero through how we invest, influence and operate, bringing our vision of inclusive capitalism to life.



Tokamak Energy

We have invested in Tokamak Energy, an Oxfordshire-based company that is aiming to develop commercial fusion energy.

Pictured: plasma (heated gas) inside the Tokamak.

Additional information

CALA Homes

CALA, our largest housing business, is taking a proactive approach to measuring and reducing the embodied carbon associated with its homebuilding. During 2021, the majority of CALA's new homes built in Scotland used timber-frame construction, including the Cammo Meadows development in Edinburgh (pictured). CALA's timber-frame home achieves an average 'upfront carbon' performance of 244 kgCO₂e/m² – a 23%

improvement over a traditional-build home – meeting the LETI and RIBA 2030 targets well ahead of time. CALA is planning to expand the take-up of timber-frame construction over the whole business and continues to trial new construction products to further reduce the overall embodied carbon in its new homes.

1. Refers to upfront carbon A1-5, excluding sequestration. The LETI target is <300 kgCO₂e/m²: https://bit.ly/LETI_Carbon

Independent Limited Assurance Report to the Directors of Legal & General Group Plc



The Board of Directors of Legal & General Group Plc ("Legal & General") engaged us to provide limited assurance on the information described below and set out in Legal & General's 2021 Climate Report for the year ended 31 December 2021.

Our conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Selected Information for the year ended 31 December 2021 has not been prepared, in all material respects, in accordance with the Reporting Criteria.

This conclusion is to be read in the context of what we say in the remainder of our report.

Selected information

The scope of our work was limited to assurance over the information marked with the symbol '*' in Legal & General's 2021 Climate Report (the "Selected Information"). The Selected Information and the Reporting Criteria against which it was assessed are summarised in the table below. Our assurance does not extend to information in respect of earlier periods or to any other information included in the 2021 Climate Report.

Selected Information	tCO ₂ e
Scope 1 GHG emissions	13,350
Scope 2 GHG emissions – location based	17,356
Scope 2 GHG emissions – market based	2,700

Reporting Criteria: group.legalandgeneral.com/sustainabilityreports^f

Professional standards applied and level of assurance

We performed a limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and, in respect of the greenhouse gas emissions, in accordance with International Standard on Assurance Engagements 3410 'Assurance engagements on greenhouse gas statements', issued by the International Auditing and Assurance Standards Board.

Our independence and quality control

We complied with the Institute of Chartered Accountants in England and Wales (ICAEW) Code of Ethics, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour, that are at least as demanding as the applicable provisions of the IESBA Code of Ethics.

We apply International Standard on Quality Control (UK) 1 and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Understanding reporting and measurement methodologies

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measurement techniques and can affect comparability between entities and over time. Consequently, the Selected Information needs to be read and understood together with the Reporting Criteria, which Legal & General is solely responsible for selecting and applying.

Inherent limitations

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the subject matter and the methods used for determining such information. The precision of different measurement techniques may also vary.

Work done

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

We are required to plan and perform our work in order to consider the risk of material misstatement of the Selected Information. In doing so, we:

- made enquiries of Legal & General's management, including the group Environmental Data Reporting team and those with responsibility for environmental data across Legal & General's global operations and Climate reporting at group level;
- evaluated the design of the key structures, systems, processes and controls for managing, recording and reporting the Selected Information;
- performed limited substantive testing on a selective basis of the Selected Information at corporate head office and in relation to a sample of Legal & General's businesses to check that data had been appropriately measured, recorded, collated, and reported; and
- considered the disclosure and presentation of the Selected Information.

Legal & General's responsibilities

The Directors of Legal & General Group Plc are responsible for:

- designing, implementing and maintaining internal controls over information relevant to the preparation of the Selected Information that is free from material misstatement, whether due to fraud or error;
- establishing objective Reporting Criteria for preparing the Selected Information;
- measuring and reporting the Selected Information based on the Reporting Criteria;
- the content of the 2021 Climate Report; and
- the presentation of the selected information in the Legal & General's Annual Report and Accounts for the year-ended 31 December 2021.

Our responsibilities

We are responsible for:

- planning and performing the engagement to obtain limited assurance about whether the Selected Information is free from material misstatement, whether due to fraud or error;
- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- reporting our conclusion to the Directors of Legal & General Group Plc.

Use and distribution of our report

This report, including our conclusions, has been prepared solely for the Board of Directors of Legal & General Group Plc in accordance with the agreement between us dated 16 December 2021 (the "agreement"). Our report must not be made available to any other party save as set out in the agreement. To the fullest extent permitted by law, we do not accept or assume responsibility or liability to anyone other than the Board of Directors and Legal & General Group Plc for our work or this report except where terms are expressly agreed between us in writing.

PricewaterhouseCoopers LLP

Chartered Accountants

London

8 March 2022

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Summary disclosure against TCFD recommendations

Strategy

Climate-related risks and opportunities	<ul style="list-style-type: none"> • There are undoubtedly risks from climate change, yet the transition to net zero also creates opportunities. Our business model is not expected to be significantly disrupted by climate change, however the financial, operational and reputational risks which we manage will be impacted. • As the response to climate change emerges so will the development of new markets and opportunities. We are well placed to play a role in the decarbonisation of the economy and we are already embracing the opportunities in many areas.
Impact on our businesses, strategy and financial planning	<ul style="list-style-type: none"> • As one of our six strategic growth drivers, we have built a three-pillar approach to address climate change: how we invest our assets, how we influence as an asset manager and how our businesses operate. Our proprietary model on climate change is used to quantify the potential impacts of climate change on our portfolio.
Resilience based on scenarios, including a 2°C or lower scenario	<ul style="list-style-type: none"> • Through our scenario analysis, including 'Well-below 2°C' and '4°C' scenarios, we believe that we will remain resilient despite the scale of adjustments that will need to be undertaken over the coming decades. • Given that our exposure is largely through financial assets, many of which are listed, we have the flexibility to adapt by trading to the desired carbon position. We mainly hold investment grade bonds, so the price risk is substantially lower compared to investors with portfolios holding a larger exposure to equities. The balance sheet is well diversified across different sectors and we actively manage our credit portfolio.

Governance

The Board's role in oversight	<ul style="list-style-type: none"> • The Board is accountable for the long-term stewardship of the group. It has delegated oversight of the management of climate-related risks to the Group Environment Committee (GEC) through the Group Risk Committee and Executive Risk Committee. We appointed a Group Climate Change Director and Non-Executive Director with a focus on climate in 2021.
Management's role in assessing risks and opportunities	<ul style="list-style-type: none"> • The GEC is chaired by the Group Climate Change Director and is responsible for providing strategic direction in respect of the management of environmental impacts, with a particular focus on the group's management of the financial risks from climate change.

Risk management

Processes for identifying and assessing climate-related risks	<ul style="list-style-type: none"> • Climate change impacts will emerge through our current risk exposures and climate risk management has been integrated into our risk and governance framework. We have used scenario analysis to carry out a detailed assessment of how we can expect climate risk to emerge across our business model. • We identify transition risk impacts on asset valuation and the economy as a result of the low-carbon economy transition, and physical risks from the impacts on asset holdings or changes to life insurance liabilities as a result of more frequent and severe weather events and longer-term shifts in climate.
Processes for managing climate-related risks	<ul style="list-style-type: none"> • We deploy a range of management actions to meet our risk management objectives, namely: a commitment-setting framework with supporting interim targets, our exclusion policy and high carbon escalation process, reviewing existing frameworks to incorporate climate considerations, and active engagement with regulators and investee companies.
How we integrate these risks into our overall risk management	<ul style="list-style-type: none"> • The group's climate governance has been designed to ensure that the management of the financial risks from climate change are integrated across the whole governance system and embedded into the existing risk management framework.

Metrics and targets

Internal metrics	<ul style="list-style-type: none"> • Our metrics support our commitment to align with the Paris Agreement's 1.5°C objective. We focus on our investment portfolio carbon intensity, implied portfolio temperature alignment and operational carbon footprint. • We also measure our engagement with investee companies to ensure we continue to exert our influence consistently and widely across markets.
Greenhouse gas emissions	<ul style="list-style-type: none"> • Our Scope 1 and 2 (location) operational emissions were 13,350 tonnes of carbon dioxide equivalent (tCO₂e) and 17,356 tCO₂e respectively. Our Scope 3 non-investment emissions (business travel, working from home and serviced offices) were 5,466 tCO₂e. Our Scope 3 investment emissions were 74 tCO₂e/£m.
Targets	<ul style="list-style-type: none"> • We have set group balance sheet carbon intensity targets to align with 'Paris', targeting net zero carbon emission intensity in the group portfolio by 2050. • Our operational footprint is targeted to operate with net zero carbon emissions by 2050.

Commitments in detail

The diagram on page 9 shows how we aim to deliver a net zero carbon footprint asset portfolio and operate at net zero by 2050 through:

- commitments we have already delivered
- additional climate-related activity undertaken
- future commitments
- milestones to deliver future commitments.

The information below includes further detail on our future commitments and milestones.

For those which we have already delivered, refer to page 8.

Invest

How we invest our £97.6 billion of proprietary assets

Commitment	By	Milestone	By
We will set SBTs in accordance with the Science Based Targets initiative (SBTi) by the end of 2022, and publish them in 2023 (once SBTi verification is achieved).	2023		
We are targeting a net zero asset portfolio by 2050, in line with a 1.5°C Paris objective, and continue to evolve our interim targets against this objective.	2050	By the end of 2022, reduce portfolio GHGs emission intensity by 12% ^{1,2} .	2022
		By the start of 2025, we will reduce portfolio GHGs emission intensity by 18.5% ¹ and increase financing of low carbon technology and infrastructure.	2025
		By 2030, we will reduce portfolio GHGs emission intensity by 50% ¹ and increase financing of low carbon technology and infrastructure.	2030
We will continue to evolve our thermal coal exclusion criteria, phasing out investment-related ³ coal and oil sands exposures by 2030.	2030	Coal exclusions are in place, including avoiding investment in new coal mining, plant or business operations.	Active
We will report progress on the milestones to reduce agricultural ⁴ commodity-driven deforestation in our investment portfolios and we will increase investment in nature-based solutions.	2025	By 2022, we will establish investment policies addressing exposures to agricultural ⁴ commodity-driven deforestation.	2022
		By 2023, we will disclose deforestation risk and mitigation activities in our portfolio.	2023
		By 2025, we will report progress on investment in nature-based solutions and defining associated financing criteria.	2025

1. From 2019 baseline.

2. We note this target is above our year end 2021 score. Our 2021 portfolio GHG emission intensity will have included a material reduction due to temporary Covid-19 impacts which we expect to at least partially unwind during 2022. Our 2022 target reflects this unwind but keeps us on track for our mid to long term targets. Further details are provided in the Metrics and targets section.

3. Investments with more than 5% revenue exposure by 2030.

4. Focusing on palm oil, soy, beef, pulp and paper.

Commitments in detail

continued



Influence

How we influence as one of the world's largest asset managers with £1.4 trillion of assets under management

Commitment	By	Milestone	By
LGIM are committed to work in partnership with our clients to reach net zero GHG emissions by 2050 or sooner across all assets under management.	2050	In partnership with clients, LGIM will target 70% of assets under management to be managed in alignment with net zero ¹ .	2030
LGIM are committed to achieving net zero carbon for all of their real estate equity assets by 2050 or sooner.	2050	LGIM will publish a Real Estate Climate Resilience Strategy as part of the Better Buildings Partnership Climate Change Commitment.	2022
		LGIM will target net zero operational carbon within the Sustainable Defined Contribution Property Fund (SDCF) by 2030.	2030
		LGIM will target the removal of fossil fuels within areas of commercial property we control by 2030. In isolated instances where this is not possible, LGIM commits to publishing a list of affected assets and a roadmap to removing fossil fuels subsequent to 2030.	2030
LGIM will report progress on the milestones to reduce agricultural ² commodity-driven deforestation in our investment portfolios through successful company engagement.	2025		



Operate

How our businesses operate

Commitment	By	Milestone	By
We will set SBTs in accordance with the Science Based Targets initiative (SBTi) by the end of 2022, and publish them in 2023 (once SBTi verification achieved).	2023		
All new homes delivered from 2030 will be enabled to operate at net zero carbon, both regulated and unregulated energy.	2050	We will monitor and report on lifetime carbon emissions from homes delivered to track progress against the net zero housing target, from 2022 onwards.	2022
From 2030, our operational footprint (occupied offices and business travel) will operate with net zero carbon emissions.	2030	We will establish a roadmap to determine key milestones in our ambition to achieve net zero emissions from business travel.	Active
		We will develop our Future Ways of Working to align with our net zero carbon aim and SBTs.	2023
All homes delivered by CALA will be designed to meet the LETI and RIBA 2030 target for embodied carbon standards from 2025 ³ .	2025	We will monitor and report on the embodied carbon associated with the construction of our homes in kgCO _{2e} per m ² from 2022 onwards.	2022

1. Excludes sovereign and derivative securities until such time as agreed methodologies exist.

2. Focusing on palm oil, soy, beef, pulp and paper.

3. LETI 2030 target: <300kgCO_{2e}/m² Upfront carbon A1-5, excl sequestration. RIBA 2030 target: <625kgCO_{2e}/m² Embodied carbon A1-5, B1-5, C1-4, incl sequestration.

Powering a net zero economy

The 1.5°C net zero scenario relies critically on a decarbonised power sector to fuel the transition in transport, industry and buildings. We emphasise that this requires immediate, highly ambitious action to address climate change. Chart 15 shows the global power generation mix over time, across our four scenarios. Even though electricity grows as a share of final energy demand, it remains below 50%, meaning the generation mix is quite different compared to the primary energy mix shown in Chart 4 in the Scenarios section.

Key to rapid emissions reduction in the power sector in the 1.5°C net zero scenario is an immediate transition away from coal, initially supported by a switch to gas, then a complete shift to renewables, biomass and nuclear. Coal-fired power generation is phased out entirely in the 2030s, resulting in significant asset-stranding, particularly in China, India and North America. By 2050, solar and wind account for 70% of power generation and the only fossil fuel still used for grid-scale power generation is gas with CCS, contributing less than 5% of total generation.

The solar and wind deployment pathways in our 1.5°C net zero scenario double those in our well-below 2°C scenarios. Solar photovoltaics and onshore wind are mature, low-cost

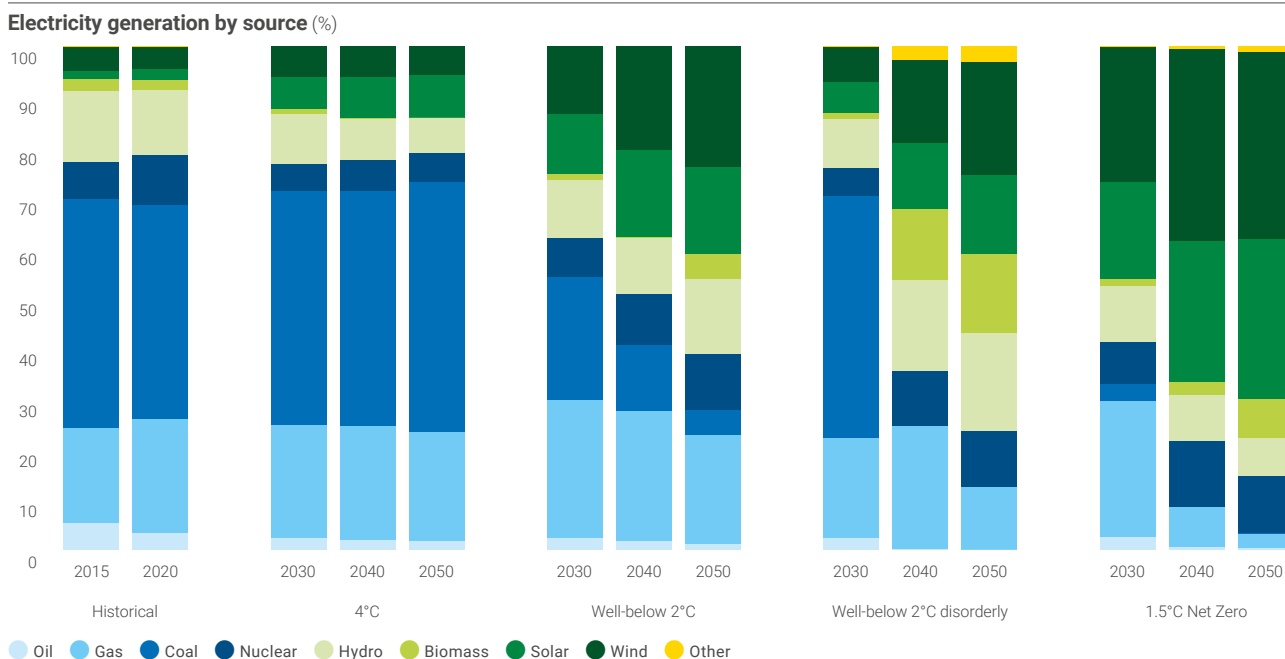
technologies. In most markets, solar photovoltaics is already the cheapest new source of electricity. We have adjusted our model's maximum deployment constraints according to the latest work on scenarios by the Intergovernmental Panel on Climate Change (IPCC) and the Network for Greening the Financial System (NGFS), which show that larger annual additions are plausible. The new pathway would involve tripling (solar) and doubling (wind) from the annual capacity additions we saw in 2020, every year until 2050.

An electricity grid that relies mostly on solar and wind will still need to meet demand when the sun does not shine, or the wind does not blow. The model underlying our scenarios ensures the system can meet 'peak' demand – such as a particularly hot day in summer where many buildings simultaneously use air conditioning units (the peak demand pattern varies by region). In developing our 1.5°C net zero scenario, we stressed our assumptions around peak demand and the reserve generation capacity that needs to be available during peak times. We wanted to make sure that the system would be able to cope with conditions outside of historical peak demand patterns, which may occur due to changes to the climate even in a 1.5°C scenario.

To meet these stringent conditions:

- hydropower, biomass, nuclear and gas with carbon capture and storage provide reliable baseload generation. These four sources make up around 30% of global power generation in 2050. Nuclear and biomass both see significant capacity growth in the 1.5°C net zero scenario, much of it driven by emerging markets. In China, one fifth of power generation in 2050 is nuclear.
- battery storage provides flexibility. Around 4,000GW of grid-scale storage capacity is built by 2050, as well as around 1,500GW of off-grid storage capacity. Deploying this many batteries in the power sector, while simultaneously transitioning the transport sector to battery electric vehicles, means our scenario depends critically on major scaling-up of supply of minerals such as copper, lithium, nickel and manganese.

Chart 15: Global power generation mix over time



Source: L&G Destination@Risk

Applying our Destination@ Risk framework

Our starting point is to use the Destination energy model to define various climate scenario pathways as explained in the Scenarios section. For each pathway, the model produces a global carbon price, regional emissions pathways and detailed demand for energy products. We supplement these outputs with estimates of macroeconomic risk – the impact of each scenario on overall economic output. There are two components of macroeconomic risk: transition and physical. Macroeconomic transition risk is estimated based on the costs of shifting to low-carbon economies relative to conventional technologies, while macroeconomic physical risk is based on estimates from academic literature.

There are then three components to modelling the implications for security valuations:

1. Company model
2. Sovereign model
3. Security model.

Company model

The company model translates scenario variables into changes in company financial performance. It allows climate scenarios to affect company financial performance in two ways: (a) increases in costs due to imposition of the carbon price on their emissions, which are passed through to consumers as higher prices; and (b) demand changes for products due to macroeconomic risk and consumer response to higher prices, incorporating sector-specific estimates of demand sensitivity to income and price changes.

Companies in the oil and gas, utilities or financial sectors are analysed further. These sector-specific modules capture the unique dynamics at work in key at-risk sectors. In the oil and gas sector, the module stresses companies with large changes in demand for their energy products as the economy decarbonises. The utilities module ensures the regional changes in electricity generation mixes are reflected at the company level, for example, by winding down coal-fired power generation. Lastly, the financial sector module assesses company exposure to risk through the balance sheet, rather than the income statement, as the primary channel through which climate risk is likely to materially impact companies.

Sovereign model

The sovereign model calculates the change in government bond yields along each scenario pathway, by examining the implications of macroeconomic impacts for country GDP and government debt. Yield changes are estimated based on the relationship between yields and debt-to-GDP.

Security model

The security model translates the company and sovereign model outputs into impacts on individual securities' valuations. Changes in earnings flow proportionately straight through to equity price. For corporate bonds, we use company financial ratios to drive changes in credit ratings for each issuance. Rating changes drive two valuation impacts: a market-defined credit spread component for all bonds, and a probability of default multiplied by recovery rate component for sub-investment grade bonds. We further adjust bond yields by a risk-free rate component from the sovereign model. Results from the bond module are calibrated against rating agency models, market conditions and long run averages.

Our modelling approach has been fully developed in-house during 2021, with improved granularity of modelling impacts at the company level, including new modules for companies in the oil and gas, utilities and financial sectors, development of the sovereign bond approach and improved scope of the assets that can be modelled.

We will continue to evolve our modelling approach as we build in more company-specific information and allow for companies taking risk mitigating actions, such as investing in technologies that reduce emissions.

Investment portfolio carbon footprint

Scope 3 Investment portfolio carbon footprint: underlying data approach

The use of ISS provides a direct coverage of £35.6 billion of the portfolio (based on 2020 data). Along with the sovereign bonds, that means that almost 50% of the portfolio is covered directly. The following categories represent much of the rest of the exposure, with the techniques we apply to proxy their carbon emissions.

Note that we rely on third-party emissions data as there are large segments of our portfolio where we use estimated rather than actual emissions data. We use proxies for emissions where no data is available.

Equity, corporate bonds and private credit

We utilise a selection of methodologies for these holdings depending on their type:

1. A suitable stock proxy in the ISS database.
2. Manual research from company filings (large private credit holdings).
3. An ISS sector average (smaller holdings).

Real assets

The carbon analysis of our property portfolio is based on a number of sources. Where we are responsible for the utility procurement, operation and management of our properties, through our managing agents, we obtain energy and environmental data directly from site utility meters or from utility suppliers. Where we do not manage our properties, our occupiers provide utility data or we use benchmark data based upon property type and floor area. We use the following benchmark data sources:

1. Global Real Estate Sustainability Benchmarking (GRESB) occupier data collection. As part of our occupier liaison processes, we currently receive operational data from approximately 30% of our occupiers. This data is an indication of the emissions within our property portfolio.
2. Industry standard benchmarks: Chartered Institute of Building Services Engineers (CIBSE) and Better Buildings Partnership's Real Estate Environmental Benchmarks (REEB). Energy (and carbon) benchmarks for various types of property have been published in the UK for over 20 years, originating from the government-funded Energy Efficiency Best Practice Programme (EEBPP). The most recent update to these benchmarks was undertaken by CIBSE in 2008¹.

3. In addition, the Better Buildings Partnership, a voluntary group comprising 34 of the major commercial property owners in the UK, has established more recent benchmarks for particular types of commercial buildings, predominantly offices and shopping centres. REEB 2019 office benchmark was used for this analysis².

By using a combination of these benchmarks, we establish an estimate of the carbon emissions associated with our direct property investments and also identify which property sectors are, on average, most intensive in terms of carbon emissions.

For commercial property, our operational footprint (Scope 1 and 2) includes assets that are owned and managed in connection with our businesses. This includes all assets we occupy where we procure energy but also includes assets owned and managed by us, i.e. where we procure energy on behalf of external occupiers. The group Scope 3 calculation additionally brings in the emissions associated with occupier energy use.

LTM

Our approach to LTMs is based on an analysis of the lending by purpose. We then map each purpose to an asset category with a known carbon footprint. For example, we assume a portion of the lending is allocated to travel and within that, air travel. We therefore ascribe the carbon intensity connected to the air industry to that portion of outstanding loans.

Other assets

We have assumed that no emissions apply to the cash and derivative exposures.

Scope 3 investment portfolio carbon intensity: detailed results

The impact of the rebasing activities that have been carried out this year are highlighted in Table 7, where we show their impacts on the equivalent metric as used for the production of last year's climate report. This then enables us to compare our December 2021 metrics with those from December 2020 on a comparable basis, as shown in Table 6 on page 39 of the main report. This rebasing activity has included the move to using EVIC instead of equity and corporate exposures, a corresponding change in the comparable sovereign metrics, and a change of data provider potentially impacting on the carbon intensity data of all directly covered entities.

The table shows the impact of stepping through the various changes, being the move to EVIC, the change in data provider for corporates, and the change in data provider and stock-based divisor approach for sovereigns. Most changes led to a reduction in the calculated carbon intensity other than for the revenue-based measure. We have used these lower, rebased numbers, as the starting point for determining the change in carbon intensity during 2021.

Table 7. Group investment portfolio GHG emissions intensity³

Measure	tCO ₂ e/£m invested				
	2020 Climate Report	2020 Climate Report	Impact of updated data provider for corporates	Impact of updated data provider and divisor for sovereigns	Dec-20 (Rebased)
	Dec-19	Dec-20	Dec-20	Dec-20	Dec-20
Carbon intensity (EVIC basis)		110	-11	-11	89
Carbon intensity (EV basis)	120	117	-11	-11	95
Reduction from Dec-19		-2.3%			
Carbon intensity (Revenue basis)	280	286	-29	5	262

1. CIBSE Technical Memorandum 46 (TM46): Energy Benchmarks 2008.

2. <https://bit.ly/REEB2019>

3. Carbon intensities measured as tonnes CO₂e/£m.

Implied portfolio temperature alignment

Aggregation of implied temperature alignment at a portfolio level.

We have adopted two methods for aggregating the implied temperature alignment of individual securities into a portfolio level alignment number.

The first, and our primary method at the moment, is to use position value as weights, such that:

Portfolio alignment = \sum position value x Security temperature alignment

This aggregation approach is aligned to the 'Weighted average temperature score (WATS)'¹ portfolio weighting option referenced in the SBTi financial sector guidance.

The advantage of this approach is that it is easy to calculate, and easy to understand. However, it does not account for the significant contribution to the forward carbon intensity of a portfolio by those companies with a high carbon intensity of revenue today.

This can be addressed by an alternative approach which expresses portfolio alignment on a carbon weighted basis:

Portfolio alignment = \sum position value x security temperature alignment x security carbon intensity

\sum Position value x security carbon intensity

This aggregation approach is aligned to the SBTi 'Revenue owned emissions weighted temperature score (ROTS)'² portfolio weighting option.

We currently report position-weighted alignment metrics in the 'Metrics and Targets' section, although it should be noted that weighting by carbon values would result in higher implied temperature alignment metrics due to a heavier weighting to the stocks in higher emitting sectors. The results of the two aggregation methods are shown in Table 8.

Also note that when it comes to emissions data, we rely on third-party data; where third-party data is not available, we use proxies for these emissions on a best endeavours basis.

Table 8. Portfolio temperature alignment (°C)

	Carbon-weighted sensitivity				
	Total portfolio	Total debt		Total equity	
	L&G	L&G	Benchmark	L&G	Benchmark
Value-weighted alignment	2.72	2.72	2.92	2.89	2.95
Carbon-weighted alignment	3.39	3.39	3.37	3.32	3.49
Coverage	43.1%	42.7%	83.8%	55.3%	90.1%

1. <https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf> page 152.

2. <https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf> page 154.

Glossary

Annuity

Regular payments from an insurance company made for an agreed period of time (usually up to the death of the recipient) in return for either a cash lump sum or a series of premiums which the policyholder has paid to the insurance company during their working lifetime.

Anthropogenic global greenhouse gas (GHG) emissions

Emissions of GHGs caused by human activities. These activities include the burning of fossil fuels, deforestation, land use and land use changes (LULUC), livestock production, fertilisation, waste management and industrial processes.

Assets under management (AUM)

Funds that are managed by our fund managers on behalf of investors. AUM represents the total amount of money investors have trusted with our fund managers to invest across our investment products.

Bio-energy with carbon capture and storage (BECCS)

Carbon dioxide capture and storage (CCS) technology applies to a facility where energy is derived from any form of biomass or its metabolic by-products. Note that depending on the total emissions of the BECCS supply chain, carbon dioxide can be removed from the atmosphere.

Carbon capture and storage (CCS)

A process in which a relatively pure stream of carbon dioxide from industrial and energy-related sources is separated (captured), conditioned, compressed and transported to a storage location for long-term isolation from the atmosphere.

Carbon dioxide equivalent (CO₂e)

Carbon dioxide (CO₂) is the most significant contributor to global anthropogenic GHG emissions, which also include other gases like methane and nitrous oxide. The equivalent warming of non-CO₂ GHG emissions are measured as tonnes of CO₂e. CO₂e is the universal unit of measurement to indicate the global warming potential (GWP) of each greenhouse gas, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate different GHGs against a common basis.

Carbon emissions intensity

Carbon emissions intensity is the amount of emissions released per unit of another variable, such as CO₂e per £m. This enables a comparison of the emissions efficiency to be made between different sized operations.

Carbon footprint

Carbon footprint is the amount of emissions as a result of the associated activity.

Carbon offsetting

The process of financing schemes designed to either reduce or remove carbon dioxide in the atmosphere to compensate for carbon emissions that have occurred elsewhere.

Climate Impact Pledge (CIP)

The Climate Impact Pledge is LGIM's dedicated climate engagement programme. Through the CIP we are committed to help companies to step up on their commitment to net zero, build resilient strategies for this transformative transition period and succeed in the low-carbon world.

Climate pathways

Scenarios that describe pathways to particular climate outcomes.

Commodity-driven deforestation

Expanding agriculture is responsible for most of the world's tropical deforestation¹. When referring to commodity-driven deforestation, we are focusing on agricultural commodities such as palm oil, soy, beef, pulp and paper.

COP26

The 26th United Nations Conference of the Parties climate change conference, held in Glasgow in October and November 2021.

Destination@Risk

Our proprietary L&G Destination@Risk toolkit measures the climate risk embedded in investors' portfolios and their climate alignment.

Energy system

The energy system describes the system for supplying energy-services to end users; encompassing to the production, conversion, delivery, and use of energy.

Enterprise Value including Cash (EVIC)

Enterprise Value including Cash is defined as the sum of the market capitalisation of ordinary shares at fiscal year end, the market capitalisation of preferred shares at fiscal year end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.

Fugitive emissions

Release of pollutants into the free atmosphere after they have escaped an attempt to capture them with a hood, seal or any other means for ensuring the capture and retention of these pollutants.

Greenhouse gases (GHG)

The seven gases covered by the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard – carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

Group Environment Committee (GEC)

The group committee that has responsibility for providing strategic direction to the management of environmental impact, with a particular focus on the delivery of our strategic response to climate change.

Investment portfolio carbon footprint

The investment portfolio carbon footprint related to the funded GHG emissions from an investment portfolio.

Investment portfolio emission intensity

The investment portfolio emission intensity is calculated by weighting the normalised emissions (tonnes of CO₂e emissions per £m normaliser entity value) by the size of our investment and summing up for all the holdings in our investment portfolio.

LGC

Legal & General Capital.

LGI

Legal & General Insurance.

LGIM

Legal & General Investment Management.

1. https://bit.ly/Global_Forest

Glossary continued

LGR

Legal & General Retirement, which includes Legal & General Retirement Institutional (LGRi) and Legal & General Retirement Retail (LGRr).

Lifetime mortgage (LTM)

An equity release product aimed at people aged 55 years and over. It is a mortgage loan secured against the customer's house. Customers do not make any monthly payments to own and live in their house until they move into long-term care or on death. A no negative equity guarantee exists such that if the house value on repayment is insufficient to cover any outstanding loan, any shortfall is borne by the lender.

Location-based scope 2 emissions

A location-based method reflects the average emissions intensity of grids on which energy consumption occurs (using mostly grid-average emission factor data).

Market-based scope 2 emissions

A market-based method reflects emissions from directly purchased electricity using supplier specific emissions factors such as renewable energy backed by Renewable Guarantees of Origin certificates.

Net zero carbon

Achieving an overall balance between anthropogenic carbon emissions produced and carbon emissions removed from the atmosphere.

Operational carbon footprint

The emissions from the operations we directly control, such as: the energy in our occupied offices, the energy from our landlord activities in Real Assets and our housing businesses, as well as the construction of new homes.

Operational control

Operational control is where we directly procure utilities for property we occupy, own and manage including through joint ventures or where we have significant control over energy use.

Paris Agreement

The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change effective 4 November 2016. The Agreement aims to limit the increase in average global temperatures to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels.

Physical risks

The risks from climate change that arise as a result of more frequent and severe weather events and longer-term shifts in climate.

Portfolio temperature alignment

A forward-looking metric that attempts to convey the future trajectory of GHG emissions of a given portfolio in terms of its estimated temperature rise.

Proprietary assets

Proprietary assets are the total investments to which shareholders are directly exposed, minus derivative assets, loans, and cash and cash equivalents.

Science-based targets (SBTs)

GHG-reduction targets that are aligned with what the latest climate science deems necessary to meet the scientific consensus on the scale of reductions needed.

Scope 1 emissions

Direct GHG emissions occurring from sources owned or controlled by the company.

Scope 2 emissions

Indirect GHG emissions from consumption of purchased electricity, heat or steam.

Scope 3 emissions

Indirect emissions not covered in Scope 2 that occur in the value chain of the reporting company, including both upstream and downstream emissions. These emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company.

TCFD

Task Force on Climate-related Financial Disclosures. The Financial Stability Board established the TCFD to develop recommendations for more effective climate-related disclosures.

tCO₂e

Tonnes of carbon dioxide equivalent (CO₂e).

Transition risks

The risks from climate change that arise from the process of adjustment towards a low-carbon economy.

Cautionary statement

The climate metrics, particularly targets, projections, forecasts and other forward-looking climate metrics used in this report should be treated with caution, in particular given the uncertainty around the evolution and impact of climate change.

Climate metrics include estimates of historical emissions and of historical climate change and forward-looking climate metrics and estimated climate projections and forecasts.

1. Climate change and climate-related risks cannot be evaluated in the same way as more conventional financial risks. Primary reasons for this include:

- their unprecedented nature and complexity
- the fact that projections of climate change and temperature are long term as scenarios that play out over at least several decades and are therefore inherently more uncertain
- understanding about how different climate-related risks could interact continues to evolve
- climate-related risks may also interact with non climate-related risks and vulnerabilities and compound impacts in ways not currently anticipated
- climate change and the related risks may be irreversible if certain limits are exceeded; and
- because the physical and transition risks are novel, they differ from the perspective of conventional risk identification, measurement and management (which generally focus on extreme events with a basis in prior experience) and the outcomes are thus more uncertain.

This leads to significant uncertainties, assumptions and judgements underlying climate metrics that limit the extent to which climate metrics can be relied on.

2. The lack of reliable, accurate, verifiable, consistent and comparable emissions and other important data makes it challenging to accurately disclose or estimate metrics used to assess climate-related risks and opportunities. In particular:

- finding the sources for relevant required data remains a challenge as does validating and standardising that data; and
- climate metrics and data, the models, scenarios used to create them and the measurement technologies, analytical methodologies and services that support them, continue to develop.

3. There is a lack of standardisation, transparency and comparability of disclosure with many diverging disclosure frameworks and methodologies for calculating climate metrics leading to metrics estimates that are not directly comparable. These differences are compounded by a lack of international coordination on data and methodology standards. Even where methodologies are publicly described, differences across data providers can still make resulting disclosures difficult to compare for investors and others evaluating climate exposure across their holdings. In addition, the methodologies for estimating and calculating GHG emissions or emissions intensities and other climate-related metrics vary widely in their approaches. This could lead to under or over estimation of implied temperature rises and the attendant climate risks.

4. Climate metrics require many methodological choices, estimates, judgements and assumptions about climate changes, policies, technologies and other matters that are uncertain or not yet known. Any material change in these variables may cause the assumptions, and therefore, the climate metrics and data based on those assumptions, to be incorrect.

5. Climate scenarios are not forecasts; rather they are projections of alternative plausible futures that are designed to build an understanding of the nature and size of changes that may occur in future. They do not reflect all possible future pathways and, given their long-term nature, are inherently uncertain. In particular:

- climate scenarios and the models that analyse them have limitations that are sensitive to key assumptions and parameters;
- climate scenarios cannot capture all of the effects of climate policy and technology-driven outcomes;
- scientific understanding of climate change continues to develop;
- models cannot fully capture the range of societal changes that could result from climate change; and
- over reliance on a limited number of the same prescribed models or scenarios may amplify systemic climate-related risks.

6. This report and the information contained within it is unaudited¹. Further development of accounting and/or reporting standards could materially impact the metrics, data points and targets contained in this report. As standards and practices continue to evolve, it may mean subsequent reports do not allow a reader to compare metrics, data points or targets from one reporting period to another on a direct like-for-like basis. In addition, the group's

climate risk capabilities and net zero transition strategy and plan remain under development and the data underlying these and market practice in relation to the disclosures made in this report will evolve over time. As a result, certain of such disclosures are likely to be amended, updated, recalculated and restated in future reports.

7. This report contains climate-related and other forward-looking statements and metrics, such as targets, climate scenarios and emissions intensity pathways, estimated climate projections and forecasts. Words or phrases such as 'anticipate', 'effort', 'estimate', 'believe', 'budget', 'continue', 'could', 'expect', 'forecast', 'goal', 'guidance', 'intend', 'may', 'objective', 'outlook', 'plan', 'potential', 'predict', 'projection', 'seek', 'should', 'target', 'will', 'would' or similar expressions that convey the prospective nature of events or outcomes generally indicate forward-looking statements.

The many significant uncertainties, assumptions, judgements, opinions, estimates, forecasts and certain non-historical data underlying forward-looking climate-related metrics (such as carbon and other emissions metrics) and metrics to assess climate-related risk and opportunity outside of carbon exposure may limit the extent to which these climate-related metrics are used to better understand risk and evaluate progress towards established strategies, targets, objectives, commitments and could cause actual results, performance or events to differ materially from those expressed or implied in such statements.

The statements in this report are based on current plans, expectations, estimates, targets and projections and are subject to significant uncertainties and risks which may result in the group being unable to achieve the current plans, expectations, estimates, targets or projections. Accordingly, undue reliance should not be placed on these statements.

Any climate-related forward-looking statements made by or on behalf of the group speak only as of the date they are made, and, unless legally required, the group assumes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information or for any other reason.

8. The information, statements and opinions contained in this report do not constitute an offer to sell or buy or the solicitation of an offer to sell or buy any securities or financial instruments nor do they constitute any advice or recommendation with respect to such securities or other financial instruments or any other matter.

1. This is with the exception of Scope 1 and Scope 2 metrics, which have been subject to independent limited assurance by PwC (see page 45).