

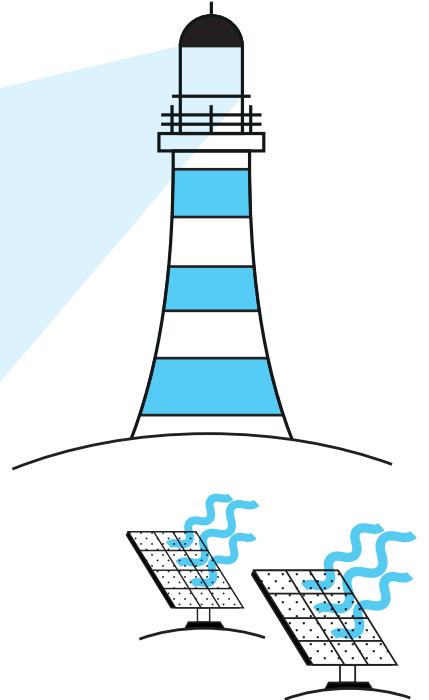
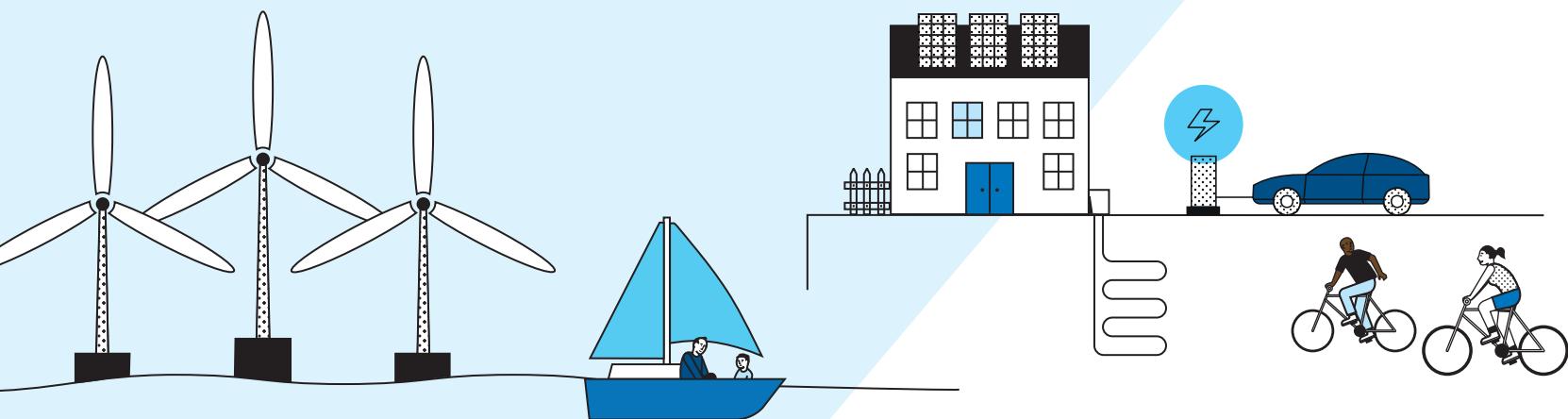


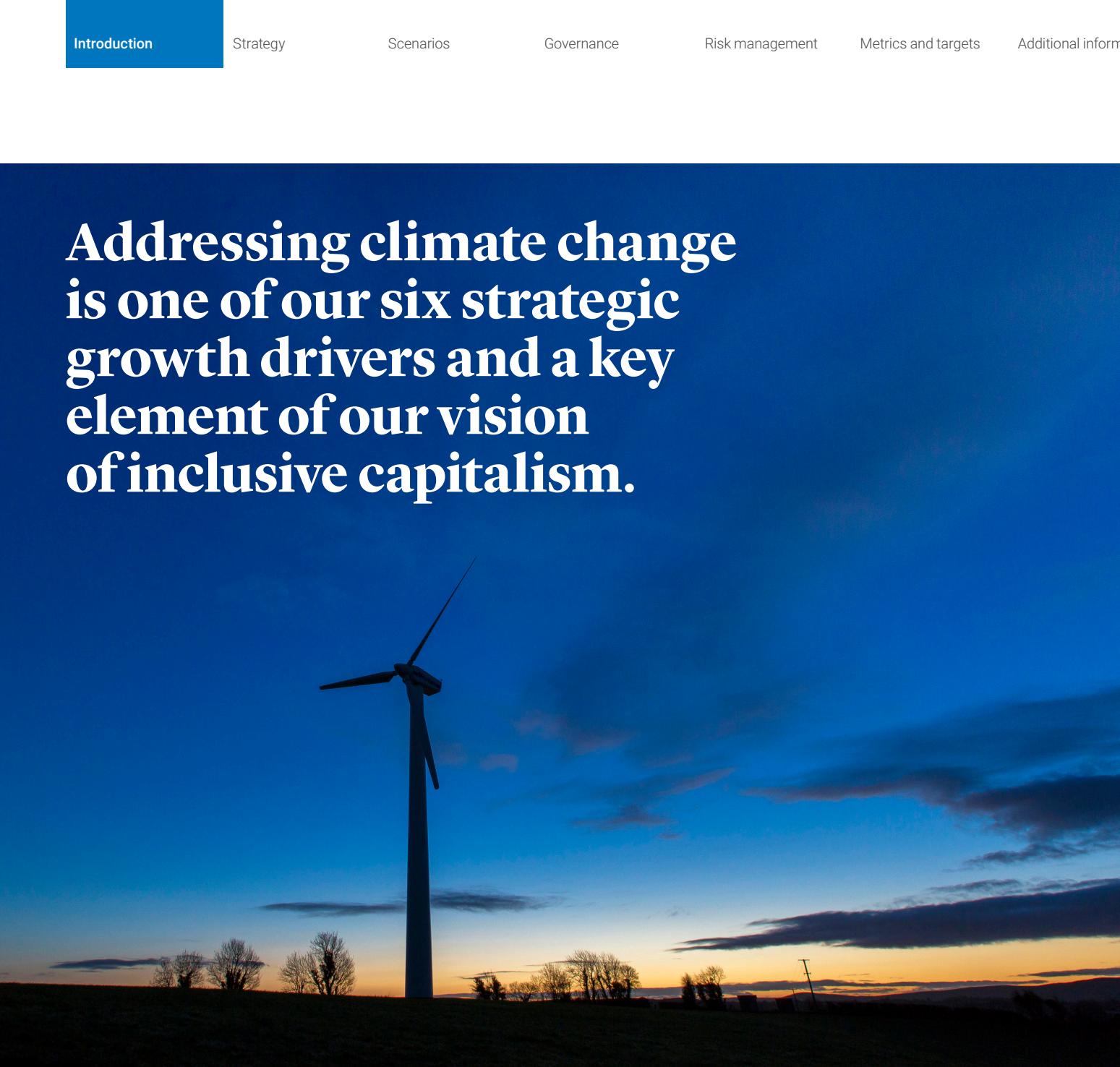
Legal & General Group Plc

Climate Report 2022

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

Climate in the spotlight



A photograph of a wind turbine standing tall in a field at sunset. The sky is a vibrant mix of orange, yellow, and blue, with scattered clouds. The horizon shows rolling hills and some bare trees. The wind turbine's blades are visible against the bright sky.

**Addressing climate change
is one of our six strategic
growth drivers and a key
element of our vision
of inclusive capitalism.**

The three pillars of our climate strategy

Invest

Through reducing the intensity
of our financed emissions

Through investing in the transition

Influence

Through the products
we offer our clients

Through our engagement
with the real economy

Operate

Through our operations

Through the businesses we control

At a glance

Invest

Investment portfolio economic carbon intensity

73 tCO₂e/£m
(2021: 76 tCO₂e/£m)²
5% reduction³

Implied temperature alignment

2.7°C
(2021: 2.7°C)

Influence

Companies rated by our Climate Impact Pledge⁴

5,000+
(2021: 1,000)

Number of climate-specific engagements

636
(2021: 246)

Operate

Operational footprint (scope 1 and 2 (location))

30,062 tCO₂e
(2021: 30,957 tCO₂e)⁵
3% reduction

Carbon Disclosure Project (CDP) score of A-

Expanded our clean energy portfolio

Member of United Nations Principles for Responsible Investment

Member of Glasgow Financial Alliance for Net Zero

Limited assurance over scope 1, 2 and certain scope 3 metrics⁶

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1. The equivalent warming impact of non-CO₂ greenhouse gas emissions are measured as tonnes of CO₂ equivalent (tCO₂e).
2. Metrics have been rebaselined through a combination of methodology and data source changes. Figures from the 2021 report, with an impact assessment, can be found on page 49.
3. Our reported emissions in 2021 were impacted by the pandemic and the resultant effects on corporate and economic activity. This year we have witnessed a partial reversal of this movement due to lags in reporting of the underlying emissions data, although this is offset by market movements, with further reversal expected in 2023. Further details are given in our metrics and targets chapter.
4. Figures are approximate.
5. Due to improvements in data collection and assessment methodology, the 2021 data for IVG and L&G Affordable Homes is being restated.
6. Deloitte have provided independent limited assurance in accordance with the International Standard for Assurance Engagements 3000 ('ISAE 3000') and Assurance Engagements on Greenhouse Gas Statements ('ISAE 3410') over selected metrics. Deloitte's full unqualified assurance opinion, which includes details of the selected metrics assured, can be found on pages 41-42.



Annual report:

group.legalandgeneral.com/AnnualReport2022

Chair's statement



A pathway to net zero.

World events in 2022 have served to reaffirm our approach to addressing climate change. It is a core element of our commitment to inclusive capitalism and a 'just transition'. During the year we have made progress on our pledges related to the environment.

The 1.5°C 'Paris' objective may still be viable, but there are fewer plausible routes to achieving it, and the window of opportunity is closing. A lot of work needs to be done quickly and at scale, and as a company we recognise our responsibility to play our part in the climate transition. This report sets out our climate strategy and commitments, along with their interim milestones. We also show the metrics which measure our progress against these, as we recognise the importance of transparency and accountability.

At Legal & General, we report on the carbon impact of our own operations, of the businesses we own, and of the emissions embedded in our investment portfolio. As economies around the world returned to pre-pandemic levels, global emissions rebounded, and this was partly reflected across our own carbon footprint. As global events such as the pandemic and the war in Ukraine unfold, we can expect further volatility in carbon emission metrics, but this should not distract us from long-term goals and how important it will be for us to continue to deliver on our commitments.

During the year, we set science-based targets (SBTs) and have since had them validated by the Science Based Targets initiative. These more granular targets help provide a clearly defined pathway for companies to reduce greenhouse gas (GHG) emissions and are based on what the latest science suggests is necessary to limit global warming to 1.5°C.

We have also expanded our focus to include nature and biodiversity, in particular the role this plays in tackling the climate crisis. We continue to develop our understanding of the role our company plays in this area, particularly on our own impacts and dependencies, both through the lens of being a large investor and across the range of our directly owned businesses.

We continue to engage with regulators and industry bodies, and we are active participants in the International Sustainability Standards Board (ISSB) consultation, which seeks to improve standards and global harmonisation of climate reporting and wider sustainability issues.

I am also pleased to report that we are developing a climate transition plan, showing not just what our commitments are, but how we plan to achieve them. We believe our shareholders should have a say on the plan for our transition to net zero, and the plan will be presented as an advisory vote at the 2023 AGM.

I am hopeful that you will find both documents helpful and would welcome your feedback.

Sir John Kingman
Chair

Chief Executive Officer's statement



Climate action in the spotlight.

Key updates

- Invested in Rovco and its sister company Vaarst, a technology-led subsea surveying business, focusing on servicing marine infrastructure.
- Invested in Brill Power, an Oxford University spin-out, developing innovative battery management systems.
- Led a funding round, raising \$60 million for electric vehicle subscription service, Onto.
- Invested a further £8 million in Kensa, supporting its scale up as a UK manufacturer of ground source heat pumps.
- Launched new investment products aligned with net zero, and additional products in our Future World fund range.
- Continued to engage with industry bodies and world leaders, including through involvement in events at COP 27 and COP 15.
- Prepared our climate transition plan for an advisory shareholder vote at the 2023 AGM.
- Underwent the SBTi's validation process.

The need to tackle climate change is becoming increasingly urgent. Our planet is already experiencing the impacts of warming and in 2022 we witnessed a series of extreme weather events and record-breaking temperatures around the world. The past nine consecutive years have collectively been the warmest since modern record-keeping began, and there is strong scientific consensus that this is due to human activity.

Addressing climate change is one of our strategic growth drivers, and we aim to deliver via our three-pillar strategy of Invest, Influence and Operate. I am pleased to say that during 2022 we have continued to make progress in all these areas, and this report expands on our goals and strategy. In conjunction with our climate transition plan, due to be published prior to our forthcoming AGM, it demonstrates our dedication to action, not just words.

Following the largely positive outcomes from COP 26, the reaction to COP 27 has been mixed. A definite success was the long-sought establishment of the 'Loss and Damage' fund, in which countries responsible for high carbon emissions will compensate vulnerable countries suffering from climate impacts. However, the conference did not deliver the urgency of purpose needed to meet the ambition of limiting global warming to the 1.5°C benchmark. It is widely recognised there are fewer plausible pathways for achieving this target. Addressing this requires meaningful, effective and urgent action from all. Climate change is a systemic issue, requiring societal change on an unprecedented scale over the next decade.

At Legal & General, our size and ambition mean that we have a duty to act. We will continue to focus on areas where we can have the greatest impact on climate, society and our business.

We are dependent on a global effort to transition, but we are very much committed to our own journey to net zero, targeting a 1.5°C 'Paris' outcome. To do this we are decarbonising our balance sheet, investing in clean energy start-ups, developing climate-friendly investment products, and focusing on our own operations. We also continue to use our influence as a large investor to promote the transition.

Climate action takes many forms, and this was brought to life when I was delighted to officially open the Kensa Group's new factory in Cornwall. This pioneering company manufactures ground source heat pumps, helping us deliver on our climate commitments, and will help fulfil the UK Government's ambition to have 600,000 heat pumps installed by 2028.

Addressing climate change is not only the right thing to do, it also represents the biggest investment opportunity of our lifetimes. Investing in businesses that support the clean energy transition alongside significant job creation is central to how we deliver inclusive capitalism. Managing risks is also part of what we do, and we see clearly both the opportunities and risks posed by climate change. We aim to be leaders in both aspects.

A handwritten signature in black ink, appearing to read "Nigel D Wilson".

Sir Nigel Wilson
Chief Executive Officer

The global context

During 2022, the planet witnessed more extreme weather events, from devastating flooding in Nigeria and Pakistan, to unprecedented summer temperatures and droughts across much of Europe, the US and Asia. It was a year of climate extremes which further underline the dangers from global warming.

The calls from scientists remain unmistakeable – we must collectively limit global temperature rises to 1.5°C to avoid the most catastrophic consequences of climate change. During 2022, we were encouraged by the world's largest emitters reaffirming their commitments to limit global warming to 1.5°C. However, we remain concerned by the UN's observations that the world is still moving in the wrong direction. The complexity of negotiations around climate change, and the number of interconnected issues involved, reminds us how difficult global collaboration can be, and that the world is not yet moving fast enough to keep us on a 1.5°C pathway.

Two major developments emerged during 2022: geopolitical instability and the related inflation and cost of living crises. The latter had begun to emerge in the wake of the pandemic and was exacerbated by the invasion of Ukraine. Our hope is that these issues, whilst creating unwelcome uncertainty in the short-term, have focused world leaders on the need to secure reliable and diverse sources of energy, without overdependence on a single source.

As a result of this focus, in the longer term, we are expecting to witness investments in renewable energy supplies speed up, as a more secure and cost-effective type of energy source for many countries.

We recognise that Legal & General has an important role to play in the global economy as a large financial services organisation. We are able to use our scale to contribute to the development of the economies where we operate but, like others, we are not immune to the effects of macroeconomic trends. Despite the backlash in certain markets against companies

focusing on 'ESG' more widely, we recognise that climate change is a systemic issue and therefore anticipate this area to continue to be a major theme for businesses to address. Addressing climate change is a cornerstone of our business strategy.

Collaboration both within and across different sectors of the economy will be key to success. This year, we have witnessed regulatory bodies from around the globe increase their focus on sustainability issues, especially climate and biodiversity. As a company we have supported the efforts for global harmonisation on sustainability standards, most prominently through engagement on consultations, including those of the ISSB and the UK's Transition Plan Taskforce (TPT), as well as being an active member of industry bodies, such as the Net Zero Asset Owner Alliance (NZAOA) and Net Zero Asset Managers initiative (NZAMI). The importance of stakeholders understanding the products they are using and the companies in which they invest has never been stronger. Transparency is a key part of a just transition.

Our business' response to the global context is driven by our strategic purpose of inclusive capitalism, which we explain in further detail on the following pages.

Decarbonising heating

We announced a further £8 million investment in the Kensa Group, the leading UK manufacturer and installer of ground source heat pumps, bringing our total investment to £15.7 million. This capital has helped enable Kensa to open one of the UK's largest production facilities dedicated to ground source heat pumps. The facility has the capacity to manufacture 30,000 heat pumps annually – the equivalent carbon saving of taking 60,000 cars off the road.

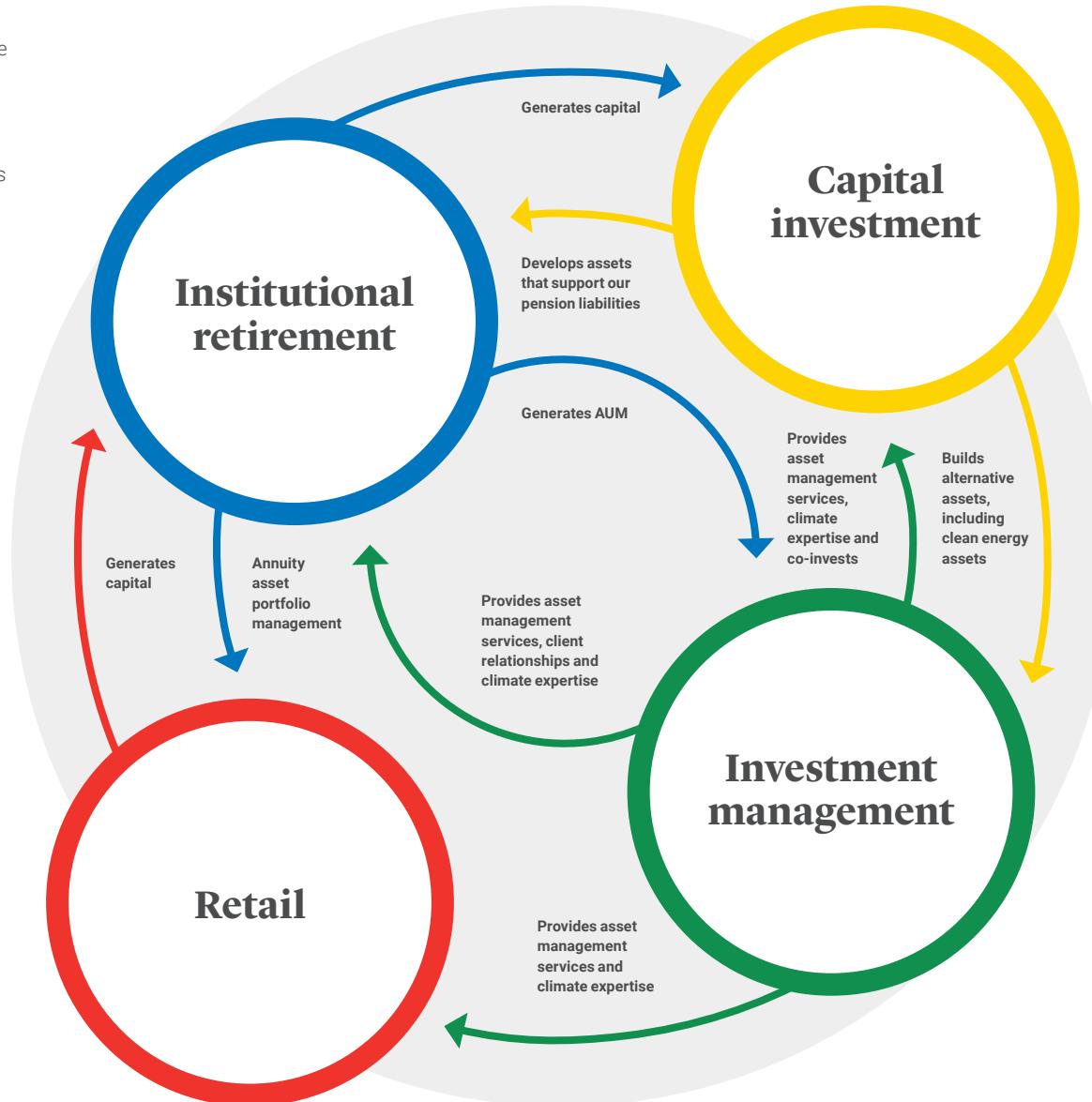
This technology is key in the UK's journey to net zero. Currently, 30,000 to 40,000 heat pumps are installed annually, with the government's ambition to increase this to 600,000 per year by 2028. Kensa's output is planned to increase by a further 50% to meet this incoming demand.

In the two years since our initial investment, Kensa has been through a period of accelerated growth with revenue, and the number of employees, more than doubling.



The business context

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



This page gives context to how our business model aligns with our climate strategy, demonstrating each division's strategic focus on climate change.

Business

Retirement Institutional (LGRI)

Provider of institutional pension risk transfers.

Divisional context

Our annuity assets are managed as a single portfolio, and are targeting a net zero asset portfolio by 2050.

Investment management (LGIM)

One of the world's largest asset managers and a major global investor.

LGIM has a market-leading investment stewardship team who use their influence to promote the transition to a low-carbon economy.

Capital investment (LGC)

A capital investor using the group's pension assets and shareholder capital.

LGC invests in clean energy and technology, and aims to deliver sustainable real estate.

Retail

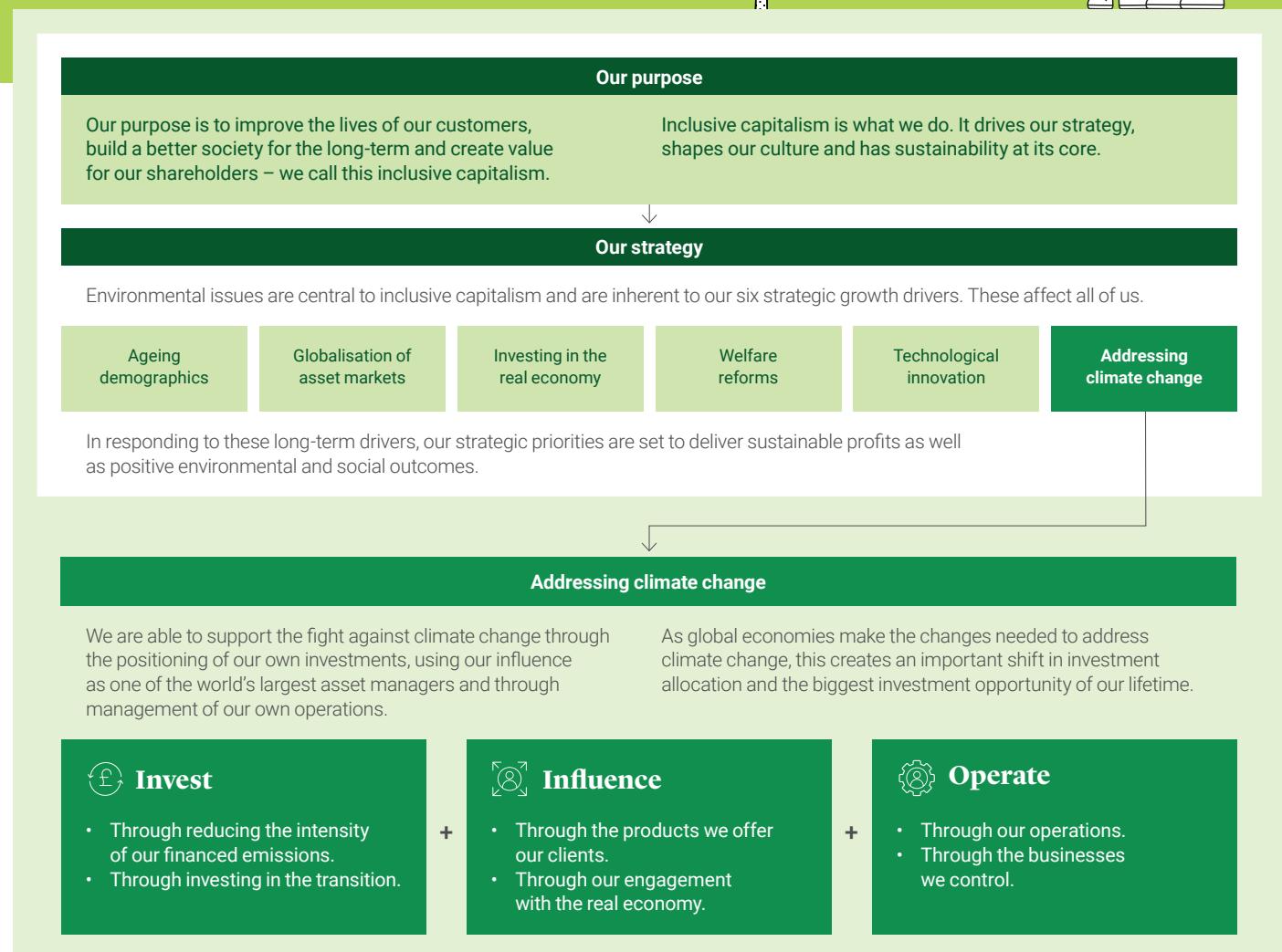
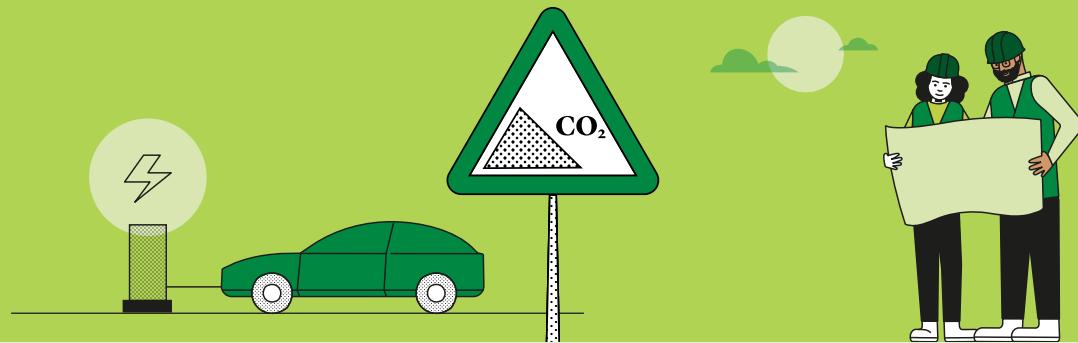
A leading provider of retirement and protection solutions.

Retail aims to decarbonise its annuity assets in conjunction with LGRI.

Strategy

Our purpose-driven approach

At Legal & General, our purpose of inclusive capitalism is at the centre of everything we do. It is our long-term vision, and despite the challenges the world has faced during 2022, we continue to believe it is the right one for our organisation, the economies we operate in and the communities we serve. Addressing climate change is a key part of our purpose and therefore our strategy, as is illustrated in this graphic.



Climate-related opportunities and risks

While there are manifestly risks from climate change, the transition to net zero also creates opportunities. This table highlights key examples of both the opportunities and risks that Legal & General has identified.

The impacts of climate change are different across our businesses, reflecting their different natures. This is explained in further detail throughout this chapter. They are also likely to shift over time and we have used a heat map approach to try to illustrate this. The impacts identified do not take account of potential mitigating actions we will take.



Short, medium and long-term

- Our **short-term** horizon looks at a three-year period.
- Our **medium-term** horizon looks forward up to 10 years.
- Our **long-term** horizon looks at the time horizon up to 2050. This strives to challenge and shape the very nature of our business as well as the overall strategy.



TCFD recommendation

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

Opportunities

Strategic pillar	Potential opportunities	Business area most impacted	Horizon term		
			Short	Med	Long
	Investing in the technology and infrastructure needed to transition away from carbon emissions, such as renewable energy sources, low-carbon properties, low-carbon heating, electrification of transport and nature-based solutions	LGRI, LGIM, LGC, Retail	●	●	●
	Attract and retain clients by supporting their needs to decarbonise their investment portfolios, for example through net zero-aligned investment products and funds, and provision of data and analytical tools	LGIM	●	●	●
	Manage funds that provide clients with access to financing opportunities in transition technologies and infrastructure		●	●	●
	Engage with companies and governments to encourage a fast and orderly 'just transition', which also enhances trust in our brand		●	●	●
	Enhance returns from investing in homes and commercial properties by enabling them to operate with net zero carbon emissions	LGRI, LGIM, LGC	●	●	●
	Increase our market differentiation through reduced embodied carbon in construction		●	●	●
	Protect our long-term returns by developing real assets with high levels of climate resilience		●	●	●

Risks

Strategic pillar	Potential risks	Business area most impacted	Horizon term		
			Short	Med	Long
	Investments in sectors or companies which are adversely exposed to a transitioning economy lose value or are downgraded	LGRI, LGIM, LGC, Retail	●	●	●
	Disruptive technology may affect the value of our investments	LGIM, LGC	●	●	●
	Increased frequency or severity of extreme weather events may impact on the value of physical assets or the value of companies with high exposures to these risks		●	●	●
	Loss of market share should investment solutions be perceived as not meeting rapidly evolving client needs		●	●	●
	A breach of evolving legislative or regulatory requirements may expose us to litigation or regulatory sanction and damage our brand	LGIM, LGC	●	●	●
	Reputational risk from not meeting our own commitments, or if activities across the group are not aligned		●	●	●
	High delivery costs of low-carbon solutions for residential and commercial properties may impact viability		●	●	●
	High delivery costs due to changing weather patterns disrupting our supply chain, leading to increased costs and material shortages	LGRI, LGIM, LGC, Retail	●	●	●
	Property values fall due to increased risk of extreme weather impacts, higher insurance costs or poor energy efficiency		●	●	●
	We are inherently exposed to the risk that key personnel may leave the group, with an adverse effect on performance		●	●	●

Key

● High impact ● Medium impact ● Low impact

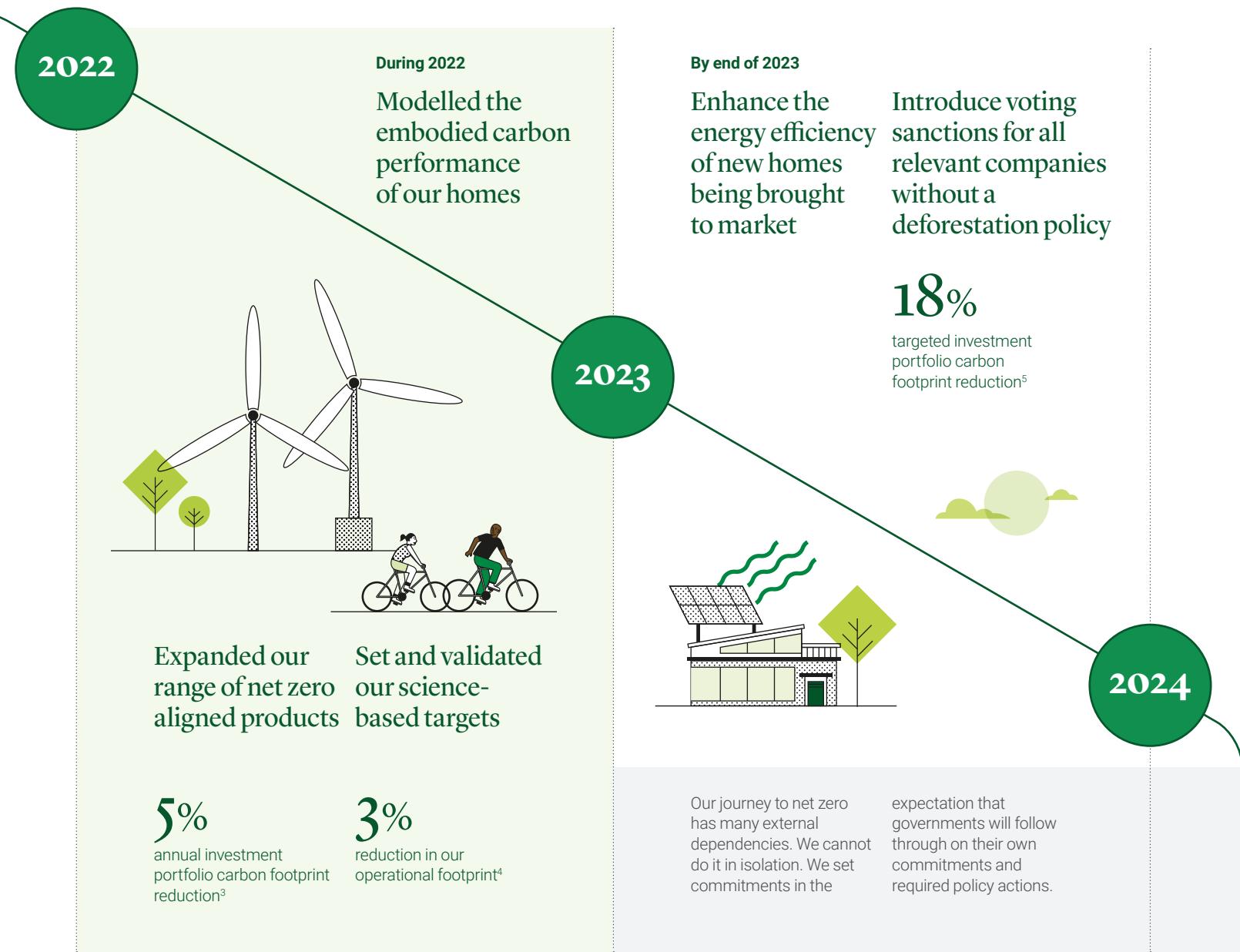
Our journey to net zero

This illustration demonstrates some of our key commitments, interim milestones, and actions we have taken over the past year on our journey to net zero¹.

We are currently focused on our delivery in the period up until 2030, with the outlook beyond that involving a larger degree of uncertainty. In April 2023 we will also publish our climate transition plan, which sets out not just what our climate commitments are, but how we will deliver against them. Shareholders will have the opportunity to have their say on an advisory basis on our climate transition plan at the 2023 AGM.

We are dependent on a global transition. Climate change is a systemic issue and as a large financial services organisation, our transition is symbiotic with the transition of the wider economy. We have used this illustration to demonstrate not only the steps we plan on taking, but also some of the dependencies we have on our external environment.

As part of setting our targets and plans, we have recently received independent validation from the Science Based Targets initiative (SBTi)². These are a set of granular targets for the period up to 2030. These are across our operations and investment portfolio emissions, and are aligned with 1.5°C 'Paris' pathways. For our investment portfolio, SBTi guidance requires targets to be set at asset class or sector level, which underpin our existing portfolio level targets described here. These detailed targets are on page 39 of this report.



Our journey to net zero continued

2025

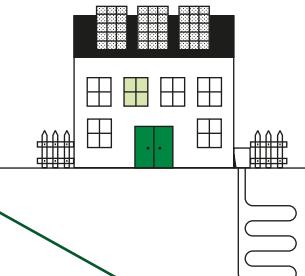


By 2025

18.5%

portfolio GHG emission intensity reduction¹

Report on milestones to reduce agricultural commodity-driven deforestation²

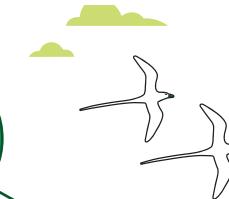


2030

By 2030

50%

portfolio GHG emission intensity reduction¹



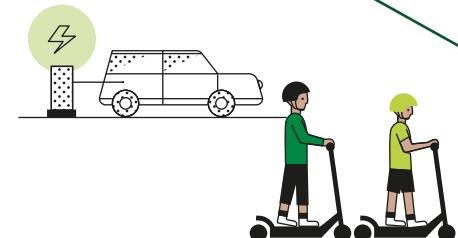
70%

of AUM to be managed in alignment with net zero⁴

42%

reduction in our scope 1 and 2 GHG emissions⁵

New homes capable of operating at net zero carbon



2050

By 2050

Net zero asset portfolio in line with a 1.5°C ‘Paris’ objective

Net zero operational carbon footprint



Net zero

- The UK government must deliver the Future Homes Standard to ensure higher energy performance and no use of gas boilers in new homes by 2025.

- While we are reducing our own energy demands, the decarbonisation of the grid is key to our net zero commitments.

- Alongside the UK government, we recognise the significant skills gap in the UK’s workforce to deliver net zero. We must witness

a mobilisation of the supply chain, to have the skills and capacity to deliver low-carbon technologies, such as heat pumps, at scale.

- From a 2019 base year.
- Focusing on palm oil, soy, beef, pulp and paper.
- RIBA 2030 target: <625kgCO₂e/m² embodied carbon A1-5, B1-5, C1-4, incl. sequestration.
- Excludes sovereign and derivative securities until such time as agreed methodologies exist.
- To account for the impact of the pandemic, our 2021 base year includes estimated emissions data from our managed Real Assets portfolio based on 2019 data, all other base year emissions are from 2021.

Our strategy

Invest

We consider our main exposure to climate change risks and opportunities to be through our £81.6 billion of proprietary assets¹. We are committed to a net zero asset portfolio by 2050, in line with a 1.5°C 'Paris' objective.

We define this commitment as net zero carbon emissions by 2050, alongside rapid, deep and sustained reductions in other GHG emissions and see this as a key component of our overarching organisational net zero commitment.

This commitment drives our ambition to promote the benefits of a net zero world, mitigating our risk exposure to both the physical risks of climate change and the transitional risks of the global transition to a low-carbon economy. We also see a sizeable investment opportunity within that transition.

Our investment strategy is constructed to manage our short and long-term responsibilities to both our policyholders and our shareholders, in line with applicable regulations. As a long-dated investor, particularly in bond investments, our decarbonisation approach requires a transitional shift to lower-carbon investments through our new business flows, while also managing the phase-out of higher-carbon investments within our legacy holdings. Maintaining a well-diversified portfolio across all sectors is also key to our investment strategy.

It is important to note that in the short to medium-term, we will focus our efforts on credible reductions to our carbon footprint and encouraging others to do the same. However, in the long-term we expect negative emissions to play a critical role in balancing out residual emissions in achieving net zero portfolios.

We measure the contribution of our investments to global carbon dioxide equivalent (CO₂e) emissions and have set reduction targets to align with the 1.5°C 'Paris' objective. We calculate both portfolio carbon emission intensities and implied portfolio temperature alignment metrics across our portfolios. Building

on our 2050 net zero target, we have also committed to interim targets on our group balance sheet portfolio's GHG emissions intensity, from a base year of end of 2019, as explained further in the metrics and targets chapter. We have also set a series of more granular portfolio metrics and targets, as approved by both the SBTi and NZAOA, against which we report progress within the additional information chapter.

Our proprietary assets are held across different divisions and asset classes, as described below and set out in Table 1.

Annuity investments (LGRI and Retail)

- Our annuity investments are held across our LGRI and Retail divisions. They support our short- and long-term payments to retirement customers (both institutional and retail) and are predominantly managed through LGIM.
- Annuity investments cover c.90% of the group's proprietary investment portfolio, the vast majority of which (£66.8 billion) relates to listed bonds and unlisted direct 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 lifetime mortgages.
- Property assets in this business (£5 billion) are mostly commercial properties.

Legal & General Capital (LGC)

- LGC's assets generally cover our group's regulatory capital and associated balance sheet surplus.
- LGC holds a clean energy portfolio, covering both growth equity and infrastructure.
- LGC also invests in urban regeneration and digital infrastructure; general partner investing and venture capital; and a traded portfolio of listed investments.
- Housing businesses are reflected in the 'Other assets' line.

Table 1. Total group investments

Group assets (December 2022) analysed by investment class

	Annuity ² investments 2022 £m	LGC ³ investments 2022 £m	Other shareholder investments 2022 £m	Total 2022 £m	Total 2021 £m
Equities	95	2,576	400	3,071	3,185
Bonds	66,825	1,249	2,589	70,663	86,803
Derivative assets ⁴	41,641	337	–	41,978	13,203
Property	5,037	607	–	5,644	5,710
Loans ⁵	785	238	77	1,100	2,332
Financial investments	114,383	5,007	3,066	122,456	111,233
Cash and cash equivalents	2,631	1,418	785	4,834	3,596
Other assets ⁶	110	2,133	17	2,260	1,861
Total investments	117,124	8,558	3,868	129,550	116,690
Proprietary assets¹	72,067	6,565	3,006	81,638	97,559

1. We define proprietary assets as total investments to which shareholders are directly exposed, minus derivative assets, loans, and cash and cash equivalents.
2. Annuity investments includes products held within the LGRI and Retail Retirement portfolio including lifetime mortgage loans and retirement interest-only mortgages.
3. LGC investments includes £95 million (2021: £nil) of Legal & General Reinsurance Company limited assets managed by LGC, along with £122 million (2021: £54 million) of bonds and equities that belong to other shareholder funds.
4. Derivative assets are shown gross of derivative liabilities of £46.1 billion (2021: £14.1 billion). Exposures arise from use of derivatives for efficient portfolio management, especially the use of interest rate swaps, inflation swaps, currency swaps and foreign exchange forward contracts for assets and liability management.
5. Loans include reverse repurchase agreements of £1,072 million (2021: £2,240 million).
6. Other assets include finance leases of £110 million (2021: £86 million), associates and joint ventures of £554 million (2021: £375 million) and the consolidated net asset value of the group's investments in CALA Homes and other housing businesses.



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 CO₂e, covering both CO₂ and a converted score for all other GHGs. Interim targets are set to reflect these measurements.



Focus on proprietary assets

We set the investment strategy of our proprietary assets to reduce risks to our balance sheet and the emissions they fund.

Our strategy

£ Invest continued

Other shareholder investments

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

Each asset class in our proprietary assets has unique qualities that drive our strategic response in our target of meeting the 1.5°C 'Paris' objective.

Listed bonds and equities

Our largest individual asset class is our listed bond portfolio, primarily managed within our annuity investment portfolio. To transition this portfolio over time to align with a low-carbon world, we have constructed a set of policies guiding the discretionary portfolios controlled by asset managers. We evolve our investment appetites and company exclusions over time.

We continue to enhance the tools and metrics, such as company and portfolio transition-related financial risk forecasting and implied portfolio temperature alignment metrics (explained further in the metrics and targets chapter) to understand our carbon trajectory alignment based on our asset allocation strategy and a range of climate scenarios. Sovereign holdings are also scored by LGIM's implied portfolio temperature alignment metric, although our proprietary sovereign holdings are primarily driven by our portfolio regulatory and liquidity needs.

The implied portfolio temperature alignment metric is also used in LGC's £1.4 billion listed equity and multi asset fund portfolio. Approximately £230 million is invested through our Climate Impact portfolio, consisting of listed clean energy stocks and other companies in the renewables space. A further £720 million is invested in climate and ESG-aware funds, predominantly through LGIM's Future World product range.

Private credit

LGIM actively manages c.£14 billion of private credit investments on behalf of the group across corporate, infrastructure, alternative and real estate debt. This portfolio 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, including solar and wind farms, geothermal plants, smart networks and energy storage assets.

We integrate our commitment to support a low-carbon economy and society into our investment decision-making processes. The alignment of proposed investments with our climate change objectives is assessed during pre-investment due diligence and further scrutinised during the investment approval process. This includes negative screening criteria, enhanced due diligence for carbon intensive investments, and ESG assessment checklists. Due to the nature and size of the portfolio, we have some exposure to fossil fuel-related assets. These exposures are regularly monitored and are constrained by carbon budgeting, our SBTs and wider corporate commitments.

In addition to the assets managed via LGIM, LGC has a 40% equity stake in Pemberton, a €16.5 billion European alternative credit manager which, like LGIM, is a member of the NZAMi. LGC also has growth capital invested into five Pemberton-managed funds as seed capital. Of c.€17.4 billion deployed assets under management, over €6.1 billion is ESG-linked lending (as of 31 December 2022), with 41 investments in 2022 that incorporated financial incentives for borrowers to meet carbon-reduction targets.

Private equity: clean energy and venture capital

We invest in clean energy through LGC, supporting the transition 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, covering early stage, growth equity start-up investment and delivery of mature, proven low-carbon assets and infrastructure at scale.

In 2022, LGC co-led the Series B raise into affiliated, innovative blue technology and renewables businesses, Rovco and its sister company, Vaarst. Vaarst is a leading provider of subsea 3D computer vision technologies with ground-breaking AI-based technology. Rovco delivers this technology mainly focused on its use for subsea surveys in offshore wind and oil field decommissioning. LGC also led the \$10.5m Series A funding round for Brill Power, which is an Oxford University spin-out company with a mission to make batteries smarter, cleaner, safer and longer lasting.

LGC made a further £8 million investment in the Kensa Group, a UK manufacturer and installer of ground source heat pumps, bringing LGC's total investment in Kensa to £15.7 million over two years. The capital will support the Kensa Group as it continues to scale up to meet accelerating demand for ground source heat pump technology and networks.

LGC's venture capital programmes are supporting business leaders and companies striving to advance technological solutions that may help to solve both environmental and socio-economic challenges. LGC has backed a wide range of innovations including Onto, an electric car subscription service, playing a vital role in accelerating the transition to electric vehicles.

Property/real estate

Annuity property and lifetime mortgage assets

As Table 1 shows, we have significant investments in property, managed through our LGIM Real Assets business. Our strategic approach to this asset class is covered in the Operate pillar of our climate strategy.

In addition, we have c.£4.8 billion of lifetime mortgage loans (LTMs) held within our annuity portfolio. Here, we continue to explore product innovation to improve the energy efficiency of residential properties and support our collective journey to net zero emissions. LTMs have the potential to support homeowners in funding energy efficient improvements alongside government and regulatory initiatives.

Urban regeneration

LGC's level of influence over assets varies across this real estate 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 with Bruntwood SciTech and Oxford University, with whom we are collaborating to deliver high quality, sustainable places to live and work.

Digital infrastructure

Society is reliant on digital infrastructure to support the economy and enable socially beneficial activities, including medical research. Our investments in assets such as data centres are helping to drive more energy efficient, low-carbon solutions in a traditionally energy-intensive sector.



TCFD recommendation

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

Our strategy



Influence

As one of the UK's largest investors, we are committed to using our scale and influence to raise standards on climate change across the markets in which both ourselves and our clients are invested. Across both public and private assets, our investment management division (LGIM) has, on behalf of the group, established a fully integrated framework for responsible investing. This is based on engagement with consequences, and collaborative active research across asset classes. Together, these activities enable LGIM to conduct investment stewardship that drives positive change and to deliver climate-integrated solutions to clients.

Through the products we offer our clients

We integrate climate change across asset classes and management styles (active, index and real assets) and we aim to benefit the widest set of stakeholders through an end-to-end integrated ESG process and an independent investment stewardship function.

LGIM's commitment to reaching net zero

In line with our commitment to the NZAMi, we have set an interim 2030 target of 70% of eligible AUM¹ to be managed in alignment with net zero. We review our target every two years, taking into account developments across our client base and the markets in which we operate.

There are some key challenges to consider when aligning investment funds to net zero. Only a minority of companies today are on track for net zero – meaning that for most diversified investors, we believe the most significant question is not whether a portfolio is net zero today, but how to devise strategies that affect long-term change in the market.

We have set out our requirements for a fund or portfolio to be labelled net zero; our criteria² incorporates recommendations and commonalities from the Paris-Aligned Investment Initiative's (PAII's) Net Zero Investment Framework, the NZAOA, and the SBTi's guidance. Our net zero alignment definition is

being integrated into LGIM's product pipeline across a number of fund launches as well as specific existing strategies. Across all types of strategy, net zero considerations can also be incorporated alongside other responsible investing methodologies that have broader considerations, such as LGIM's ESG score, UN SDG alignment methodology, and the LGIM Climate Impact Pledge (CIP).

Engagement is an important component of our framework: for a fund to meet our net zero standards, we require engagement with issuers on net zero such that 50% or more of portfolio emissions have an SBT or have been engaged with in relation to climate change. During 2022, we engaged with 636 companies about climate change. LGIM reports portfolio-level climate metrics on a quarterly basis which are publicly accessible on the LGIM website. This reporting includes climate-related data and is subject to meaningful portfolio coverage and outcomes. For example, the reports include information on implied portfolio temperature alignment, weighted average carbon intensity (WACI), and green revenues.

We partner with clients to develop bespoke net zero index strategies that incorporate our net zero framework and that can also be constructed to meet additional requirements such as the EU Technical Expert Group definitions of 'Paris-aligned' or 'Climate Transition' benchmarks.

We are committed to helping our clients understand the climate exposure of their investments and we have increased the number of funds for which we produce ESG reports to 504 (2021: 238)³. We also provide additional information on LGIM's actions on climate and thought leadership through events like LGIM's Sustainability summit and publications such as the annual Active Ownership and Climate Impact Pledge reports as well as topical blogs.

Workplace Savings

Our Workplace and Personal Investing businesses are captured by new FCA rules and guidance on TCFD reporting.

Our Workplace business uses LGIM as its primary asset manager, making day-to-day investment decisions in relation to funds. Workplace shares LGIM's core investment beliefs relating to climate change, including where LGIM applies a consistent approach to voting and engagement, pursuing innovation in tackling climate change, modelling energy transition, and targeted engagements. Our Workplace business supports LGIM's short and long-term targets, and both LGIM and Workplace have published net zero targets for 2050, for the key standard default investment options. Both businesses work together, to utilise relevant expertise and ensure their investment principles remain aligned. When setting commitments, Workplace uses time horizons as defined by LGIM and Legal & General group climate risk structures.

Scenario analysis is conducted at an asset class level for internal LGIM funds, by LGIM as the primary asset manager. With the TCFD requirements being introduced this year at an entity and product level, we envisage that the Workplace and Personal Investing approach to measuring and assessing climate risk will continue to evolve. The Workplace business publishes a Statement of Investment Principles for its products, the Group Stakeholder and WorkSave Pension Plan, and will continue to add climate considerations as appropriate.



It is crucial to continue our work addressing climate change, and offering climate solutions, not despite other challenges the world is facing, but because of them.”

Michelle Scrimgeour
Chief Executive Officer, LGIM



LGIM Active Ownership report
See LGIM's Active Ownership report:
bit.ly/LGIMActiveOwnershipreport

1. Excludes sovereigns and derivative securities until such time as agreed methodologies exist.
2. Link: www.lgim.com/uk/en/insights/esg-and-long-term-themes/reaching-net-zero-lgims-approach/
3. 2022 figure produced for end Q3 reporting. Q4 reporting cycle currently underway.

Our strategy

Influence continued

Through our engagement with companies, governments and policymakers

We believe that real change is achieved by being an engaged and active asset owner and manager, and our Investment Stewardship team follows a structured 'engagement with consequences' approach, enabling us to escalate engagements appropriately and effectively use voting sanctions; direct and collaborative engagements; the filing of shareholder resolutions; policy and regulatory engagements; public pressure; and, where permitted by portfolio mandates, capital allocation decisions.

Net zero engagement: LGIM's Climate Impact Pledge (CIP)

The CIP assesses companies across 20 climate-critical sectors on their approach to climate change; given the interdependency between climate and nature, it also incorporates expectations around biodiversity and, for relevant sectors, deforestation.

The CIP assessment is structured around the four pillars of the TCFD. We conduct a data-driven assessment of c.5,000 companies, as well as qualitative in-depth assessments on a subset of these companies, with whom we also engage directly. The CIP rating and methodology are published on the LGIM website, alongside an annual CIP report, providing further information on the progress and results of our assessments and engagements. Companies failing to meet our expectations may be subject to voting sanctions and/or divestment from relevant strategies.

Biodiversity and deforestation

We understand the critical importance that sustainable forestry has in both combating climate change and preserving biodiversity, two systemic risks with significant implications for our clients' assets if left unaddressed. LGIM's deforestation policy outlines our approach to assessing and integrating deforestation considerations into investment, expanding our stewardship activities and reporting to clients.

It is vital that companies analyse, assess and address deforestation risks within their operations and supply chains. Policymakers and regulators must provide an appropriate enabling backdrop; collaborations such as the Investors Policy Dialogue on Deforestation, where LGIM co-chairs a working group on the deforestation-free commodity regulations being debated and implemented in the UK, Europe, the US and China, are crucial.

Policymaker engagements and collaborations

Our engagement and dialogue with policymakers internationally is vital to our stewardship approach. Governments cannot be expected to achieve progress on tackling systemic ESG issues in isolation; policy dialogue with a broad range of stakeholders, including industry experts and experienced market participants is essential in designing, implementing, and monitoring effective and coherent policy, including a regulatory and legislative framework that governs the economy and the environment.

As a long-term investor with global coverage, we are well positioned to engage constructively with policymakers at an early stage to help them identify emerging risks and opportunities; address systemic market failures and the underlying causes; test ideas; and identify unintended consequences. For many years, our investment management division has been proactively engaging with policymakers, advocating for an ambitious, effective and robust global regulatory and legislative environment that will help accelerate progress against complex sustainability commitments and challenges that the world faces.

Collaborating with like-minded investors and stakeholders allows us to raise and share concerns about specific responsible investment topics, approaches and companies, with other investors. These forums allow us to share resources and enable us to monitor and influence a broad range of global systemic ESG risks and opportunities. They help us strengthen our voice on important topics around the world, and to broaden our global reach. By being part of supportive networks, we hope to encourage greater investor involvement in ESG-related initiatives.

Our climate collaborations include:

- Aldersgate Group.
- Bank of England Climate Risk forum.
- Better Building Partnership.
- Climate Action 100+.
- Energy Transitions Commission.
- FAIRR.
- Get Nature Positive.
- Glasgow Financial Alliance for Net Zero (GFANZ).
- Institutional Investors Group on Climate Change.
- NZAMI.
- NZAOA.
- One Planet Asset Managers.
- Powering Past Coal Alliance.
- Principles for Responsible Investment.
- Science Based Targets initiative.
- Sustainable Markets Initiative.
- Transition Plan Taskforce.
- UK Green Building Council.

Our strategy

Operate

How we operate our business and the businesses we control is critical to the success of our climate strategy. From the office spaces our people utilise and the way they choose to travel, to the assets we manage and the homes we build, all these activities build and shape our carbon footprint and each presents both challenges and opportunities on our journey to net zero.

We have set out below our strategic commitments for the three principal contributors to our operational footprint.

Through our operations

The impact of our office space is an important factor in the delivery of our climate commitments and is also an important feature of how we engage with our people and how they interact with our climate strategy. The key commitment for our operations is that from 2030, our core occupied offices and business travel will be operationally net zero¹.

This means running our offices efficiently and adapting to post-pandemic working patterns. Like many organisations, our working behaviours and patterns have evolved since the pandemic, and we are now operating a hybrid working model with most employees splitting their time between the office and home.

As we adapt our locations to accommodate these new working patterns, we have defined core environmental requirements for our refurbishment projects to ensure we deliver energy efficiencies in line with our target. We are also assessing how we manage our offices and, during 2022, we appointed a new facilities management company to further support the delivery of our target. Our net zero commitments were a key component of the selection and onboarding process, including near-term targets to help reduce our energy consumption in line with our 2030 commitment.

Our most significant strategic decisions in the delivery of our 2030 target lie in the development of our location strategy. This strategy focuses on designing and creating flexible workspaces which meet our net zero ambition, but also meet business and individual employee needs. This is an evolving strategy which has net zero at its centre, and will build on the steps we have already taken – such as the removal of gas and the inclusion of self generation of electricity in our new Cardiff office.

Our business travel increased during 2022, but is still lower than pre-pandemic levels. Our aim is for our business travel to be as close to net zero as possible, recognising that we are likely to require an element of offsetting to achieve our target. We have taken several initial steps on this journey, for example in 2022 we restructured our company car scheme to help our colleagues driving the most business miles to have electric vehicles.

Through the businesses we control

Our housing businesses

We recognise that there are long-term impacts from the homes we deliver. Therefore, we are committed to ensuring that all new homes we deliver, from 2030, will be enabled to operate at net zero carbon emissions. We are also committed to reducing the embodied carbon of our homes. We took some key steps in 2022 to support our progress against these commitments.

BuroHappold helped us define our approach to estimating operational carbon emissions from the homes we deliver, as well as energy use intensity (EUI). In our first year piloting the methodology, we were delighted to see our L&G Modular Homes business achieve 22 – 26kWh/m²/year for two of its standard house types, an exceptional level of performance that is below the 2030 industry best practice benchmark². Inspired Villages Group (IVG) estimated performance was also an encouraging 42 – 48 kWh/m²/year. Our other housing businesses have further to go, but our largest house builder, CALA,

modelled EUI in a range of its typical house types at between 59 – 86kWh/m²/year. This is currently above the 2025 industry target³ but not significantly.

We also defined our methodology for embodied carbon measurement, through the widely-used industry tool ‘One Click’. Again, this first year represents something of a trial, but we were encouraged by CALA’s modelling, showing a representative sample of its Scottish house types scoring 376 – 461kgCO₂e/m², well below the 2030 industry best practice target⁴, demonstrating the carbon benefits in CALA’s use of (sustainably sourced) timber frame construction in Scotland. However, there is more to be done across all of our housing businesses, where the modelling shows some house types scoring nearer to 900kgCO₂e/m² – slightly above the 2025 industry best practice target⁵, and giving a clear sense of direction for the coming years.

For both operational and embodied carbon, there are elements that we can control – such as the design of the home, including choice of technologies and materials. There are also elements outside of our direct control, such as carbon content of the grid and, in particular, the embodied carbon of individual construction products.

The technical solutions largely exist for delivering net zero homes in operation. The challenge is largely one of upfront cost, which is one reason we strongly support the raising of standards via national regulation and local planning requirements.

This topic remains a complex one. We welcome the cross-industry task force developing a Net Zero Carbon Buildings Standard and we are actively contributing towards several of the working groups. It is important to recognise that Legal & General cannot achieve these ambitions in isolation, and that the whole of the construction and real estate sector needs to engage with this transition.

All our housing businesses have set key milestones en route to the 2030 commitment:

- IVG has committed that all new schemes are built to net zero regulated carbon (i.e. carbon covered by Building Regulations), using enhanced building fabric, heat pumps and solar panels. IVG is targeting net zero in operation on new builds by 2025
- All homes produced in our **Modular Homes** factory are now gas-free, with an energy efficient design, all with a heat pump, and using solar panels where possible
- CALA is targeting gas-free designs on all new schemes starting on-site after 1 January 2024. This is ahead of regulatory change in both Scotland and England
- **L&G Affordable Homes** is committed to delivering enhanced energy efficiency and gas-free designs in schemes it delivers itself that go through planning from 2023 onwards, and engaging developer partners to encourage a raising of standards as quickly as possible in homes it acquires (e.g. through Section 106 planning obligations)
- Our **Suburban Build to Rent** business is targeting gas-free designs in at least 50% of homes in new investments from 2023 onwards, moving to 100% by 2024, and all homes built to high standards of energy efficiency, with solar panels where possible.

1. Applies to occupied offices where we actively control the management of utilities.
2. RIBA's Climate Challenge proposes a 2030 standard of 35 kWh/m²/year.
3. RIBA's Climate Challenge proposes a 2025 standard of 60 kWh/m²/year.
4. RIBA 2030 target: <625kgCO₂e/m² embodied carbon A1-5, B1-5, C1-4, incl sequestration.
5. RIBA 2025 target: <800 kgCO₂e/m² embodied carbon A1-5, B1-5, C1-4, incl sequestration.

Our strategy

Operate continued

Our Real Assets business

Our LGIM Real Assets business holds an extensive real estate portfolio and is the largest contributor (16,447 tCO₂e) to our operational footprint. It is committed to achieving net zero carbon across the real estate equity platform by 2050 (or sooner). As a long-term investor, we have a responsibility to protect our clients' capital by mitigating the risk of stranded assets and increasing the long-term value of our real estate portfolios. Achieving our commitment and interim milestones aims to future-proof our portfolios by creating better quality, better performing assets.

The definition of net zero buildings is still an emerging topic and in our Real Assets business we apply the current definition as set out by the UK Green Building Council (UKGBC)¹. This requires measuring and reducing embodied carbon, using the energy hierarchy

Chart 1.

Operational footprint breakdown (%)



- LGIM Real Assets
- LGC
- Group operations

to reduce operational energy demand to 'Paris-proof' energy intensity levels, increasing renewable energy supply and only considering verified offsetting as a final option.

The real estate net zero roadmap sets out how we will achieve our commitment². During 2022, we continued to implement the plan, conducting net zero audits on new acquisitions and targeted existing assets to identify the measures required to achieve net zero, alongside feasibility, costs and timelines. We have also enhanced our data collection approach, working with new data partners, Deepki, to use new sources of electronic automatic data to provide faster, more accurate reporting. This is being supported by the rollout of automated meter readers to both landlord and occupier-controlled spaces. Recognising the impact that our occupiers can have, we have continued to use Vizta, our digital occupier engagement platform, to further support ESG collaboration, education and data reporting for occupiers.

Our group-wide science-based targets

Sitting across our operations are our group-wide SBTs, which require an absolute reduction in our operational footprint of 42% by 2030³. This is a critical milestone in the transition to net zero for our operational businesses. This is particularly challenging for some of our fledgling businesses, as they are in a period of sustained growth. We are therefore expecting our operational footprint to increase before we see a deep and sustained reduction to enable us to align with our 2030 target.



Biodiversity and nature are the next critical challenges for real estate."

John Alker

Head of Sustainability,
Legal & General Capital

Nature and biodiversity

Like many organisations, we recognise that the natural world holds many opportunities for enhancing the journey to net zero, alongside risks should we not sufficiently protect nature. We are currently building our understanding of our impacts, and dependencies, on the natural world and the opportunities and risks that this brings.

At Legal & General, our interaction with nature has both tangible and intangible elements. For example, the biodiversity impact of where we build new homes and commercial properties, and the provision of natural space, is now measurable with widely accepted methodologies. This offers opportunities for localised and regional enhancements. It can be more challenging when trying to consider the impacts on nature and biodiversity of the companies we invest in.

Whilst we have not yet assessed all our impacts and opportunities within the natural world, we continue to measure and manage our direct impacts on nature and natural resources. Please refer to pages 37-38 which outline our environmental metrics and targets.

1. Link: bit.ly/UKGBCNetZeroCarbonBuildingsFramework

2. Link: group.legalandgeneral.com/NetZero

3. To account for the impact of the pandemic, our 2021 base year includes estimated emissions data from our managed Real Assets portfolio based on 2019 data, all other baseline emissions are from 2021.



Scenarios

Our modelling framework

Scenario analysis helps us to understand the strategic implications of possible climate pathways, including the key features of transition to a net zero economy. We use scenarios to explore the role our organisation can play, alongside policy and corporate action, in mitigating climate risk and supporting opportunity.

We develop our own bottom-up scenarios of how the energy and land systems may evolve to 2050. The Paris Agreement sets out its goal as limiting global warming by 2100 to well-below 2°C, ideally 1.5°C above pre-industrial temperatures. In trying to model plausible pathways to these outcomes, we must try to capture change across the energy and land systems and make difficult trade-offs between minimising short-term policy impact and limiting the long-term physical risks from climate change.

Inaction

Approximate global warming by 2100
3 – 4°C

Global failure to act on climate change means emissions continue to grow at historical rates.

Below 2°C

Approximate global warming by 2100
<2°C

Immediate, ambitious policy and investment action to address climate change limits global warming to below 2°C, but warming most likely exceeds 1.5°C.

Net Zero 1.5°C

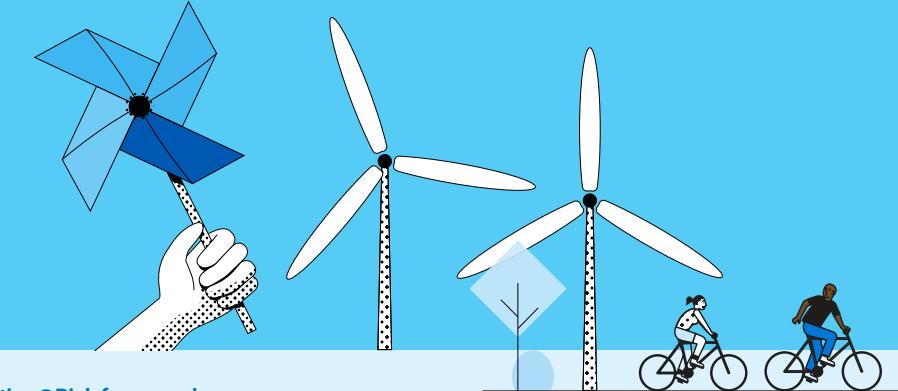
Approximate global warming by 2100
1.5°C

Immediate, highly ambitious action to address climate change leads to a reduction in CO₂ emissions to net zero around 2050.

Delayed Below 2°C

Approximate global warming by 2100
<2°C

Policy and investment action to limit warming to well below 2°C is delayed to 2030, resulting in much more disruptive change. Warming will most likely exceed 1.5°C.



LGIM Destination@Risk framework

Risk type	Transition	Physical
Objective is to understand:	How might energy and land systems transition to achieve global climate targets?	How would physical climate change affect macroeconomic output?
To do this we assess:	The least-cost solution to limiting future emissions to the levels required to limit global warming to below 2°C, preferably 1.5°C.	The impact of temperature on labour productivity.
Based on:	<p>Our bespoke energy system model, relying on:</p> <ul style="list-style-type: none"> >100 unique public and proprietary data sources >2 million variables and assumptions including detailed energy technology costs. <p>An open-source land use model.</p>	Academic studies on the impact of climate change on labour productivity and economic output.
This produces outputs including:	<ul style="list-style-type: none"> carbon prices GHG emissions afforestation sector-level decarbonisation requirements energy prices bioenergy and food prices change in GDP. 	<ul style="list-style-type: none"> change in GDP.
We first translate these to:	Country and sector-level impacts, which we can translate into changes in listed companies': <ul style="list-style-type: none"> net income balance sheet 	<ul style="list-style-type: none"> cash flow temperature alignment.
Finally we are able to evaluate:	Financial impacts on the value of individual: <ul style="list-style-type: none"> sovereign bonds corporate bonds listed equities. <p>We are also able to evaluate at the whole portfolio level.</p>	

Climate pathways

We model four climate pathways

When engaging with our scenario outputs, it is important to remember that these are scenarios, not projections of the future. There is a large degree of uncertainty associated with the energy transition and the associated global temperature increase.

This year we have refreshed our scenarios using the most recent carbon budgets from the IPCC's Sixth Assessment Report (AR6) and incorporated latest data on technology costs. For the first time, we now also examine the implications of our scenarios for the land use system and associated GHG emissions. We have not considered the implications of the recent energy crisis in our scenario modelling.

Below, we briefly outline the differences between our pathways on core dimensions

As shown in Chart 2, **global GHG emissions** in the Inaction scenario continue to grow, ending around 10% higher than 2020 by 2050, but must gradually fall to around 19Gt and 6Gt in the Below 2°C and Net Zero 1.5°C scenarios, respectively. As decarbonisation in the Delayed Below 2°C scenario only begins in 2030, it must decarbonise faster and further than the Below 2°C scenario, to around 10Gt CO₂e by 2050.

To achieve these emissions reductions, global carbon prices (per tCO₂e, see Table 2) in the Below 2°C and Net Zero 1.5°C scenarios would need to reach around \$70 and \$110 by 2030, and around \$200 and \$500 by 2050, respectively¹. Delayed Below 2°C carbon prices do not rise until after 2030 and, as a result, must reach a much higher level by 2050 to achieve the emissions reductions required to stay on track for less than 2°C of warming by 2100.

The Delayed Below 2°C scenario remains the most economically disruptive of our climate scenarios. Due to the delay in policy action, emissions reductions need to be quicker and less cost efficient than in the Below 2°C and Net Zero 1.5°C scenarios.

As a result, the Delayed Below 2°C pathway is over four times more costly to economic output than the immediate action Below 2°C scenario, and almost twice as expensive as the Net Zero 1.5°C scenario.

We will be publishing an LGIM whitepaper on our website in 2023, which will provide more detailed information on our scenarios.

Other considerations in achieving these emissions reductions

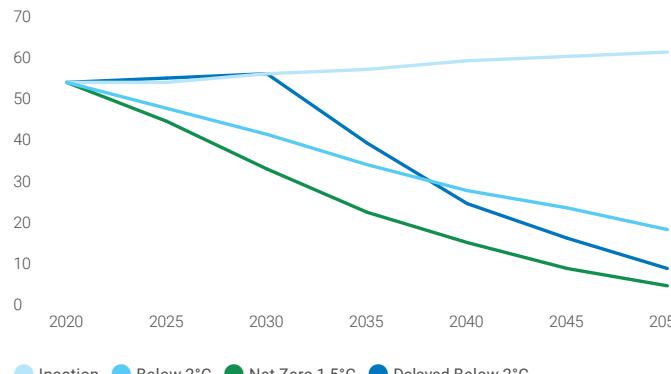
Fossil fuel demand continues to grow in our Inaction scenario, with both coal and natural gas each growing by around 30% over the period to 2050. Oil, on the other hand, stays roughly constant, as electric vehicles continue to grow their market share in the transport sector even without carbon pricing. By contrast, total fossil fuel demand falls by around a third in the two Below 2°C scenarios, and more than half in the Net Zero 1.5°C scenario by 2050. For both immediate action scenarios, fossil fuel demand would need to peak by 2025.

Deployment of **renewables** must accelerate considerably in our Below 2°C and Net Zero 1.5°C scenarios. Even in the Inaction scenario, where annual additions continue at similar levels to 2020, combined solar and wind capacity increases by nearly six times by 2050. By comparison, the Net Zero 1.5°C scenario would require average solar capacity additions of 450GW every year to 2050 – more than three times the 133GW of solar added in 2021.

Hydrogen fulfils more than 10% of final energy demand by 2050 in the Net Zero 1.5°C and the Delayed Below 2°C scenarios, and 6% in the Below 2°C scenario. It is produced from a mix of bioenergy with carbon capture and storage (CCS), natural gas with CCS, and electricity, and is primarily used to decarbonise heavy road transport and shipping.

Chart 2².

Global GHG emissions (gigatonnes of CO₂e/year)



Source: LGIM Destination@Risk

Table 2.
Carbon price (2020\$/tCO₂e)

Year	Below 2°C	Net Zero 1.5°C	Delayed Below 2°C
2020	–	–	–
2030	71	111	–
2050	205	491	886

CCS is deployed in our decarbonisation scenarios from 2030. By 2050, total carbon captured and stored per year across all sectors reaches around: 5Gt CO₂ in the Below 2°C scenario, 7.5Gt in the Net Zero 1.5°C scenario, and nearly 9Gt in the Delayed Below 2°C scenario, around 1Gt of which is from direct air capture.

1. The model sets a carbon price in each period to limit emissions to within the global carbon budget, assuming 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. Carbon prices are quoted in constant 2020 US\$.
2. 2020 data is estimated not actual.

Climate pathways continued

Global primary energy mix

Chart 3 shows our four climate scenarios.

- The energy mix in the **Inaction** scenario remains relatively stable and energy continues to be provided primarily by fossil fuels. While coal use continues to fall in many developed markets, emerging economies utilise cheap coal to fuel their growth in the absence of carbon pricing. Growth in renewables is moderate.
- In the **Below 2°C** scenario, the energy system gradually moves away from coal and oil, and bioenergy, nuclear, hydro and other renewables grow steadily, representing upwards of 40% of primary energy mix in 2050.
- Our **Net Zero 1.5°C** scenario sees the energy system immediately and rapidly tilt towards low or zero-carbon sources, with bioenergy, nuclear, hydro and other renewables growing to provide 60% of total primary energy by 2050, compared to less than 20% in 2020.
- The **Delayed Below 2°C** scenario follows the Inaction scenario until 2030, then, over the following 20 years, reduces the share of coal and oil of total primary energy demand sharply, by over two thirds and half, respectively. This transition is accompanied by rapid growth in renewables and bioenergy demand.

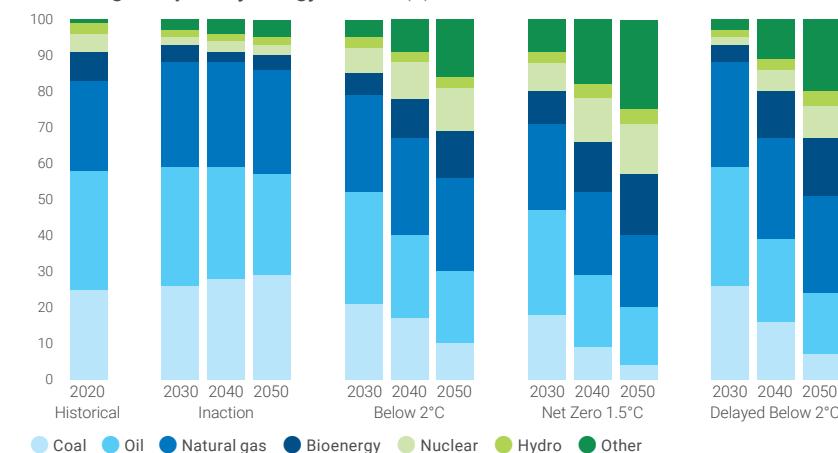
Land cover change

Chart 4 shows the global land cover change relative to 2020. Negative numbers indicate that the global area dedicated to the land use has declined since 2020, positive numbers indicate net growth in the type of land use.

- Carbon pricing creates incentives for significant **afforestation**, resulting in net forest cover growth in all decarbonisation scenarios by 2040 – compared to continued reduction in global forest cover in the Inaction scenario. Much of the net forest growth takes place on pastures and rangelands.
- Cropland growth is driven by growth in food and bioenergy demand. We assume dietary composition is unchanged across scenarios, meaning that food demand is the same across the four scenarios, even though carbon pricing makes the most emissions-intensive food products, such as beef, more expensive.
- Cropland growth is smaller in the decarbonisation scenarios relative to Inaction, as carbon pricing incentivises investments in yield-increasing technologies, due to increased competition between cropland and forestry over limited land resource. This results in higher **agricultural productivity** in our decarbonisation scenarios compared to the Inaction scenario.
- Competition for land between afforestation, crops and pasture also increases **food prices** in our decarbonisation scenarios. Overall real food expenditure would rise by 1.5% per year on average globally to 2050 in the Net Zero 1.5°C scenario relative to the Inaction scenario. In the more disruptive Delayed Below 2°C scenario, food expenditure would rise around 5.6% on average per year globally in the decade after policy action starts in 2030, relative to Inaction, and stabilise thereafter.

Chart 3¹

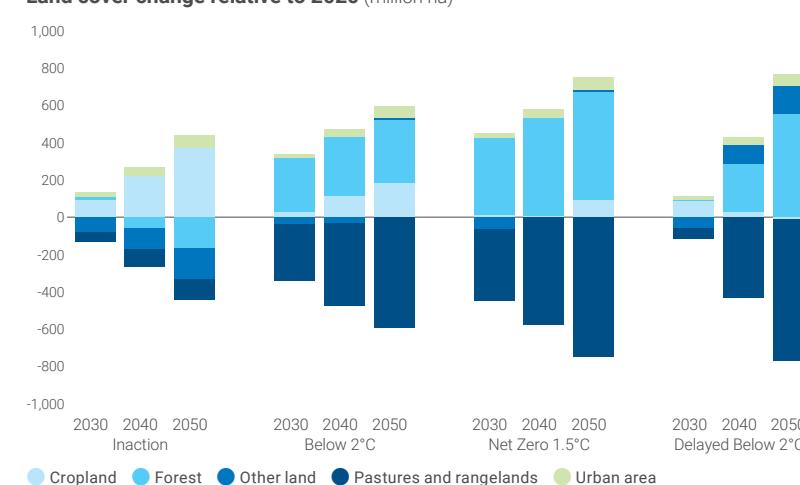
Share of global primary energy demand (%)



Source: LGIM Destination@Risk

Chart 4¹

Land cover change relative to 2020 (million ha)



Source: LGIM Destination@Risk

1. 2020 data is estimated not actual.

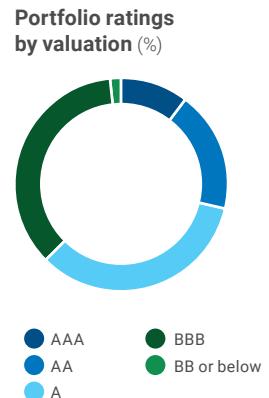
Group portfolio scenario impacts

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

1. converting scenarios into company and sector-level impacts, providing financial impacts on various metrics 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 and bond ratings)
3. using our sovereign bond valuation model to convert corresponding country-level scenarios into sovereign bond valuations.

Scenario results are produced for the three pathways which are based on transition risks (Below 2°C, Net Zero 1.5°C and Delayed Below 2°C). We do not apply the Inaction scenario to our portfolio. We expect most of the associated impact to be driven by physical risks which tend to be highly localised and manifest further into the future, and hence are more uncertain.

Chart 5.



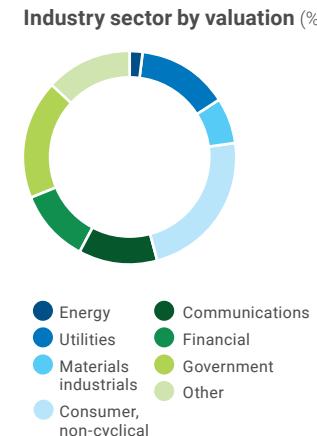
Bond downgrade analysis

Given the importance of bonds within our portfolio, we first consider the impacts of climate risks on the credit quality and sector breakdown of our portfolio.

We are primarily a long-dated 'buy-and-hold' bond investor, managing our portfolio to match our short- and long-term payments to retirement customers. Our balance sheet and cashflow matching is therefore more impacted by bond downgrades and defaults than movements in bond value.

The opening credit rating exposure of our bond portfolio is shown in Chart 5, showing that 99% of the portfolio is investment grade (rated BBB and above). Of this, BBB-rated bonds, which carry the greatest credit transition risk, comprise 36% of the portfolio, and of those, the ones from the high carbon sectors (defined as energy, utilities, materials and industrials) only comprise 11% of the bond portfolio. We would expect our holdings in high carbon BBB-rated bonds to reduce over time as we decrease the carbon intensity of the portfolio and lower the chance of experiencing transition-driven downgrades.

Chart 6.



While our holdings are in bespoke bond portfolios, giving us more freedom in sector selection, we have exposure to most sectors in the investment universe to maintain a well-diversified portfolio, with the modelled breakdown given in Chart 6.

For this analysis, we have directly modelled c.£20 billion (28%) of the group's £70.7 billion of proprietary bond assets, on a line-by-line basis as of 31 December 2022. To increase coverage, we have scaled these impacts across the rest of the bond portfolio, accounting for differing credit rating profiles.

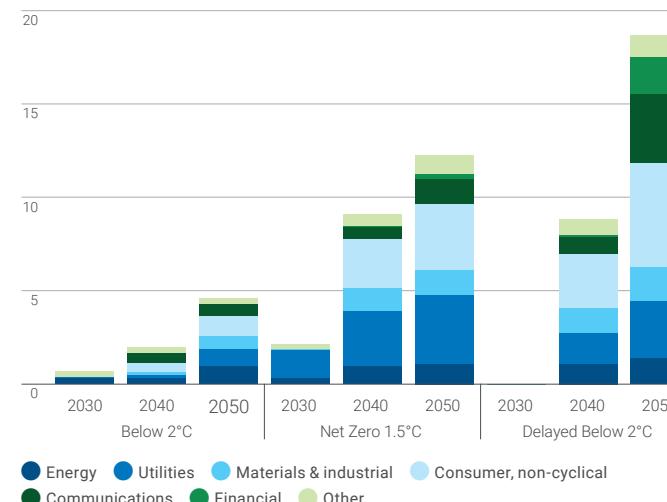
The cumulative amount downgraded to sub-investment grade (assuming no active trading), which would have negative implications for our balance sheet, is shown in Chart 7. The Net Zero 1.5°C scenario has the greatest amount of downgrades until 2030 and 2040, while the Delayed Below 2°C scenario has the highest such downgrades by 2050.

Chart 7 also shows the high-level sector breakdown of the modelled downgrades, with a large proportion arising from high-carbon sectors, as expected. The Delayed Below 2°C scenario also creates notable macro GDP impacts, leading to greater impacts across all sectors. These results show the broad sector impacts, but within each sector there can be a large range of impacts with winners and losers over different time periods. This includes, for example, some utility companies that do not survive in the Below 2°C scenario while others experience near zero risk.

We note that any impacts to 2050 are beyond the duration of most of our current portfolio. Future investments will be influenced by climate change trends, and we would therefore expect to materially change our allocation away from the names most materially impacted under each scenario.

Chart 7.

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.



TCFD recommendation

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

Group portfolio scenario impacts

continued

Equity portfolio impacts

In addition to the bond portfolio analysis, we also model the c.£0.7 billion of our £1.4 billion proprietary traded equity portfolio on a line-by-line basis.

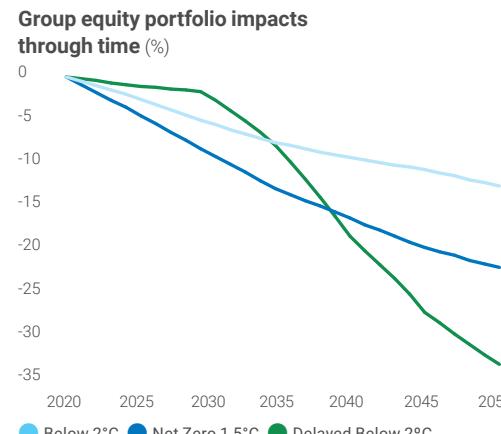
As for bonds, the modelling coverage is limited by the availability of data (noting our data caveat), and the unmodelled portfolio is assumed to follow the modelled portfolio in the absence of other information.

Our analysis shows 2050 impacts (assuming a static, unmanaged portfolio) of -12.6%, -22.0% and -33.2%, in the Below 2°C, Net Zero 1.5°C and Delayed Below 2°C pathways respectively, as shown in Chart 8.

For this analysis we assume that the equity mix does not change through time. The impact by risk type demonstrates that most of the risk impact is through transition risk, over the modelled period, as expected, across the three scenarios, with physical risks muted over this modelled time period.

Our modelling of equity values is driven by company performance in each pathway and not by investor risk expectations. Our analysis shows that climate risk is not fully reflected 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). However, we would expect to avoid such impacts through our ongoing active portfolio management.

Chart 8.



Source: LGIM Destination@Risk

Data caveat

Outputs of our LGIM Destination@Risk model, which translates our scenarios 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 company 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.

Table 3.

Group portfolio undiscounted 2050 portfolio value impacts

	Below 2°C	Net Zero 1.5°C	Delayed Below 2°C
Transition risk	-9.5%	-19.9%	-29.8%
Physical risk	-3.0%	-2.1%	-3.4%
Total	-12.6%	-22.0%	-33.2%

- **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.

Having taken part in the Bank of England's Biennial Exploratory Scenario on climate change exercise through 2021 and 2022, testing the resilience of the current business models of the largest banks, insurers and the financial system to climate-related risks, the results of the exercise have been published here: bit.ly/Resultsofthe2021ClimateBiennialExploratoryScenario

-

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.

We hold mainly investment grade bonds, which are matched against liabilities such that we are not materially exposed to price risk compared to investors who regularly trade their bond portfolios or those holding greater exposures to equities.

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.

Governance

Board oversight

The group Board ('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 significant 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 transition. In recognition of the importance of this matter, the Board appointed Nilufer von Bismarck as Non-Executive Director with a focus on climate.

Throughout the year, responding to climate risks continued to feature on the group's strategic risk register and remains a priority for the Board. The Group CEO, Divisional CEO and Chief Risk Officer reports highlighted and detailed to the Board the challenges of climate change and the significant opportunities presented by it. Regulatory focus on the subject was also noted, and public affairs work during 2022 regularly focused on climate change. The Board received regular updates on the group's strategic approach and progress on climate matters, highlighting areas of opportunity and challenge.

The Group Risk Committee (GRC) oversees the risks associated with climate change to ensure exposures are controlled in line with the group's risk appetite, and ensures that management actions are also aligned.

Alongside regular updates on the risks associated with climate change, the committee receives regular climate-specific management information.

During 2021, we appointed Simon Gadd as our Group Climate Change Director, a new position with responsibility for coordinating the group's response to climate change. The role has the senior manager responsibility of 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 Board. The Group Climate Change Director also supports management in the development of appropriate processes to monitor and report exposures to the risks arising from climate change.

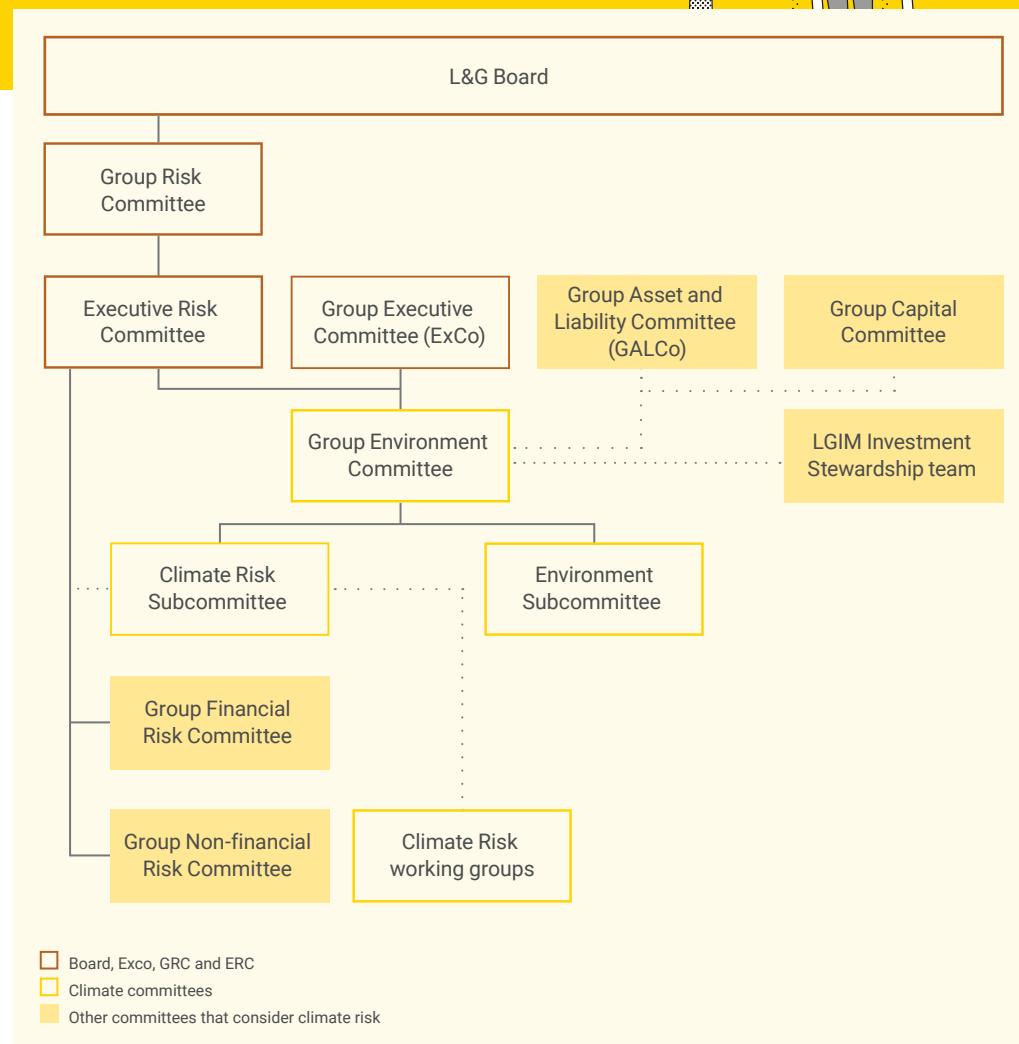
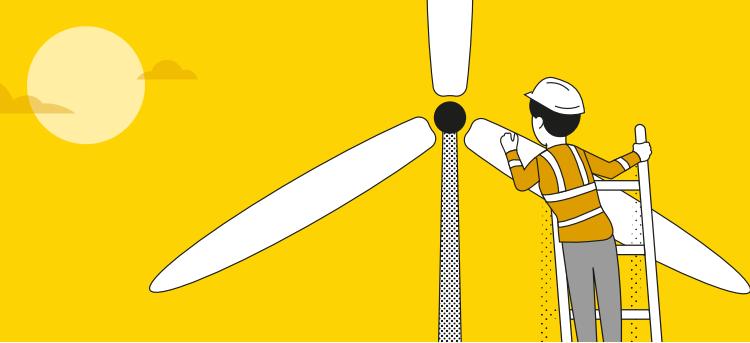
The Board, through the GRC and Executive Risk Committee, has delegated oversight of the management of the risks associated with climate change to the Group Environment Committee (GEC).



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 (GEC)

The GEC met six times in 2022 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 the Head of LGIM's Investment Stewardship team. The level of seniority in its membership helps ensure that there is a single forum to provide oversight on climate risk across the group, ensure consistency, encourage debate, and demonstrate the importance we place on our response to climate change.

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 of corporate policies.

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 management of the risks and opportunities arising from climate change is integrated across the group's governance system and embedded into the existing risk management framework. The GEC also interacts regularly with GALCo, our committee responsible for managing all market risks on the group balance sheet, to enable an integrated approach.

The role of the GEC

The GEC is responsible for providing strategic direction to the management of environmental impact on the group, 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 them, 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 that management practices are in line with the group's risk appetite, our climate strategy and risk policy
- promoting internal awareness and understanding of climate-related risks and opportunities
- considering the transition and physical risks and opportunities associated with climate change, and their potential impact on the group's assets and liabilities, in both the short, medium, and long-term.

These are also demonstrated in the table opposite, which sets out the key activities of the GEC during 2022. The GEC is supported by subcommittees to review and challenge performance against tolerances and targets, one for climate risk and one for other environmental risks and opportunities. It is further supported by working groups that focus on specific regulatory requirements.

Entity governance

Additional entity-specific governance is in place to provide oversight for clients' investments.

Within LGIM, ESG oversight is integrated within the existing governance and oversight structure. Specific ESG oversight requirements include delivery of portfolio ESG objectives, maintenance and application of the net zero framework, and the coordination of ESG programmes alongside advising the LGIM Executive Committee on responsible investing matters.

The Boards of our insurance entities, Legal & General Assurance Society Limited (LGAS) and Legal & General Portfolio Management Services Limited (PMS), formally delegate the oversight of TCFD products (unit-linked funds and pre-set investment portfolios) to the Fund Risk Oversight Committee, which meets at least quarterly. This delegation includes climate-reporting responsibilities. Once the initial climate metrics are published for these businesses by 30 June 2023, they will form a new element of governance for the Workplace and Personal Investing businesses. Climate risk is reported up to the LGAS and PMS boards at least annually.

As the insurer, LGAS has the ultimate responsibility for funds made available across Workplace products. However, trustees of trust-based pension arrangements remain responsible for ongoing investment governance for the funds they make available to their members.

Climate risk is an increasingly important factor in governance of the house default investment options (in the triennial reviews conducted by the Workplace business) and the functions of the Investment Design Forum which governs bespoke investments for contract-based business.

GEC: key decisions and discussions in 2022

Metrics and targets	<ul style="list-style-type: none"> • Approval of the approach to setting the 2023 carbon footprint reduction targets for the group's proprietary assets. • Approval of the group's investment portfolio carbon footprint methodology. • Approval of the group's submission to the SBTi. • Oversight of NZAOA target setting.
Assessing our exposure	<ul style="list-style-type: none"> • Approval of the climate scenarios used to model impacts on the group's balance sheet, and the results of the analysis. • Reviewing our risk exposure to incorporate an assessment of nature-related risks, impacts and dependencies, in line with emerging market frameworks.
Risk appetite	<ul style="list-style-type: none"> • Approval of our enhanced climate-related risk appetite and the supporting metrics and tolerances in relation to our activity to deliver on our climate commitments. • Consideration and approval of the group fossil fuel and deforestation policies.
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 group's wider environmental targets (such as for waste). • Setting the group's strategy on engaging on climate. • Setting climate expectations within the strategic planning process.
Oversight	<ul style="list-style-type: none"> • Regular monitoring of the group's progress against our environmental commitments. • Monitoring of the group's progress in responding to the emerging risks of climate change. • Oversight of the independent limited assurance of scope 1 and 2 emissions reporting.

Governance Q&A



“

Along with the significant and complex risks, there are substantial opportunities for Legal & General.”

Simon Gadd

Group Climate Change Director

In 2021, the role of Group Climate Change Director was taken up by Simon Gadd, while Nilufer von Bismarck, Non-Executive Director, was asked to give specific focus to climate change in her role.

Where do you see Legal & General having the greatest impact on supporting a transition to net zero?

Simon: As a global investor, we have a significant role to play in financing the transition: providing financial support for new players to enter the net zero economy and by encouraging existing players to ‘clean up’ their act.

When investing, we want to focus on our impact on the climate transition; we do this by making investments that have real economic, environmental and social benefits. This could involve making equity investments, through LGC, in start-up companies which are pioneering climate technologies, or providing debt to finance the construction of new renewable infrastructure like solar or wind. These investments are complementary: in their risk profile, potential impact, scalability, and the role they play in the transition.

Nilufer: The transition to net zero is a systemic challenge requiring multilateral action from both the real economy and the financial system. Our strategy focuses on enabling these changes, for example through our partnering with leading renewable energy specialists, NTR, to deploy institutional capital into sustainable infrastructure.

Active engagement is an important element of achieving our climate goals. Through LGIM’s dedicated engagement programme, the Climate Impact Pledge, we are committed to helping companies step up on their commitment to net zero, build resilient strategies for this transition and succeed in a low-carbon economy. Over 2022, we have seen economic activity broadly return to pre-pandemic levels, which can make it hard to separate out the companies that are not delivering on their commitments. Through engaging directly with companies, we can better understand the actions they are taking.

More specifically, what role will Legal & General’s housing businesses play in helping the group meet its net zero objectives?

Simon: Housing represents a significant proportion of our operational footprint, so reducing the carbon intensity of our housing stock is critical to achieving our net zero objective. We are making good progress against our target to enable all of our housing stock to be capable of operating at net zero from 2030. Our housing businesses face a dilemma between the need to reduce carbon emissions and the important social need to build more new homes, which is a source of additional emissions. Recently, we have seen the interests of sustainability and cost efficiency align more closely, and consumers are more likely to pay a premium for sustainable housing features such as energy efficient technologies and building materials, with the joint benefits of reducing energy bills and addressing climate change.



“

Addressing climate change depends on both individual and collective action, and this runs through the business at every level.”

Nilufer von Bismarck

Non-Executive Director with a focus on climate

Inevitably, there will be other short-term issues throughout the transition. That is why we manage climate considerations as ‘business as usual’, utilising existing policies and processes to make decisions. Being responsive to the changing conditions, while maintaining discipline on our ‘North Star’ of net zero by 2050, will characterise the way we do business for the next three decades and beyond.

Nilufer: The Board is of the firm view that our climate strategy is set for the long-term: lasting systemic changes are needed to deliver the transition. This clarity of purpose helps us maintain a sense of direction through temporary shocks.

We are also conscious that our transition is not going to be a linear journey. Our operational footprint is expected to increase first, while the programmes of work to reduce it are being prepared. To help us reach our targets, we also need to ensure that our employees are equipped with the skills and knowledge to embed climate considerations into every aspect of how we do business. Alongside hiring new skills, we are continuing to build the knowledge and capabilities of existing employees.

Risk management



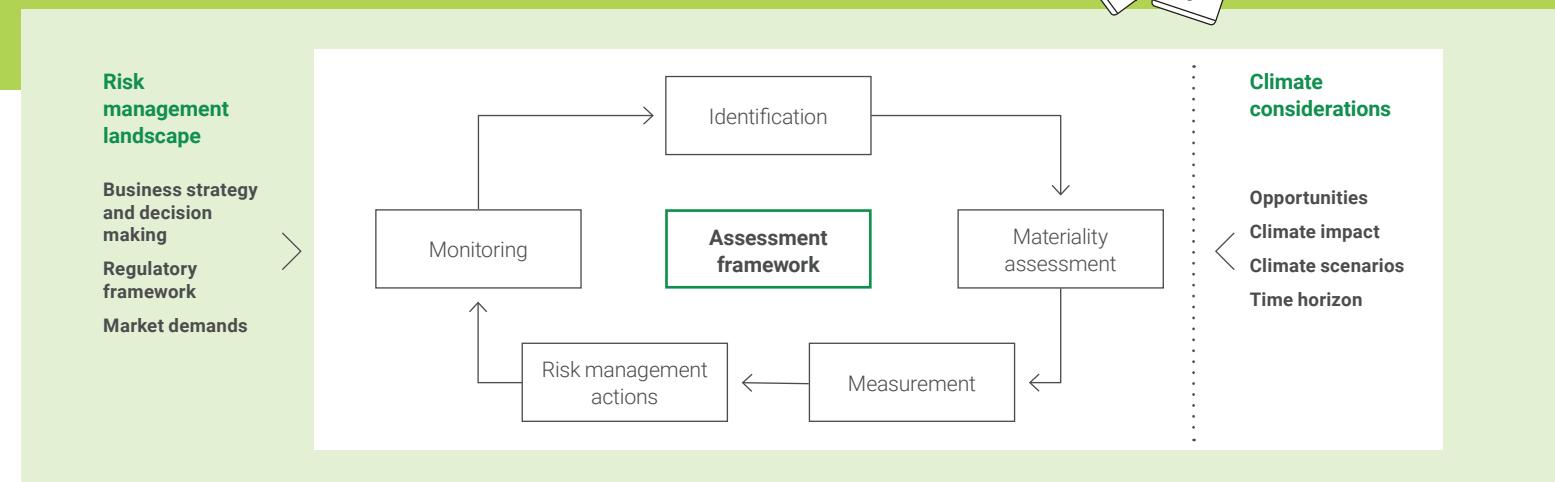
We manage our business to align with the mitigation of climate change beyond the 1.5°C 'Paris' objective and to be resilient to the risks of different climate outcomes. Our key risk monitoring metrics are:

- investment portfolio economic carbon intensity
- 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 than some other areas of our risk profile.

It is widely recognised 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.



Our risk landscape

The risks arising from climate change that we are exposed to fall into three broad categories:

- **Transition risks:** impacts on asset valuation and the economy from the process of transitioning towards a low-carbon economy
- **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
- **Corporate risks:** impacts on the group from exposure to regulatory censure, climate-related litigation risks, or adverse customer perception of the group. This may be through loss of franchise value, directly through fines or costs through adverse investor sentiment due to poor alignment with ESG rating expectations.

Climate change risks will emerge through our current risk exposures and the relevant group 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 scenario analysis. These scenarios incorporate a longer-term time horizon into their analysis. 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.



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

Our approach to risk identification

We have integrated climate risk management into our existing 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 much of our balance sheet is based on assumptions and expectations of future experience, risks can materialise through both actual change in experienced profits or losses, as well as changes in those future expectations.

Longevity (for annuities): climate change could lead to changes in how long people are expected to live. Changes to these expectations will 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 would impact our assumptions.

Mortality/morbidity (for life/health insurance): similar to longevity, we expect the impacts on this risk to emerge gradually, and the impact on our future assumptions will emerge before material changes in the number of 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 be further exposed to the physical risks from climate change due to their property and casualty businesses. 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) repricing 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. 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 the transition to a low-carbon economy. Climate change may impact on other market risk exposures through movements in macroeconomic factors such as interest, inflation and foreign exchange rates.

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

We seek to achieve this through disclosing climate metrics and an assessment of the implications of climate change on our clients' assets. This analysis helps our clients better understand the climate risks that may be held in their portfolio.

From the environment we operate in

Our operations: we have direct exposure to climate change through our operational carbon footprint and the supply chain that supports it. 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.

People, processes, systems and external events: climate change is a systemic risk that may be realised across our business processes, which can be complex. We rely upon the knowledge and expert judgement of our people. As we change how we invest, the products and services we offer, and how we operate, we must ensure that we have the right skills for the future, and that we update our systems and processes to incorporate climate change considerations. Weakness or failure in our systems and processes, errors and omissions, or the loss of key personnel, could result in financial loss or adversely affect our customers and reputation. 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. These external events may impact our ability to deliver against our climate commitments.

Evolving regulation and legislation: the markets in which we operate are highly regulated. The regulatory approach to climate will continue to evolve. 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 or damage to our reputation.



Focusing on transition risk

We focus on transition risk because successful delivery of 'Paris' implies a fundamental change to 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 any underlying asset, these risks are most in relation to some of our assets and our operations.



TCFD recommendation:

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

Risk management approach

Materiality assessment

Our risk management approach to the financial risks arising 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, as well as the group's own impact on the climate.

The effect of future uncertainty over climate change pathways is that the evaluation of climate-related risks and impacts has a high degree of estimation uncertainty, with a potential range of reasonable outcomes greater than our materiality for the group's financial statements as a whole, and possibly many times that amount.

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 chapter, we have invested in our capability to develop possible transition pathways to differing temperature warming outcomes.

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

Climate transition risks are primarily measured in relation to our carbon exposures. We are committed to reducing the carbon footprint of both our operations (scope 1 and 2) and of our group balance sheet

portfolio's GHG emissions intensity to align with the 'Paris' 1.5°C objective.

Portfolio carbon measurement and targets

We measure the contribution of our investments to CO₂e emissions, calculating portfolio economic carbon emission intensities at both group and divisional level.

Through our climate scenario analysis, we measure the risks to assets and liabilities. This is measured through the impacts on equity and bond valuations, and credit rating, in each scenario.

Assessment of our investment portfolio is dependent on good quality comparable cross-industry data and disclosures of climate-related metrics and financial impacts. 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 own disclosure objectives. 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 have set SBTs covering our scope 1 and 2 operational emissions. These targets have been verified by the SBTi.

Management actions

We deploy a range of management actions to meet our risk management objectives, including:

1. established framework for climate commitments
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 framework for climate commitments

Achieving our group commitments will be challenging, reflecting the complexity around addressing the systemic issue of climate change. Due to the transformational nature of a successful net zero transition, strong partnerships are needed to support a common vision and long-term objectives. These are necessary to demonstrate the wider benefits of such a vision and to enable the required structural changes to achieve our climate-related objectives. Before making commitments, we undertake detailed analysis of the implications. This ensures both that our climate commitments are integrated within divisional strategies, and that the commitments and actions of our divisions support our overall climate commitments. Our climate collaborations can be found in the strategy chapter on page 14.

Our framework accounts for all GHGs, and covers scope 1, 2 and material scope 3 emissions. Our progress and long-term goals are supported by annual and interim targets to enable regular monitoring of progress towards the commitment. Progress is reviewed and reported on at least annually and overseen by the GEC. Our commitments are consistent with the latest 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 'Paris'.

2. Exclusions and high carbon escalation

Our risk management approach recognises the importance of engagement with investee companies. Our Investment Management Agreements (IMAs), with LGIM, have climate-specific exclusions that focus on key areas of transition risk: CIP exclusions, coal and oil sand activity and deforestation. We also take account of the broader energy system within our portfolio management approach – through our high carbon escalation process on an individual basis.

High carbon escalation

We have established a process to escalate, through further governance, all proposed individual stock

investments where the carbon intensity is greater than a defined threshold across relevant sectors. This gives us an early warning system and a degree of control over the accumulation of risk through time.

Issuers are assessed on a range of criteria including our assessment of the underlying transition and physical risks. Our approach recognises that oil and gas will follow different phase-down pathways, and that counterparties own transition plans will impact on our assessment of the underlying risks.

The escalation process has had a real impact. In 2022, 12 new issuers (out of a total of 36 considered) were added to the exclusion list, increasing the total number of exclusions through this escalation process to 25. We reinstated five issuers from last year's exclusion list due to updated emission scores or updated transition commitments. Results of the escalation process are overseen by the GEC.

The high carbon escalation process is also supported by exclusions where there is a clear incompatibility with the 1.5°C 'Paris' objective.

Climate Impact Pledge (CIP) exclusions

Our CIP calls out stocks it excludes from the Future World fund range. These additional exclusions are applied to the group's proprietary assets managed by LGIM. LGIM sets out minimum standards, which if not met, may translate into firm-wide voting sanctions and divestment consequences for the funds adopting the CIP exclusions.

We typically engage with a company for 12 months. If we still have concerns about the company's actions or strategy, the relevant business and asset managers agree a course of action. Companies in the current published CIP exclusion list are added to our exclusion list, helping to drive change in the market by supporting our engagement with the use of the group's own balance sheet capital. This list is reviewed annually. The rule applied to an excluded stock for these assets is 'Do not buy'.

Risk management approach

continued

Coal and oil sands activity

We recognise that coal's role in the current energy mix is incompatible with the 1.5°C 'Paris' objective, which is why our fossil fuel policy focuses on this sector. We continue to evolve our coal and oil sands policy, with the current details set out opposite.

Building on LGIM's coal policy, we have investment exclusions on those companies that have a material proportion of their revenue from the mining and extraction of thermal coal, from coal-based energy production, or from oil sands. Within our own balance sheet, we are targeting exiting the existing financing of companies involved in coal mining or coal power generation by 2030¹.

Given the historical role of coal in the global energy system and the size of our investment portfolio, we have c.£3.4 billion of exposure to companies, mostly utility companies, within our proprietary assets, which report that some aspect of their revenue is linked to coal. Where coal-related activity makes up more than 10% of the relevant company's revenue, this reduces to c.£1.1 billion.

Our retirement businesses sold down their legacy exposures to issuers with more than 30% revenue linked to coal by the end of 2021. We do not have any significant exposures to oil sands.

Deforestation

We have developed and will continue to evolve our investment deforestation policies. We have in place exclusions in relation to violators of the UN Global Compact standards which include deforestation controversies, and we maintain exclusions of names called out as engagement laggards through the CIP, where an insufficient zero-deforestation policy, amongst other climate considerations, has led to an exclusion restriction. We will continue to leverage the activities of LGIM's stewardship and engagement approach as set out in the LGIM deforestation policy to engage on this topic.

3. Review our existing tolerance framework to incorporate climate considerations

Our risk policies and tolerance framework have been reviewed and updated to incorporate climate considerations, and to ensure that such considerations are integrated across the group's governance system.

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 continuing to be a key topic of engagement for the Investment Stewardship team in 2022.

Climate Impact Pledge (CIP)

Through LGIM's dedicated engagement programme, the CIP, we are committed to helping companies 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. Aided by improvements in data availability, we have continued to expand the coverage to include more sectors, with clear voting sanctions for the companies that do not meet all of our minimum standards.

1. Link: bit.ly/NZAOAthermalcoalposition
2. Link: bit.ly/LGIMdeforestationpolicy
3. Link: bit.ly/LGIMcoalpolicy
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.
5. Aligned with SBTi and NZAOA coal phase-out expectations.

Coal and oil sands policy

Where we (via LGIM) invest on behalf of others³

Legal & General Investment Management (Holdings) Limited (LGIM(H)) and its subsidiaries will exclude from investments those companies that are involved in the mining and extraction of thermal coal as set out below.

Coal mining

Screening will be carried out and exclusions will be applied to those companies that generate **20% or more** of their revenues from coal mining and extraction.

Coal power generation

Screening will be carried out and exclusions will be applied to those companies that generate **20% or more** of revenues from coal-fired power generation.

We retain the ability to invest where a company has set out a clear 'Paris-aligned' plan to phase out coal by 2030 in OECD countries, and by 2040 in non-OECD countries. We retain the ability to fund specific issuing entities, where a company has non-coal subsidiaries.

Oil sands

Screening will be carried out and exclusions will be applied to those companies that derive **more than 20%** of revenues from oil sands (sand and rock material that contains crude bitumen).

Additional capacity exclusions will be applied to portfolios implementing LGIM's Future World Protection List (FWPL).

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.

Where we have direct investment control

- **No new investments** in issuers with more than 15% revenue exposure⁴.
- 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 2030⁵.
- **No investments** in new coal mining and no further investment in companies that are investing in new coal capacity⁵.

- **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 2030⁵.
- 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 capacity⁵.

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

Risk management approach continued

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.5,000 companies are publicly available under a 'traffic light' system. This covers companies selected across 20 climate-critical sectors (from transport to food and chemicals). The CIP is not just focused on carbon emissions, given the important interlinkages between climate and nature, it also incorporates expectations around biodiversity and, for relevant sectors, deforestation.

This targeted approach, using voting and investment sanctions to encourage companies to step up on sustainability, has contributed to companies making improvements to their climate targets and strategies.

In 2021 and 2022, we sent letters detailing our assessment to several hundred companies identified as having poor scores relative to their size. At the 2022 Annual General Meeting season, through voting, we sanctioned 80 companies that fell short of our minimum standards. The stringency of our standards and sanctions will increase over time. Divestment is a consideration for persistent poor performance.

Alongside our quantitative engagement programme, in our 2021 – 2022 cycle we selected c.60 companies for in-depth engagement, in which LGIM's 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 CIP exclusions. In 2022, we kept 12 companies on our sanction list from previous years and added two more companies. We removed one company from our sanction list and reinstated it in select funds.

Global research and engagement groups (GREGs)

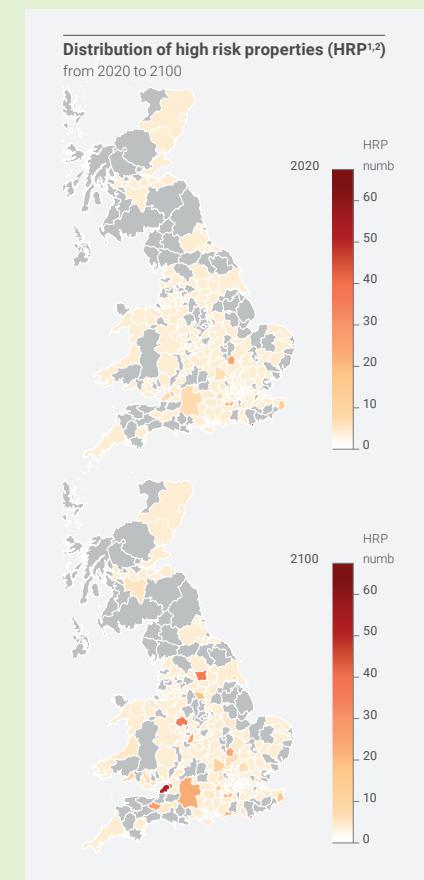
During 2022, work continued on the GREGs, which bring together expertise in different sectors and asset classes to identify the challenges and opportunities which will determine the resilience of companies to climate change. Sector specialists from our Investments and Investment Stewardship teams have regular working groups to assess the evolving materiality of climate change across different sectors. Climate change will remain a key area of focus.

Flood risk

For our LGIM Real Assets business, the physical risks of climate change are increasing. Understanding these risks and increasing portfolio resilience is essential for maintaining the safe and effective operation of our assets. We work with climate risk specialists, XDI, to increase our resilience to these challenges, embedding decision-useful climate-related risk data and metrics into our processes.

Initial analysis has demonstrated that flood risk is the most significant physical climate hazard for our UK-based real assets' portfolios. As such, all real estate equity assets were included in a flood risk assessment process with XDI. We used Unique Property Reference Numbers to analyse assets at an individual building level.

We are working with property managers across the portfolio to capture more granular, asset-specific information, such as building age, floor height and any existing flood adaptation measures. Once modelled, this detail will generate a much clearer representation of the asset risk profile and will enable more targeted adaptation strategies. We will incorporate other climate-related hazards (such as extreme heat) into our model as they become more influential.



TCFD recommendation

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

1. A high risk property (HRP), is considered as a UPRN with a Value-at-Risk percentage (VAR%) over 1%, a relative metric derived from the replacement cost of a representative asset.
2. This data covers real estate equity properties in the portfolio as at December 2021 and uses a Representative Concentration Pathway (RCP) 8.5 'business as usual' scenario by the Intergovernmental Panel on Climate Change (IPCC).

Risk management approach

continued

Monitoring

Monitoring and updating our measurements and management actions over time is a critical aspect 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, are 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 process and remains a 'best endeavours' analysis. Through our own work, we continue to progress in our understanding and quantification of climate risk, but we believe we are still early in our development.

While we have seen some convergence over 2022, 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.

Our business entity-level risk management

Group-level climate risk management is cascaded down to all our businesses. This includes our Workplace and Personal Investing businesses, our LGIM entities and Legal & General America (LGA). Our Workplace and Personal Investing businesses engage with LGIM as their primary asset manager, to obtain climate data and to conduct scenario analysis. This information is an integral part of their risk management process and an area our individual businesses expect to develop their understanding of over time.

For Workplace and Personal Investing businesses, the setting of commitments and targets, Exclusions Policy, Climate Impact Pledge, and Active Ownership policies are managed by the primary asset manager, LGIM. Reliance is placed on group-level committees to advise on the climate risk of business in relation to legal, technology, market, reputational, and physical risks, for ongoing management of LGIM funds.

As providers of unit-linked pension funds, our Workplace and Personal Investing businesses are not a direct shareholder in any investee companies, and instead invests in underlying funds which in turn will invest into other funds or hold securities such as company shares.

Workplace and Personal Investing products will not initially provide separate TCFD product-level reports for funds managed by external fund managers. As data methodologies mature and become consistent, and as Sustainability Disclosure Requirements mandate further disclosure, it is expected that this area will develop and enable greater transparency.

LGA leverages the group's risk management framework, and has established a local management steering committee of senior management and other key personnel. The primary role of the Committee is to ensure that adequate governance and oversight is in place for the assessment and management of the financial risks of climate change.

ESG-linked loans

Across LGIM Real Asset's private credit investments, engagement with borrowers pre- and post-investment is being used to improve disclosure and drive positive outcomes across the portfolio. We have worked with borrowers to incorporate ESG considerations into deal structures, including the development of sustainability-linked loan structures and ESG reporting covenants.

We funded an ESG-linked private debt placement with Phoenix Community Housing association in Lewisham, London. Phoenix is the first housing association in London to use the community gateway approach, which enables tenants to play a role in the decision-making of the association. Phoenix has a proactive sustainability strategy, underpinned

by its net zero by 2050 commitment. As part of its strategy, Phoenix plan to upgrade all properties to an EPC 'C' rating by 2030, in line with government targets, through a focused retrofitting agenda.

Proactive engagement with the borrower enabled us to create an innovative sustainability-linked structure, providing potential cost savings linked to decarbonisation targets set ahead of its original commitments. The targets that have been set are further and faster than those set by the UK government and will speed up the provision of cost – and energy-efficient homes. If the targets are not met within the agreed timeline, the borrower must allocate the cost savings towards energy-efficiency works.



Phoenix
Community
Housing,
Lewisham,
London.

Metrics and targets

In this chapter we focus on the three key metrics we use to monitor and assess our climate-related risks and opportunities across our investing, influencing and operating activities. These are connected to our business strategy and risk management framework outlined in earlier chapters.

Scope 1: 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.



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.

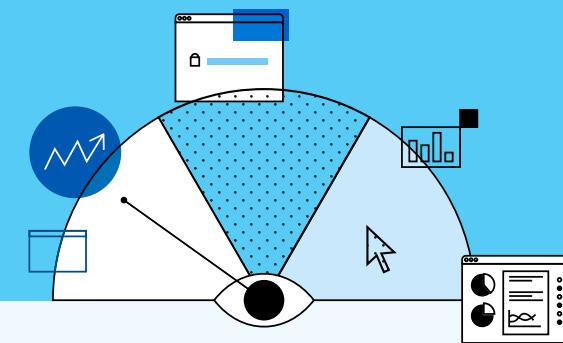
Metric	What does it mean?	Metric measurement	Target	Progress to date
 Operational carbon footprint	This covers the operations we directly control, such as the energy in our occupied offices, the energy from our landlord activities and our housebuilding, as well as the construction of new homes.	tCO ₂ e emissions.	<ul style="list-style-type: none"> Net zero by 2050. Occupied offices and business travel operating with net zero emissions from 2030¹. Enable all new homes we build from 2030 to be capable of operating with net zero carbon emissions. Please see our SBT dashboard on page 39 for related targets. 	2022: scope 1 and 2 (location): 30,062 tCO ₂ e 2021: scope 1 and 2 (location): 30,957 tCO ₂ e ²
 Investment portfolio economic carbon intensity	This is made up of our ownership share of the emissions related to the assets we invest in within the group proprietary asset portfolio, as explained on page 11. It includes equities and bonds, but not cash, derivatives, or any assets already covered in our operational footprint. It is measured per unit of investment.	tCO ₂ e emissions/£m 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 GHG emission intensity by 50%³. By start of 2025, reduce portfolio GHG emission intensity by 18.5%³. By end of 2023, reduce portfolio GHG emission intensity by 18%³. Please see our SBT dashboard on page 39 for related targets. 	2022: 73 tCO ₂ e/£m 2021: 76 tCO ₂ e/£m ⁴
 Implied portfolio temperature alignment	This measures the implied warming potential of the group investment portfolio aggregated from its individual components, as calculated in line with LGIM's methodology.	°C.	<ul style="list-style-type: none"> Please see our SBT dashboard on page 39 for related targets. 	2022: 2.7°C 2021: 2.7°C

1. Applies to occupied offices where we actively control the management of utilities.

2. Due to improvements in data collection and assessment methods, the 2021 data for IVG and L&G Affordable Homes has been restated.

3. From a 2019 base year.

4. Metrics have been rebaselined through a combination of methodology and data sourcing changes. Figures from the 2021 report, with an associated impact assessment, are provided on page 49.



Operational carbon footprint

Methodology

Our operational carbon footprint is comprised of the annual carbon emissions of the whole group, including our subsidiaries and joint ventures¹. We apply the operational control approach, that is to say we include all operations which we directly control, such as the energy from our core occupied offices (applies to occupied offices where we actively control the management of utilities), landlord activities, as well as the construction of new homes within our housing businesses and joint ventures¹. The emissions data reported in Table 4 is aligned to the group's financial reporting period (year end 31 December) unless otherwise stated². Please refer to our Basis of Reporting document for details of how we collate our GHG data for our operational carbon footprint.

Reporting framework

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 and 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: bit.ly/TheGreenhouseGasProtocol



TCFD recommendation

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

Operational footprint: progress in 2022

As with previous years, the pandemic continued to have an impact on our operational businesses during 2022, which makes the drawing of meaningful conclusions on overall performance against previous years complex. However, we recognise that as we move into 2023, the long-lasting impacts of the pandemic are becoming our new future way of working and as an organisation we are embracing this change across our operations. For example, we are building our new hybrid way of into our future location strategy.

- **Progress:** as shown in the table opposite we have seen a 3% decrease in our operational scope 1 and 2 (location) carbon footprint. This is an absolute reduction and is due to energy efficiency measures delivered by our businesses.
- **Occupied offices:** during 2022 we embarked on a programme of refurbishment activities in our core occupied offices which included an element of energy efficiencies, which has contributed to the reduction in our carbon footprint. However, it should be noted that we have not yet reached the office occupancy level we expect, and therefore it is likely that this figure may increase in 2023 as our true post-pandemic office headcount emerges.
- **Real Assets:** our Real Assets footprint increased this year, as we saw a return to building occupation. Our 2022 emissions remained lower than our 2019 base year, due to a combination of energy and carbon reduction programmes, and ongoing reduced occupancy levels.
- **LGC:** whilst our LGC businesses have grown during 2022, we have also delivered a reduction in our carbon footprint. This is in part due to increased efficiencies, such as the trialling of new fuels in our CALA homes business. In line with our SBTs, we expect our LGC footprint to increase in the short-term, due to planned business growth, before we see deep reductions to meet our 2030 target.

Table 4. Group operational carbon footprint

In reporting our operational carbon footprint, we have sought independent limited assurance from Deloitte over the 2022 metrics identified below with a *. Deloitte's assurance statement is available on pages 41-42³.

Emissions source	tCO ₂ e Jan-Dec 2019 ⁴	tCO ₂ e Jan-Dec 2021 ⁵	tCO ₂ e Jan-Dec 2022
Scope 1 and 2 (location)	38,942	30,957	30,062*
Scope 1	15,226	13,722	12,506*
– UK	15,175	13,696	12,408
– International	51	26	98
Scope 2 – location⁶	23,716	17,235	17,556*
– UK	22,866	16,416	16,649
– International	850	819	907
Scope 2 – market⁶	3,015	2,432	2,586*
– UK	2,165	1,613	1,679
– International	850	819	907
Fugitive emissions (included in scope 1)	413	127	293
Energy usage (MWh)			
Electricity	92,287	79,694	87,878
Gas	53,019	46,163	47,910
Onsite fuels	19,634	18,118	16,112
Scope 3 – operations⁷			
Category 3 – Fuel and energy-related activities	7,967	8,607	8,301
Category 5 – Waste	–	486	400
Category 6 – Business travel	7,223	2,070	5,467*
Category 7 – Employee commuting (home working)	–	3,025	4,739*
Category 8 – Upstream leased assets (serviced offices)	–	371	306*
Category 13 – Downstream leased assets ⁸	–	0.4m	–
Category 15 – Investments	–	7.3m	5.8m
Scope 1 and 2 intensity ratio			
tCO ₂ e emissions per employee	5.09	2.86	2.60

1. Joint ventures are included in our footprint where we are the majority shareholder, or have operational control.
2. LGIMRA data is reported from 1 December to 30 November, and our IVG data is reported from 1 October to 30 September.
3. Deloitte have provided independent limited assurance in accordance with the International Standard for Assurance Engagements 3000 ('ISAE 3000') and Assurance Engagements on Greenhouse Gas Statements ('ISAE 3410') over the selected metrics identified with a *. Deloitte's full unqualified assurance opinion, which includes details of the selected metrics assured, can be found on pages 41-42.
4. We use 2019 as our base year and disclose this to help demonstrate our emissions trajectory.
5. Due to improvements in data collection and assessment methods the 2021 data for IVG and L&G Affordable Homes is being restated.
6. 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, deriving emission factors from contractual instruments.
7. We have provided further details on each scope 3 category, and its relevance to our business on page 48.
8. Our climate metric reporting continues to evolve and the 2022 figure will be reported in 2023.

Carbon intensity of our investments

Our financed emissions, generated within our investment portfolios and classified as scope 3 – (category 15 (investments)), creates the largest contribution to our carbon footprint. We have implemented targets that support our commitment to align with a 1.5°C ‘Paris’ objective.

Scope 3 investment portfolio economic carbon intensity: methodology and data approach

Our primary metric is the GHG economic emissions intensity of the portfolio of group proprietary assets. 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 (CO₂e) emission data. There are three components to this metric:

1. the GHG emissions, CO₂e, in tonnes for each entity in which we are invested, arising from the underlying scope 1 and 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 per £m. For our primary metric we use:
 - EVIC for corporate issuers
 - sovereign capital stock for sovereigns
 - 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 CO₂e emissions per £m normaliser entity value as defined above) by the size of our investment and aggregating all holdings in our investment portfolio.

1. Link: bit.ly/PCAFGHGstandard

2. Link: bit.ly/TCFDimplementationguide

3. Link: bit.ly/SBTguideFinancialsector2022

4. This relates to the investments within the c.£81.6 billion of group proprietary assets qualifying as scope 3 category 15 (investments) emissions. The emissions for the additional c.£2.3 billion of operating assets (our housing businesses) are captured in the operational footprint on page 32.

5. Emission intensities measured as tonnes CO₂e/£m.

6. Sovereign normaliser is consistent, with choice of EVIC/ revenues for corporates and equities.

7. Metrics have been rebaselined through a combination of methodology and data sourcing changes.

Figures from the 2021 report, with an impact assessment, can be found on page 49.

We have applied the emissions data equally to equities and bonds as they are both used by corporates to raise capital and fund the business.

Our calculation methodology for our primary economic carbon intensity metric aligns with:

- PCAF stock emission intensity methodologies¹ (that is to say using EVIC as the stock emission intensity normaliser), where available
- TCFD's carbon footprint portfolio weighting methodology² (that is to say stock intensities are weighted by portfolio value).

While standards are still emerging, we also provide an alternative flow-based WACI 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, as aligned to TCFD's equivalent methodology. We also have started to track physical carbon intensity metrics, whereby the emissions are normalised by a measure of physical output, for certain asset class and sector subsets of the portfolio, in line with SBTi requirements³.

Further detail on the methodology, including the sourcing and application of the underlying data used in these metrics can be found in the additional information chapter on page 49. 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. We are also reliant on third party data.

Scope 3 investment portfolio economic carbon intensity: 2022 results

Table 5 shows the December 2022 group investment portfolio GHG emission intensity score of 73 tCO₂e/£m invested (-5% in 2022; and -23% from the 2019 base year).

When applied to the £79.4 billion⁴ of assets in this analysis, this gives an absolute footprint of 5.8 million tCO₂e emissions (2021: 7.3 million tCO₂e).

Within the annual movement in 2022, 2% is attributed to the change in updated portfolio emissions (from updated company carbon disclosures, and from trading activity) by holding EVIC constant, as shown in the table below. Our reported emissions in 2021 were impacted by the pandemic and the resultant impact on corporate and economic activity. This year we have witnessed a partial reversal of this movement due to lags in reporting of the underlying emissions data, as expected.

A reversal of this movement is then attributed to changes in the EVIC of the investments in 2022, illustrating the impact that market movements can have on economic emission intensity metrics.

While we remain ahead of our year end 2022 target reduction from 2019, we may still see further volatility from global events such as the pandemic or war in Ukraine in future years, and remain focused on our long-term decarbonisation targets and associated interim milestones.

Emission intensities on other bases (excluding sovereigns from the calculation and using revenues as the divisor) are also disclosed, with a further suite of climate investment metrics provided on page 46.

Use of proxy data

Where third party 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 approaches are employed, while for others that are not covered in our datasets, we use 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 chapter for further detail on the data and material proxy methodologies utilised.

Table 5. Group investment portfolio GHG emission intensities^{5,6}

Measure	Tonnes CO ₂ e/£m	Dec-21 ⁷	Dec-22 (constant EVIC)	Dec-22
Investment portfolio economic carbon intensity	76	78	73	
Reduction from Dec-21 – actual		2%	-5%	
Reduction from Dec-19 – actual		-19%	-17%	-23%
Reduction from Dec-19 – target			-12%	
Investment portfolio economic carbon intensity ex sovereigns	73		71	
Investment portfolio weighted average carbon intensity (WACI) (tCO ₂ /£m Revenues)	172		154	

Carbon intensity of our investments

continued

Scope 3 investment portfolio economic 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 relates to emissions for the previous year for corporate issuers, with greater lags for sovereign emission data)
- the underlying size/ revenues of the company or corresponding sovereign metric
- the market value of our holdings
- changes in methodology.

Changes in the emissions coming from our investments and our investment activity are key to decarbonising our portfolios in the medium and 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, as seen in Chart 9.

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 economic carbon intensity: targets

We are committed to align with the 1.5°C ‘Paris’ objective and have set targets to reduce our portfolio GHG emission intensity by 18.5% by the start of 2025 and by 50% by 2030, both from a 2019 base year.

This trajectory and the progression to date is shown in Chart 9.

As already referenced, changes in reported emissions due to the pandemic and the resultant impact on corporate and economic activity, are seen in our 2022 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 2023 reduction target of -18%¹ from a 2019 base year, which partially accounts for progress made to date.

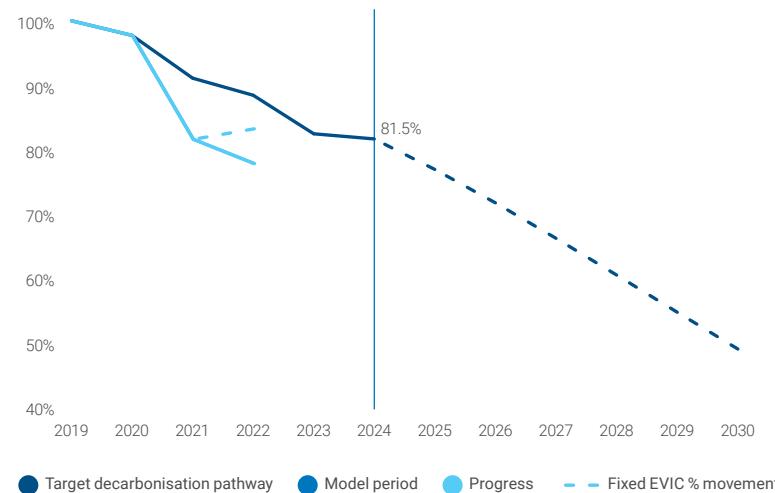
This target is above our year end 2022 score to allow for the continued post-pandemic global emissions increase, particularly noting sovereign emissions are on a two-year lag, and possible company emission increases in 2022 due to the energy crisis. The target keeps us on track for our mid to long-term commitments.

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.

Our portfolio level targets are supported by more granular asset class and sector-specific targets, in line with SBTi guidance.

Chart 9.

Group investment portfolio target decarbonisation pathway



1. To be measured fixing the EVIC divisor at year end 2022 levels to remove the impact of 2023 market movements on the target metric.

Implied portfolio temperature alignment

Approach

To complement the portfolio GHG emission intensity metrics, Legal & General uses an implied portfolio temperature alignment metric to measure and manage investment impact. This alignment metric measures and provides a score for the implied warming potential of a company (or aggregate portfolio).

The implied temperature alignment metric describes the climate transition pathway (temperature scenario) each company is expected to align to, based on both historical decarbonisation trends and targets the company has set. It reflects the direct link between global carbon emissions and the likely severity of global warming and allows investors to measure their impact on climate change and evaluate their performance relative to SBTs.

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

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

For most companies, implied temperature alignment is calculated on the basis of scope 1 and 2 emissions. 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 reference Climate Action Tracker¹ country alignment decarbonisation pathways and country alignment scores in our calculation. These reflect the latest country targets and progress to date. The database is updated in January each year.

LGIM alignment scores are constructed to follow TCFD recommendations 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. We particularly note the portfolio temperature rating (PTR) metric methodology developed by the SBTi which we have calculated for our SBT suite.

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 helps investors close the net zero gap. Given the lack of net zero aligned companies today, the aim is reduce the gap to net zero over time.

Group Investment portfolio implied temperature alignment

We have analysed c.£32 billion of listed assets (including government bonds), out of our £81.6 billion of group proprietary assets, where we have the relevant data. Our updated scores are shown in Chart 10².

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 88% coverage), while we use MSCI World for equities (97% 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.

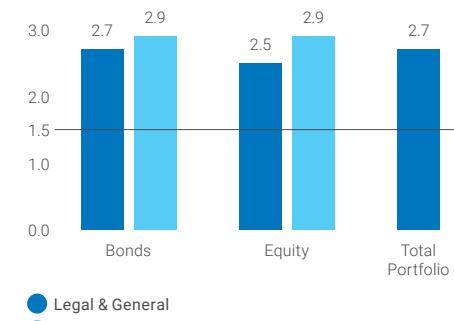
The investment universe does not yet contain all the renewable assets and green technologies required to deliver 'Paris' and not all companies are evidencing a future strategy that is consistent with 'Paris'. We know that to mitigate transition risk our portfolio must align with the reduction in carbon 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 chapter.

Chart 10.

2022 implied portfolio temperature alignment (°C)

c.£32bn of bonds and listed equity

4.0



- Legal & General
- Benchmark

Source: LGIM Destination@Risk

1. Link: bit.ly/ClimateActionTrackerOrg
2. Portfolio results are shown on a revenue-intensity-based carbon weighted basis. Multiple portfolio weighting options exist. Further detail on the weighting methodologies are given in the additional information chapter.

Engagement and remuneration

Engagement

Engagement

As disclosed in our strategy chapter, we use our influence as a large investment manager to support the transition to a low-carbon economy. We do this through active engagement, or as we term it 'engagement with consequences'. Our metrics demonstrate impact when viewed as part of our wider engagement strategy.

Transparency

We publish our assessments of companies against our expectations:

- LGIM ESG Score rates c.17,000 companies
- LGIM CIP Score rates c.5,000 companies¹.

We publish our policies, our latest views and our expectations of companies on the LGIM website and blog.

Engagement

Company engagement:

- we undertook 636 engagements on environmental topics in 2022
- under our CIP, we conduct in-depth engagement with c.100 companies¹.

Policymaker engagement: in 2022, we engaged on over 30 topics with policymakers and regulators around the world.

Measuring progress

Climate Impact Pledge:

- we reinstated one company which had been on our divestment list, following improvement²
- when compared with 2021, we voted against 35% fewer companies under the CIP, demonstrating an improvement in the market².

Shareholder resolutions: we have co-filed one climate-related shareholder resolution so far for 2023³.

Escalation

Voting: in 2022, we voted on 48 'Say on Climate' management-proposed resolutions, supporting 16.

Public pressure: we pre-declared our voting intentions for 13 companies in 2022.

Climate Impact Pledge: we voted against 80 companies for lagging behind our minimum expectations, and added two to our existing CIP divestment list^{2,4}.

Remuneration

Beginning in 2021, we set climate-related targets in our executive directors' 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 2022, environmental performance measures were aligned to the key commitments in our 2021 climate report. This includes progress on portfolio carbon emissions intensity reduction, in line with the annual target and interim milestones.

Performance share plan (PSP)

Purpose

The PSP provides a direct and transparent link between executive pay and the delivery of shareholder returns over the longer term. The 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

The Remuneration Committee assesses the formulaic vesting outcome, and may adjust the level of vesting downwards considering a range of factors including overall group performance, risk management, progress against our 2022 environmental commitments, and other capital and solvency measures. The vesting level of PSP awards may be adjusted downwards by up to 100% if outcomes are deemed insufficient.



LGIM Active Ownership report

See LGIM's Active Ownership report:
bit.ly/LGIMActiveOwnershipreport

1. From October 2022.

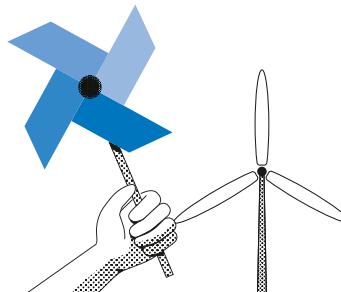
2. As at June 2022.

3. As at January 2023.

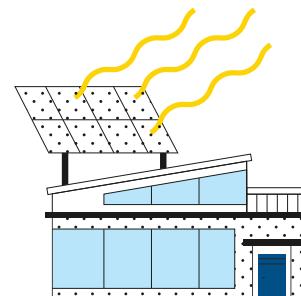
4. Companies are divested from select funds as permitted by mandate. Companies are divested up to a pre-specified tracking-error limit. If the tracking error limit is reached, holdings are reduced rather than fully divested.

Environmental targets and commitments

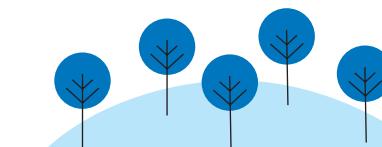
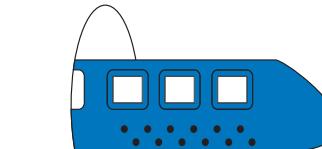
We take a long-term and broad view of our environmental impacts, noting that they expand beyond climate change. We also recognise the interrelated nature of climate change with the wider environment, and in particular the connection with biodiversity.



We are developing our own understanding of Legal & General's impacts and dependencies on nature and have set the following strategic commitments and targets which will help shape our response to the material risks and opportunities in the short, medium and longer-term.



As our understanding of each topic and their interrelationships develop, we expect our targets to also develop.



The energy we use

Strategic commitment

We will reduce our energy usage in line with our journey to net zero and source energy from renewable sources.

Target

By 2025, we will purchase 100% of directly procured electricity group-wide from renewable sources.

From 2030, our occupied offices (scope 1 and 2)¹ will operate with net zero carbon emissions.

Progress in 2022

- We procured 85% of our electricity from renewable sources.
- Our occupied offices generated 2,902 tCO₂e, which is a 32% reduction from our 2019 base year.

The way we travel

Strategic commitment

We will use hybrid working practices and technology to actively reduce the business miles we travel in line with our commitment to net zero.

Target

From 2030, our group-wide business travel will generate net zero GHG emissions.

Progress in 2022

Business travel generated 5,467 tCO₂e. While this is an increase from 2021, when travel was significantly limited as a result of the pandemic, it is still a reduction from our 2019 base year.

We expect our business travel emissions to increase in the short-term as we fully recover from the pandemic, before our planned reductions take place.

Natural resources

Strategic commitment

We will protect the natural resources we use through the implementation of sustainable procurement principles throughout our supply chain.

Target

By end of 2023, we will set a scope 3 category 1 (purchased goods and services) SBT, aligned with our net zero ambition.

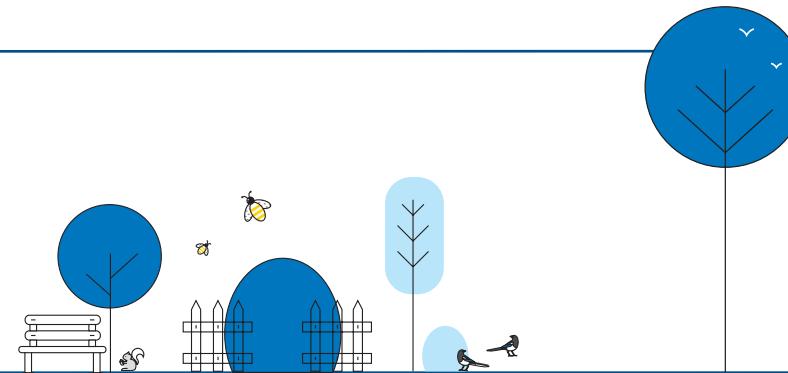
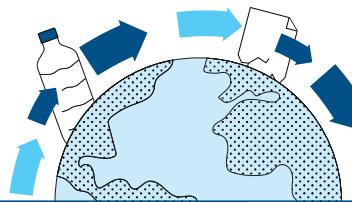
Progress in 2022

During 2022, we worked with leading carbon consultancy EcoAct to model the likely carbon associated with our supply chain, to enable us to determine materiality. We will continue to work across our supply chain to better understand and shape the carbon associated with our procurement activities.

¹. Applies to occupied offices where we actively control the management of utilities.

Environmental targets and commitments

continued



Water resources

Strategic commitment

We will protect and minimise the use of water resources in the spaces we create and occupy.

Target

From 2022, new LGC housing developments submitted for outline planning permission will target 110 litres of water per person per day (lpppd), moving to 105 lpppd by 2023, in areas of water stress.

By 2030, our core occupied offices¹ will consume a maximum of 22 lpppd in line with the Real Estate Environmental Benchmark (REEB), BBP.

Zero water pollution incidents.

Progress in 2022

- Zero water pollution incidents reported.
- Occupied offices 36 lpppd.
- L&G Modular Homes: 109 lpppd.
- IVG: 100 lpppd.
- CALA: 122 lpppd².

Circular economy

Strategic commitment

We aim to minimise and design our waste through the careful implementation of the principles of the circular economy.

Target

By 2025, we will divert 100% of waste from landfill in all offices and LGC development projects where we are responsible for waste management.

By 2025, we will reduce overall waste volumes per core occupied office¹ by 20% from a 2019 base year.

Progress in 2022

- 99% of waste diverted from landfill.
- Occupied offices' waste reduced by 28% from a 2019 base year.

Biodiversity

Strategic commitment

Through the careful management and design of the spaces we occupy and develop, we are committed to creating diverse and valuable natural spaces and achieving overall net biodiversity gains. We are also committed to understanding and positively shaping the biodiversity impacts of the investments we make.

Target

In 2023, we will develop our biodiversity strategy, focusing on impacts and opportunities on development sites within our housing and Real Assets businesses.

By 2025, we will report on milestones to reduce agricultural commodity-driven deforestation³ related to our investments and increase our investment in nature-based solutions.

Progress in 2022

- CALA launched its Urban Wildlife Strategy⁴.
- LGIM has written to 300 companies from a set of deforestation-critical sectors within its portfolio, outlining its expectations and their performance against them.

1. Applies to occupied offices where we actively control the management of utilities.
2. Assessed at legal completion, not outline planning stage.
3. Focusing on palm oil, soy, beef, pulp and paper.
4. Link: bit.ly/CALAUrbanWildlifestrategy

Science-based targets

We previously committed to set SBTs in accordance with the SBTi and to publish them in 2023. We have now received independent validation on the associated granular targets, which sit alongside our climate commitments that are set out on pages 44-45.

Our suite of SBTs is summarised in the table opposite. For context:

- Our group scope 1 and 2 target covers all operational carbon. This includes carbon from our core Legal & General occupied offices¹, our directly delivered housing businesses and our LGIM Real Assets business where we control and/or procure utilities.
- To enable the occupied offices within our scope 1 and 2 footprint to achieve the SBTs, we are reviewing our location strategy, which alongside our net zero ambition, focuses on our business requirements following the recent pandemic.
- The approach to target delivery in our LGC housing businesses is not expected to be a linear pathway and each of the businesses will operate slightly different timelines. There is anticipated to be increases within the LGC footprint in the initial years to accommodate for business growth, followed by a deeper reduction due to changes in operational activities, with the ultimate outcome of a 42% reduction by 2030.
- In order to achieve SBTs and stay on a net zero trajectory to 2030, our Real Assets businesses intend to:
 - remove gas from landlord-controlled areas – aim for 100% (minimum of 75%)
 - obtain actual occupier data for 100% of assets (at least 50% during 2022)
 - reduce the energy intensity (kWh/m²) of our assets by 55% (minimum 65% of assets).
- Our scope 3 investment targets cover c.47%² of the total shareholder investments as at 2021³.
 - The SBTs will help to evolve how we manage our net zero transition in line with industry best practice as it develops, and will enhance our climate transition risk management.

Science-based targets – (SBTi approved)

Emissions scope	Target	Metric	2019	2021	2022
Operational scope 1 and 2	We commit to reduce absolute scope 1 and 2 GHG emissions by 42% by 2030 from a 2021 base year ⁴ .	tCO ₂ e	38,942	30,957 ⁵	30,062
Scope 3 investment – group proprietary assets	<p>We commit to align the (SBTi-defined) portfolio temperature rating score for our listed equity, corporate bonds and corporate loans portfolio, within our shareholder owned investments, as follows:</p> <ul style="list-style-type: none"> • From 2.4°C at end 2021 to 2.1°C by end 2026, covering portfolio company scopes 1 & 2 • From 2.9°C at end 2021 to 2.5°C by end 2026, covering portfolio company scopes 1, 2 & 3. 	°C (ECOTS aggregation ⁶)	n/a	2.4 2.9	To be reported in 2023
	We commit to maintain the emissions intensity of our electricity generation project finance portfolio, within our shareholder owned investments, at or below 60 gCO ₂ e/kWh from 2021 through 2030 and only finance 1.5°C aligned electricity generation projects.	gCO ₂ e/kWh	n/a	60	To be reported in 2023
	We commit to reduce our real estate investment portfolio GHG emissions, within our shareholder owned investments, by 58% per square metre by 2030 from a 2019 base year.	tCO ₂ e/m ²	0.06	0.05	0.05

Science-based targets – (SBTi aligned)⁷

Emissions scope	Target	Metric	2019	2021	2022
Scope 3 category 13 – downstream leased assets	We commit to reduce our downstream leased asset GHG emissions by 55% per square metre by 2030 from a 2019 base year.	tCO ₂ e/m ²	0.06	0.05	To be reported in 2023

1. Applies to occupied offices where we actively control the management of utilities.
2. As at 2021, required activities made up 47% of our total shareholder investments while optional activities made up 14% and out of scope activities made up 39%.
3. Shareholder investments are defined as total investments to which shareholders are directly exposed. Policyholder and external client investments are captured within LGIM's separate target ambitions, and not in scope of the SBTi approval.
4. To account for the impact of the pandemic, our 2021 baseline includes 2019 emissions data for our managed Real Assets portfolio; while all other baseline emissions are from 2021.
5. Due to improvements in data collection and assessment methods, the 2021 data for IVG and L&G Affordable Homes has been restated.
6. ECOTS: Enterprise value plus cash emissions weighted temperature score.
7. SBTi validation process has to date focused on our operational scope 1 and 2 and material scope 3 emissions (category 15 – investment portfolio emissions). Further scope 3 validation is expected through engagement on the developing net zero standard for financial institutions.

Additional information

Cardiff Interchange

As part of a £400 million regeneration project in Cardiff, we are bringing our people into the heart of our investments in the city by building 100,000 square feet of sustainable office space which Legal & General will occupy.

We have ensured that our net zero target is at the centre of the office design, and has helped to shape the build, from the exclusion of gas, to the use of on-site renewables.



Deloitte assurance opinion

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

Independent Limited Assurance Report by Deloitte LLP to the Directors of Legal & General Group Plc on selected Environmental, Social and Governance ('ESG') metrics (the 'Selected Information') within the climate report of Legal & General Group Plc for the year ended 31 December 2022.

What we found: our limited assurance conclusion

Based on our procedures described in this report, and evidence we have obtained, nothing has come to our attention that causes us to believe that the Selected Information, as presented on page 32 of the climate report, and as listed below and indicated with a * in the climate report, for the year ended 31 December 2022, has not been prepared, in all material respects, in accordance with the Applicable Criteria defined by the directors.

What we looked at: scope of our work

Legal & General Group Plc has engaged us to provide independent limited assurance in accordance with the International Standard on Assurance Engagements ('ISAE') 3000 Revised Assurance Engagements Other than Audits or Reviews of Historical Financial Information 3000 ('ISAE 3000' (Revised)), International Standard on Assurance Engagements ('ISAE') 3410 Revised Assurance Engagements on Greenhouse Gas Statements 3410 ('ISAE 3410') issued by the International Auditing and Assurance Standards Board ('IAASB') and our agreed terms of engagement.

The Selected Information in scope of our engagement, as presented on page 32 of the climate report for the year ended 31 December 2022, as listed below and as indicated with a * in the climate report and in the following table.

Selected Information	Unit of measurement	Reported amount
Scope 1 emissions	tCO ₂ e	12,506
Scope 2 emissions – market-based	tCO ₂ e	2,586
Scope 2 emissions – location-based	tCO ₂ e	17,556
Scope 3 emissions categories – category 6: business travel	tCO ₂ e	5,467
Scope 3 emissions categories – category 7: homeworking (excluding employee commuting)	tCO ₂ e	4,739
Scope 3 emissions categories – category 8: upstream leased assets (serviced offices)	tCO ₂ e	306

The Selected Information, as listed in the above table, needs to be read and understood together with the Applicable Criteria: group.legalandgeneral.com/CarbonEmissions2022

Inherent limitations of the Selected Information

We obtained limited assurance over the preparation of the Selected Information in accordance with the Applicable Criteria. Inherent limitations exist in all assurance engagements.

Any internal control structure, no matter how effective, cannot eliminate the possibility that fraud, errors or irregularities may occur and remain undetected and because we use selective testing in our engagement, we cannot guarantee that errors or irregularities, if present, will be detected.

The self-defined Applicable Criteria, the nature of the Selected Information, and absence of consistent external standards allow for different, but acceptable, measurement methodologies to be adopted which may result in variances between entities. The adopted

measurement methodologies may also impact comparability of the Selected Information reported by different organisations and from year to year within an organisation as methodologies develop.

Directors' responsibilities

In respect of the Selected Information, the Directors of Legal & General Group Plc are responsible for:

- selecting and establishing the Applicable Criteria
- preparing, measuring, presenting and reporting the Selected Information in accordance with the Applicable Criteria
- publishing the Applicable Criteria publicly in advance of, or at the same time as, the publication of the Selected Information
- designing, implementing, and maintaining internal processes and controls over information relevant to the preparation of the Selected Information that are free from material misstatement, including whether due to fraud or error
- providing sufficient access and making available all necessary records, correspondence, information and explanations necessary.

Our responsibilities

We are responsible for:

- planning and performing the engagement to obtain sufficient appropriate evidence in order to express an independent limited assurance conclusion on the Selected Information
- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained
- communicating matters that may be appropriate to the Selected Information to the appropriate party including identified or suspected non-compliance with laws and regulations, fraud or suspected fraud, and bias in the preparation of the Selected Information
- reporting our conclusion in the form of an independent limited Assurance Report to the Directors of Legal & General Group Plc.

Our independence and competence

In conducting our engagement, we have complied with the independence and other ethical requirements of the Institute of Chartered Accountants in England and Wales ICAEW Code of Ethics ('ICAEW Code'). The ICAEW Code is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

We applied the International Standard on Quality Management 1 ('ISQM 1'). Accordingly, we maintained a comprehensive system of quality including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have confirmed to Legal & General Group Plc that we have maintained our independence and objectivity throughout the period and in particular that there were no events or prohibited services provided which could impair our independence and objectivity.

Deloitte assurance opinion

continued

What we did: key procedures

We are required to plan and perform our work to address the areas where we have identified that a material misstatement in respect of the Selected Information is likely to arise. The procedures we performed were based on our professional judgment. In carrying out our limited assurance engagement on Selected Information, we performed the following procedures:

- performed analytical review procedures and considered the risks of material misstatement of the Selected Information
- through inquiries of management, obtained an understanding of the entity, its environment, processes and information systems relevant to the preparation of the Selected Information sufficient to identify and assess risks of material misstatement in the Selected Information, and provide a basis for designing and performing procedures to respond to assessed risks and to obtain limited assurance to support a conclusion
- through inquiries of management, obtained an understanding of internal controls relevant to the Selected Information, the quantification process and data used in preparing the Selected Information, the methodology for gathering qualitative information, and the process for preparing and reporting the Selected Information. We did not evaluate the design of particular internal control activities, obtain evidence about their implementation or test their operating effectiveness
- through inquiries, documented whether an external expert has been used in the preparation of the Selected Information, then evaluated the competence, capabilities and objectivity of that expert in the context of the work performed and also the appropriateness of that work as evidence

- inspected documents relating to the Selected Information, including board committee minutes to understand the level of management awareness and oversight of the Selected Information
- performed procedures over the Selected Information, including recalculation of relevant formulae used in manual calculations and assessment whether the data had been appropriately consolidated
- performed procedures over underlying data on a sample basis to assess whether the data had been collected and reported in accordance with the Applicable Criteria, including verification to source documentation
- assessed a sample of management's assumptions and estimates in relation to the Selected Information
- accumulated misstatements and control deficiencies identified, assessing whether material
- read the narrative accompanying the Selected Information with regard to the Applicable Criteria, and for consistency with our findings.

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.

Use of our report

This report is made solely to the Directors of Legal & General Group Plc in accordance with 'ISAE 3000' Revised, 'ISAE 3410' and our agreed terms of engagement. Our work has been undertaken so that we might state to the Directors of Legal & General

Group Plc those matters we have agreed to state to them in this report and for no other purpose. Without assuming or accepting any responsibility or liability in respect of this report to any party other than Legal & General Group Plc and the Directors of Legal & General Group Plc, we acknowledge that the Directors of Legal & General Group Plc may choose to make this report publicly available for others wishing to have access to it, which does not and will not affect or extend for any purpose or on any basis our responsibilities. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than Legal & General Group Plc and the Directors of Legal & General Group Plc as a body, for our work, for this report, or for the conclusions we have formed.

 Deloitte LLP

Deloitte LLP
London
7 March 2023

Summary disclosure against TCFD recommendations

We have continued to disclose in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), in compliance with the FCA Listing Rule 9.8.6R(8). The table below gives a high level summary of how we have addressed the TCFD recommendations in this report. This standalone document provides us with the space we require to provide sufficient detail of our exposure to and approach to addressing climate-related issues, as we do with our

detailed disclosures on risk, tax and social issues. We also disclose this index in our annual report to signpost readers to our climate-related disclosures. In response to FCA guidance 9.8.6FG, we have also produced a standalone climate transition plan which will be published with the notice of meeting for our AGM, where it will be presented as an advisory vote. Our plan sets out our role in aligning our company with a 1.5°C net zero outcome, consistent with the UK government's targets.

Strategy	Further details are disclosed on pages 7-21.
Climate-related risks and opportunities	Our climate-related risks and opportunities are on page 8. We have integrated climate risk management into our overall risk management framework and are well placed to play a role in the decarbonisation of the economy.
Impact on our businesses, strategy and financial planning	Our business model is not expected to be significantly disrupted by climate change, however it does impact how we execute our strategy. Our climate strategy is on pages 7-16. We also disclose results of our scenario analysis, which quantifies potential impacts of different climate scenarios on pages 17-21. 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	Our climate scenario analysis provides comfort that our businesses will remain resilient despite the scale of adjustment needed to transition to a low-carbon economy. These scenarios, including a 2°C or lower scenario, are covered on pages 17-21.
Governance	Further details are disclosed on pages 22-24.
The Board's role in oversight	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 GEC. The structure, roles and responsibilities, and key decisions and discussions, are on pages 22-23.
Management's role in assessing risks and opportunities	We have appointed a Group Climate Change Director, who chairs the GEC and we set out some of our senior managers' responsibilities through the committees and overall risk and governance framework on pages 22-24. The link between executive remuneration and progress against climate commitments is set out on page 36.
Risk management	Further details are disclosed on pages 25-30.
Processes for identifying and assessing climate-related risks	Climate risk management has been integrated into our risk and governance framework, as seen on pages 25-26. As mentioned, we also use scenario analysis to carry out a detailed assessment of the potential impacts from climate risk.
Processes for managing climate-related risks	Our range of actions in meeting our climate risk management objectives are set out on pages 27-30. These include our active engagement, exclusion policy, and high carbon escalation process.
How we integrate these risks into our overall risk management	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	Further details are disclosed on pages 31-39.
Internal metrics	Our metrics support our commitment to align with the 1.5°C 'Paris' objective. We focus on our investment portfolio economic carbon intensity, implied portfolio temperature alignment and operational carbon footprint. We also measure our engagement with investee companies. Further details are in the metrics and targets chapter on pages 31-39.
Greenhouse gas emissions	Our scope 1 and 2 (location) operational emissions were 12,506 tCO ₂ e and 17,556 tCO ₂ e, respectively. Our scope 3 non-investment emissions (fuel and energy-related activities, waste, business travel, working from home and serviced offices) were 19,213 tCO ₂ e. Our scope 3 investment emissions were 5.8 million tCO ₂ e.
Targets	We have set our climate targets across our three pillar climate strategy to align with the 'Paris' 1.5°C objective. A detailed list of our climate commitments is set out on pages 44-45.

Commitments in detail

The diagram on pages 9-10 shows some of the key milestones for us to deliver a net zero asset portfolio and operate at net zero by 2050 through:

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

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

The climate report (TCFD) will also be supplemented by a climate transition plan later in 2023, which will provide greater detail on how we plan to transition to a low-carbon economy.

Invest

How we invest our £81.6 billion of proprietary assets

Commitment	By	Milestone	By
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 2023 reduce portfolio GHG emission intensity by 18% ¹ .	2023
		We will reduce portfolio GHG emission intensity by 18.5% ¹ and increase financing of low carbon technology and infrastructure.	2025
		We will reduce portfolio GHG emission intensity by 50% ¹ and increase financing of low carbon technology and infrastructure.	2030
We have set science-based targets in accordance with the Science Based Targets initiative (SBTi).	2030	Align the (SBTi-defined) portfolio temperature score for our listed equity, corporate bonds and corporate loans portfolio, within our shareholder investments as follows: • from 2.4°C at end 2021 to 2.2°C by end 2026, covering portfolio company scopes 1 and 2 • from 2.9°C at end 2021 to 2.5°C by end 2026, covering portfolio company scopes 1, 2 and 3.	2026
		Further asset class and sector-specific targets (covering real estate and electricity generation project finance portfolios summarised on page 39).	2030
We will continue to evolve our thermal coal exclusion criteria, phasing out investment-related coal and oil sands exposures by 2030 ² .	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 ³ commodity-driven deforestation in our investment portfolios and we will increase investment in nature-based solutions.	2025	We will disclose deforestation risk and mitigation activities in our portfolio as part of our year end 2023 publications.	2023
		By 2025, we will report progress on investment in nature-based solutions and defining associated financing criteria.	2025

1. From a 2019 base year.

2. Investment with more than 5% revenue exposure by 2030.

3. 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 £1.2 trillion of assets under management

Commitment	By	Milestone	By
LGIM is committed to work in partnership with our clients to reach net zero GHG emissions by 2050 or sooner across all AUM.	2050	In partnership with clients, LGIM will target 70% of AUM to be managed in alignment with net zero ¹ .	2030
LGIM is committed to achieving net zero carbon for all of its real estate equity assets by 2050 or sooner.	2050	LGIM will publish its approach to climate resilience across the real estate business in line with the Better Buildings Partnership Climate Change Commitment.	2023
		LGIM will target net zero operational carbon within the Sustainable Defined Contribution Property Fund 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
We have set an SBT-aligned target to reduce LGIM's downstream leased real estate portfolio GHG emissions per square metre by 55% by 2030 from a 2019 base year.	2030		
LGIM will report progress on the milestones to reduce agricultural commodity-driven deforestation in our investment portfolios through successful company engagement ² .	2025		

Operate

How our businesses operate

Commitment	By	Milestone	By
We have set SBTs to reduce absolute scope 1 and 2 GHG emissions by 42% by 2030 from a 2021 base year ³ .	2030		
All new homes delivered from 2030 will be enabled to operate at net zero carbon, both regulated and unregulated energy.	2030		
From 2030, our operational footprint (occupied offices and business travel ⁴) will operate with net zero carbon emissions.	2030	In 2023, we will begin the occupation of our new office in Cardiff which has been designed to align with current net zero standards and will continue to define our long-term location strategy.	2024
		We will establish a roadmap to determine key milestones in our ambition to achieve net zero emissions from business travel.	2024
All homes delivered by CALA will be designed to meet the LETI and RIBA 2030 target for embodied carbon standards from 2025 ⁵ .	2025		

1. Excludes sovereigns and derivative securities until such time as agreed methodologies exist.
2. Focusing on palm oil, soy, beef, pulp and paper.
3. To account for the impact of the pandemic, our 2021 base year includes estimated emissions data from our managed Real Assets portfolio based on 2019 data, all other baseline emissions are from 2021.
4. Applies to occupied offices where we actively control the management of utilities.
5. LETI 2030 target: <300kgCO₂/m² Upfront carbon A1-5, excl sequestration. RIBA 2030 target: <625kgCO₂/m² embodied carbon A1-5, B1-5, C1-4, incl sequestration.

Metrics dashboard



There are an increasing set of climate-related metrics associated with investment portfolios developing across the industry, sourcing from TCFD requirements and guidance from organisations such as the SBTi and NZAOA.

As we build our metric suite, and while we focus on the primary metrics presented in the metrics and targets chapter of this report, these tables present a full metric dashboard as at 31 December 2022.

The table sets out our current year metric, compared to both the prior year (2021) and the base year (2019). This provides useful context as to the current trajectory of our emissions.

Our climate metric reporting continues to evolve and we reference in the table where metrics will be calculated through 2022 and presented in the 2023 report.

Additional metrics (Invest)

Metric category	Metric	Metric measurement ¹	2019 (Rebased) ²	2021 (Rebased) ²	2022
Proprietary asset exposure	Portfolio value	£bn	83,700	95,698	79,378
	Renewable energy investments ³	£bn	1.4	1.4	1.3
	Direct fossil fuel exposure ⁴	£bn	–	–	1.0
Scope 3 investments (proprietary assets) – financed emissions	Investment portfolio economic carbon intensity (dynamic EVIC)	tCO ₂ e/£m EVIC	94	76	73
	Investment portfolio economic carbon intensity (reduction from 2019)	%	–	(19)	(23)
	Investment portfolio economic carbon intensity (static EVIC)	tCO ₂ e/£m EVIC (prior year)	–	–	78
	Investment portfolio economic carbon intensity (reduction from 2019)	%	–	–	(17)
	Investment portfolio economic carbon intensity ex sovereigns (dynamic EVIC)	tCO ₂ e/£m EVIC	–	73	71
	Investment portfolio economic carbon intensity (listed corporate bonds & equities, real estate and infrastructure) – NZAOA target metric	tCO ₂ e/£m EVIC	95	75	To be reported in 2023
	Investment portfolio weighted average carbon intensity (WACI)	tCO ₂ e/\$m Revenues	–	172	154
	Investment portfolio carbon footprint	Million tCO ₂ e	7.9	7.3	5.8
	Real estate investment portfolio physical carbon emissions intensity	tCO ₂ e/m ²	0.06	0.05	0.05
Scope 3 investments (proprietary assets) – physical intensity emissions	Electricity generation project finance portfolio physical carbon emissions intensity	tCO ₂ e/m ²	–	0.06	To be reported in 2023 report
	Downstream leased assets physical carbon emissions intensity	tCO ₂ e/m ²	0.06	0.05	To be reported in 2023 report
Scope 3 category 13 – physical intensity emissions	Implied portfolio temperature alignment – internal methodology	°C (ROTS aggregation ⁵)	–	2.7	2.7
Scope 3 investments (proprietary assets) – temperature portfolio alignment			(3.4)	–	

1. For each year's calculations the emissions and revenues data refers to the most recently available reported carbon footprint scores and revenue information (which generally contains a one-year lag for listed equity and debt, and two-year-lag for sovereigns). For example, the emissions (tCO₂e) and revenue data would generally refer to 2021 for the 2022 metric suite column.

2. Metrics have been rebaselined through a combination of methodology and data sourcing changes. Figures from the 2021 report provided in brackets

3. We have increased the number of renewable investment projects in 2022, although the total valuation has decreased due to higher interest rates.

4. Direct/ private investments in fossil fuel-related projects and companies.

5. ROTs: revenue owned emissions weighted temperature score.

Metrics dashboard

Operate

Additional metrics (Operate)

Metric category	Metric	Metric measurement	2019	2021	2022
Scope 1	Total scope 1	tCO ₂ e	15,226	13,722	12,506
	Occupied office gas usage UK	tCO ₂ e	872	746	509
	Gas usage from landlord activities	tCO ₂ e	6,842	5,467	6,068
	Construction activities	tCO ₂ e	7,512	7,509	5,929
Scope 2 – location	Total scope 2 location	tCO ₂ e	23,716	17,235	17,556
	Occupied office electricity usage UK	tCO ₂ e	3,964	2,788	2,393
	Electricity usage from landlord activities	tCO ₂ e	18,120	12,314	13,071
	Construction activities	tCO ₂ e	1,632	2,133	2,092
Scope 2 – market	Total scope 2 market	tCO ₂ e	3,015	2,432	2,586
	Percentage of electricity purchased from a renewable source	% of total	87	86	86
MWh	Total electricity	MWh	92,287	79,694	87,878
	Total gas	MWh	53,019	46,163	47,910
	Total on site fuel from our house building businesses	MWh	19,634	18,118	16,112
Scope 3 – operate	Category 6 – business travel	tCO ₂ e	7,223	2,070	5,467
	Category 7 – home working	tCO ₂ e	n/a	3,025	4,739
	Category 8 – serviced offices	tCO ₂ e	251	371	306

Non-carbon metrics

Metric category	Metric	Metric measurement	2019	2021	2022
Water	Core occupied office water consumption	Lpppd	–	–	36
	Water efficiency of L&G Modular Homes housing developments in water stressed areas	Lpppd	–	–	109
	Water efficiency of IVG housing developments in water stressed areas	Lpppd	–	–	100
	Water efficiency of CALA housing developments in water stressed areas	Lpppd	–	–	122
	Number of water pollution incidents	prosecutions	0	0	0
Waste	Total waste generated (occupied offices and house building)	Tonnes	31,033	37,920	36,613
	Waste from occupied offices	Tonnes	898	433	599
	Waste from house building construction sites controlled by LGC	Tonnes	30,135	37,487	36,014
	Total waste sent to landfill	% of total waste	4.52	1.4	<1

Scope 3 coverage

Scope 3 coverage¹

Category	Scope/ description	Key business relevance	Description of materiality and our current approach	Associated target/ commitment
Category 1	Purchased goods & services	Group-wide	Relevant to our organisation. We are working closely with our supply chain to obtain robust data during 2023 and will aim to disclose in future years.	By 2023 we will set a scope 3 category 1 (purchased goods and services) SBT aligned with our net zero ambition.
Category 2	Capital goods	LGIM Real Assets and LGC	Relevant to our organisation. We are developing standardised processes to capture this data and will disclose in future years.	We are committed to reducing the embodied carbon of our homes and real estate investments.
Category 3	Fuel & energy-related activities	Group-wide	Relevant to our organisation. Data collated and disclosed for 2022.	100% of our energy to be purchased from a renewable source.
Category 4	Upstream transportation & distribution	Group-wide	Included in category 1.	–
Category 5	Waste generated in operations	LGC and core occupied offices	Relevant to our organisation. Data collated and disclosed for 2022.	We will divert 100% of waste from landfill by 2025 in all offices and LGC development projects where we are responsible for waste management.
Category 6	Business travel	Group-wide	Relevant to our organisation. Data collated and disclosed for 2022.	From 2030, our group-wide business travel will generate net zero emissions.
Category 7	Employee commuting (working from home)	Group-wide	Relevant to our organisation. Data collated and disclosed for 2022.	–
Category 8	Upstream leased assets	Group-wide	Relevant to our organisation. Data collated and disclosed for 2022.	Our net zero ambition is shaping our future location strategy.
Category 9	Downstream transportation and distribution	L&G Modular Homes	Relevant to our organisation. Data will be collected as we deliver modular homes across the UK and will be disclosed in future years.	–
Category 10	Processing of sold products	n/a	Not relevant to our organisation.	n/a
Category 11	Use of sold products	LGIM Real Assets and LGC	Relevant to our organisation. We are developing standardised processes to capture this data and will disclose in future years.	All new homes we deliver, from 2030, will be enabled to operate at net zero carbon emissions.
Category 12	End of life treatment of sold products	LGIM Real Assets and LGC	Relevant to our organisation. We are developing standardised processes to capture this data and will disclose in future years.	–
Category 13	Downstream leased assets	LGIM Real Assets and LGC	Materially relevant to our organisation. Data collated and disclosed for 2022.	LGIM Real Assets is committed to achieving net zero carbon across our real estate equity platform by 2050.
Category 14	Franchises	n/a	Not relevant to our organisation.	–
Category 15	Investments	Group proprietary assets	Materially relevant to our organisation. Data collated and disclosed for 2022.	By 2030, reduce portfolio GHG emission intensity by 50% ² and increase financing of low-carbon technology and infrastructure.

1. Scope 3: indirect emissions from our operational businesses: cat. 3 (emissions related to energy purchased and consumed by Legal & General in the reporting year, that are not included in scope 1 and 2); cat. 5 (emissions from third-party disposal and treatment of waste generated in occupied properties and construction activities in the reporting year); cat. 6 (emissions from business mileage, flights and train journeys for UK and US operations); cat. 7 (emissions from home working only, calculated using BEIS conversion factors); cat. 8 (emissions from the operation of assets that are leased to Legal & General in the reporting year and not included in scope 1 or scope 2, calculated using REEB 2020 benchmarks); cat. 13 (emissions from tenant operations of Legal & General owned assets); cat. 15 (emissions from our investments).
2. From a 2019 base year.

Investment portfolio carbon footprint detail

Scope 3 investment portfolio carbon footprint: underlying data approach

ISS data provides a coverage of £30.1 billion of our corporate portfolio, and £4.9 billion of our sovereign portfolio (c.44% direct coverage of 2022 portfolio). The following categories cover the approach to each asset class, including the techniques we apply to estimate and proxy carbon emissions in the absence of third party emissions data.

Corporate credit and listed equity

The carbon footprint calculation for this asset class is purely data-driven, using our predominant data providers as follows:

- ISS is LGIM's primary carbon data platform
- corporate normaliser data:
 - 'EVIC' scores, used to normalise the emission scores within the Investment portfolio economic carbon intensity calculation, are provided by Refinitiv
 - 'revenue' scores, used to normalise the emission scores within the investment portfolio WACI calculation, are provided by ISS
- carbon emissions and revenue data have a one-year lag.

Sovereigns

For government bonds we also follow a data-driven approach, as follows:

- production based GHGs (ISS): GHGs within the country border per calendar year is the numerator
- divisor: total capital stock per calendar year (IMF) used for the economic intensity calculation – tCO₂e/£m invested (broadly comparable to tCO₂e/£m EVIC for corporate bonds)
- GDP per calendar year (ISS) used for the revenue-based calculation – tCO₂e/£m GDP (broadly comparable to tCO₂e/£m revenue for corporate bonds)
- government carbon emissions data has a two-year lag.

Unscored credit and equity (both listed and unlisted)

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

1. mapping to listed parent company with carbon disclosure
2. a suitable stock proxy in the ISS database
3. a scored portfolio sector average, based on the Bloomberg Industry Classification System (BICS).

Property

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 31% 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 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 has established more recent benchmarks for particular types of commercial buildings, predominantly offices and shopping centres. REEB 2020 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.

LTMs

Our approach to LTMs is based on an analysis of the lending by purpose and is mapped to the portfolio sector average for the 'consumer non-cyclical' industry.

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 6, where we show their impacts on the equivalent metric as used for the production of last year's climate report. This enables us to compare our 2022 metrics with those from 2021 on a comparable basis, as shown on page 33 of the main report. This rebasing activity has included the upgrade of the calculation onto the LGIM Destination@Risk system, linking into an upgraded issuer-parent hierarchy and the shift from the Global Industry Classification Standard (GICS) to the BICS approach for portfolio sector average proxy scores.

The table shows the impact of stepping through these changes. This year's upgrade increased the economic carbon intensity and a fall in the revenue-based measure. We have used these updated, rebased numbers as the starting point for determining the change in carbon intensity during 2022.

1. CIBSE Technical Memorandum 46 (TM46): Energy Benchmarks 2008.
2. Link: bit.ly/BBPRealEstateEnvironmentalBenchmarks

Table 6. Group investment portfolio greenhouse gas emission intensity – rebasing impact December 2021

Measure	Tonnes CO ₂ e/£m		
	2021 climate report	Impact of infrastructure upgrade	
		Dec 21	Dec 21 (Rebased)
Investment portfolio economic carbon intensity	74	3	76
% reduction from Dec 2019 baseline	-19%		
Investment portfolio economic carbon intensity excl. sovereigns	67	6	73
Investment portfolio weighted average carbon intensity (WACI) (tCO ₂ e/£m Revenues)	262	-29	233
Investment portfolio weighted average carbon intensity (WACI) (tCO ₂ e/\$m Revenues)	193	-22	172

Portfolio temperature alignment aggregation approaches

Aggregation of implied temperature alignment at a portfolio level

We have adopted two methods for aggregating temperature alignment scores of individual securities into portfolio level metrics.

For the LGIM Implied Temperature Alignment metric, we have aligned to the SBTi 'Revenue owned emissions weighted temperature score (ROTS)'¹ portfolio weighting option, which expresses portfolio alignment on a (revenue-intensity-based) carbon weighted basis.

This approach aligns with LGIM's default approach and supports the measurement and management of investment impact.

Portfolio alignment

= \sum position value x security temperature alignment x security revenue-based carbon intensity (WACI) /

\sum Position value x security revenue-based carbon intensity (WACI)

For the SBTi Portfolio Temperature Rating (PTR) metric, we have aligned to the SBTi 'Enterprise value and cash owned emissions weighted temperature score (ECOTS)'¹ portfolio weighting option, which expresses portfolio alignment on a (EVIC-intensity-based) carbon weighted basis.

This approach aligns with the our primary economic emissions intensity metric to support consistency across our target metrics.

Portfolio alignment

= \sum position value x security temperature alignment x security EVIC-based economic carbon intensity /

\sum Position value x security EVIC-based economic carbon intensity

We rely on third-parties for our emissions and target data; where third party data is not available, we use proxies for these emissions on a best endeavours basis.

1. Link: bit.ly/SBTguideFinancialsector2022

Glossary

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, 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 that investors have entrusted with our fund managers to invest across our investment products.

Biodiversity

The variety and variability of life on earth. It helps us tackle climate change, protects us from natural disasters, and delivers us drinking water, oxygen, food and medicine.

Bio-energy with carbon capture and storage (BECCS)

Applies to a facility where carbon dioxide capture and storage (CCS) technology is derived from any form of bioenergy 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. 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. The equivalent warming of non-CO₂ GHG emissions are measured as tonnes of CO₂e.

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.

Carbon price

A carbon price is a price applied to carbon dioxide and other GHG emissions in order to encourage emissions reductions.

Climate Impact Pledge (CIP)

The CIP is LGIM's dedicated climate engagement programme. Through the CIP we are committed to helping companies 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.

Climate transition plan

Sets out how an organisation plans to transition to a low-carbon economy. It includes not only its climate commitments, but the roadmap (and associated risks) to achieving them. For a UK-based financial services company, the plan should align with guidance from GFANZ and the UK Transition Plan Taskforce.

Commodity-driven deforestation

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

COP 27

The 27th United Nations Conference of the Parties climate change conference, held in Egypt in November 2022.

Energy system

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

Enterprise value including cash (EVIC)

EVIC 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.

ESG

Environmental, social, and governance. This term is commonly used to denote the material non-financial factors that are an important contributor to company performance.

Exclusions

Relates to a business policy that bars certain companies from being purchased for a portfolio due to their business activities.

Greenhouse gas (GHG)

Any of 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).

Implied 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.

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.

LGA

Legal & General America.

LGAS

Legal & General Assurance Society.

1. Link: bit.ly/GlobalForest

Glossary continued

LGC

Legal & General Capital.

LGIM

Legal & General Investment Management.

LGIM Destination@Risk

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

LGRI

Legal & General Retirement Institutional.

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

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.

'Paris' objective

The Paris Agreement was an agreement within the United Nations Framework Convention on Climate Change effective 4 November 2016. The objective is to limit the increase in average global temperatures to 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.

PMS

Legal & General (Portfolio Management Services) Limited. The administrator of the WorkSave Pension and the Legal & General Personal Pension.

Proprietary assets

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

Retail

Legal & General Retail covers the savings, protection, mortgage and retirement needs of our retail policyholders and workplace members.

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.

Stewardship

The responsible oversight of capital that we allocate on behalf of our clients in order to generate sustainable benefits for the economy, the environment and society. It involves engaging with the companies we invest, as well as regulators and policymakers to help tackle systemic issues.

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.

Workplace Savings

A part of our Retail division, and the business area that provides product management and governance support for workplace members.

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
 - 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
- 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 metric 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 emission 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.
5. Any material change in these variables may cause the assumptions, and therefore, the climate metrics and data based on those assumptions, to be incorrect.
6. 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 the 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
 - over-reliance on a limited number of the same prescribed models or scenarios may amplify systemic climate-related risks.
7. 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.
8. Any opinions or views of third parties expressed in this report are those of the third parties identified, and not of the group, its affiliates, directors, officers, employees or agents. By incorporating or referring to opinions and views of third parties, the group is not, in any way, endorsing or supporting such opinions or views.

1. This is with the exception of scope 1, scope 2, and scope 3 (categories 6, 7 and 8) metrics, which have been subject to independent limited assurance by Deloitte (see pages 41-42).

9. While all reasonable care has been taken in preparing this report, neither the group nor any of its affiliates, directors, officers, employees or agents make any representation or warranty as to its quality, accuracy or completeness, and they accept no responsibility or liability for the contents of this material, including any errors of fact, omission or opinion expressed. Some of the information that appears in this report may have been obtained from public and other sources and, while the group believes such information is reliable, it has not been independently verified by the group and no representation or warranty is made by the group as to its quality, completeness, accuracy, fitness for a particular purpose or non-infringement of such information.

10. 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 and commitments, and could cause actual results,

performance or events to differ materially from those expressed or implied in such statements. Any opinions and estimates should be regarded as indicative, preliminary and for illustrative purposes only. The expected and actual outcomes may differ from those set out in this report. It is possible that the assumptions drawn, and the judgements exercised may subsequently turn out to be inaccurate. The judgements and data presented in this report are not a substitute for judgements and analysis made independently by the reader.

The statements in this report are based on current plans, expectations, estimates, targets and projections and are subject to significant uncertainties and risks and can be affected by other factors 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.

Factors which may cause actual results, performance or events to differ materially from those expressed or implied in the forward-looking statements include (but are not limited to):

- changes in environmental, social or physical risks
- legislative, regulatory and policy developments, including those addressing climate change, and the way in which and speed at which those developments take place
- the development of standards and interpretations, including evolving practices in ESG and climate reporting
- the ability of the group, with government and other stakeholders, to mitigate the effects of climate change effectively
- the delivery of policy actions and achievement of climate reduction targets by companies in which the group invests and in the wider economy.

Please see the group's latest annual report for further details of risks, uncertainties and other factors relevant to the business.

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.

11. 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.