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Real estate: Net zero carbon roadmap

Preparing for a more resilient future

LGIM Real Assets
December 2020

"The goal of net-zero is possible – and we are committed to achieving it."

Michelle Scrimgeour
CEO, LGIM

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Foreword

As part of our commitment to achieve net zero carbon across our real estate platform by 2050, I am pleased to present the LGIM Real Assets Real Estate Net Zero Pathway report. This document lays out the net zero carbon strategy for our real estate investments.

Avoiding a climate catastrophe is our greatest global priority. The overall social, environmental and economic impacts are already being felt in many parts of the world, leading to wide-ranging, destructive and irreversible changes to the earth's climate systems. It is a global challenge that requires a collective global effort by governments, policymakers, companies, investors and society. As a global institutional investor, it is our responsibility and fiduciary duty to protect and generate long-term value for our clients.

With buildings contributing up to 40% of global greenhouse gas emissions, the built environment sector has a pivotal role to play in our global efforts to decarbonise the whole building lifecycle and to meet the UK's commitment to the UN Paris Agreement. With an average lifespan of 30 to 40 years, buildings must be decarbonised for their whole lifecycle. As new regulations come into force, the assets that do not meet the required levels of energy performance risk becoming stranded, becoming unattractive to occupiers, and losing value, all of which have the potential to adversely affect returns. As investors and real asset owners, we have a responsibility to future proof our real asset investments, and to ensure they are resilient and able to adapt to both climate-related transition and physical risks.

Pathway to net zero

As part of Legal & General Group and Legal & General Investment Management's (LGIM) commitment to mitigate climate change and to promote a transition to a low carbon economy, we have been aligning our business with a low carbon future for many years, putting sustainability at the heart of our investment strategy. In 2019, LGIM Real Assets scaled up our ambition to deliver buildings that are Paris-aligned, becoming a signatory to the Better Buildings Partnership Climate Change Commitment and pledging to achieve net zero carbon for our real estate platform by 2050 (or sooner).

Achieving net zero carbon will require a huge and well-coordinated team effort. Every building we construct, own and manage is supported by a unique group of individuals and partners, both from within our organisation and externally - from the design and development teams, to the managing agents and facilities management integration teams who help to ensure that buildings are fit for the future and meet our social and environmental standards. Our occupiers will also play a fundamental role in influencing the scale and pace of our transition.

At Legal & General, our purpose is to improve the lives of our customers, build a better society for the long term, and create value for our shareholders. This shapes how we work and helps us create our vision of 'inclusive capitalism'. We believe that our net zero carbon goals will not be met unless our decarbonisation efforts are intrinsically linked to the creation of a more equitable society.

Achieving our net zero goals is not going to be easy. But I believe that our industry can decarbonise and move from being part of the problem to being part of the solution. Our net zero roadmap sets out our pathway in building a more resilient and better future.

Bill Hughes
Head of LGIM Real Assets

Executive summary

LGIM Real Assets is a division of LGIM, one of Europe's largest institutional asset managers and a major global investor. LGIM manages £1.24tn in assets (as at 30 June 2020), working with a range of global clients, including pension schemes, sovereign wealth funds, fund distributors and retail investors. This year, LGIM committed to work in partnership with clients on decarbonisation goals, consistent with an ambition to reach net zero emissions by 2050 or sooner across all assets under management.

Legal & General has been investing in commercial, alternative and residential real estate in the UK since 1971. Today, LGIM Real Assets is responsible for £21.3bn AUM of real estate investment in the UK, across 22 unlisted funds. This real estate portfolio is extensive, holding over 700 assets across the UK and encompassing over 76 million square feet of lettable real estate, spread over all major commercial property sectors. More than half of our properties are independently managed and operated by our occupiers. Looking ahead, a much deeper level of engagement and collaboration with our occupiers will be necessary in order to achieve our net zero objectives.

As a long-term investor, we have a responsibility to protect our clients' capital through integrating ESG considerations into our investment process. We believe this leads to better risk management and will drive long-term value. Over the last ten years, we have successfully achieved our carbon emission reduction targets across our real estate business. Becoming a signatory to the Better Buildings Partnership Climate Change Commitment serves to strengthen our commitment even further.

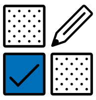
We believe it is our fiduciary duty to help to mitigate the risk of stranded assets and increase the value of our real estate portfolios in the long term. It is our belief that sustainability and ESG already sits alongside location, occupier, building size and building quality as a key factor in real estate value and performance, and its importance will only increase over time. This is about getting ahead of emerging policy responses to the climate crisis and future proofing our assets to create better quality, better performing real estate assets.

Our commitments

Net zero carbon

Our commitment is to achieve net zero carbon across our whole real estate portfolio by 2050 or sooner. This commitment goes beyond our landlord operations, covering whole building emissions which include our occupiers.

Science-based targets



Our science-based targets will help support our trajectory to net zero out to 2030. As illustrated in the graphic below, we will reduce the operational carbon and energy intensity of our landlord-controlled areas (scope 1 & 2 emissions) by 60%. We will establish science-based targets for our wider scope 3 emissions during 2021.

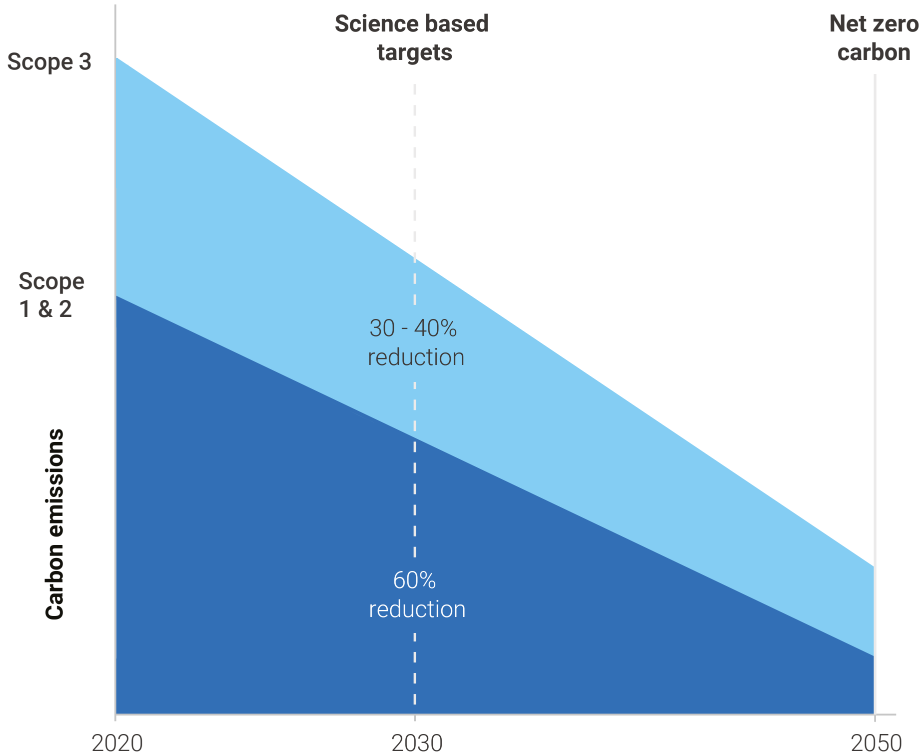
Best practice standards

To achieve net zero, we are firmly committed to the principles defined by the UK Green Building Council framework. We will measure and reduce embodied carbon. We will use the energy hierarchy to drive down the demand of our properties, to energy intensity levels which are 'Paris proof'. We will increase renewable energy supply and only consider verified offsetting as the final step.

Scope 3
Occupant purchased energy, embodied carbon, landlord purchased goods & services

Scope 1
Landlord purchased gas & fuel

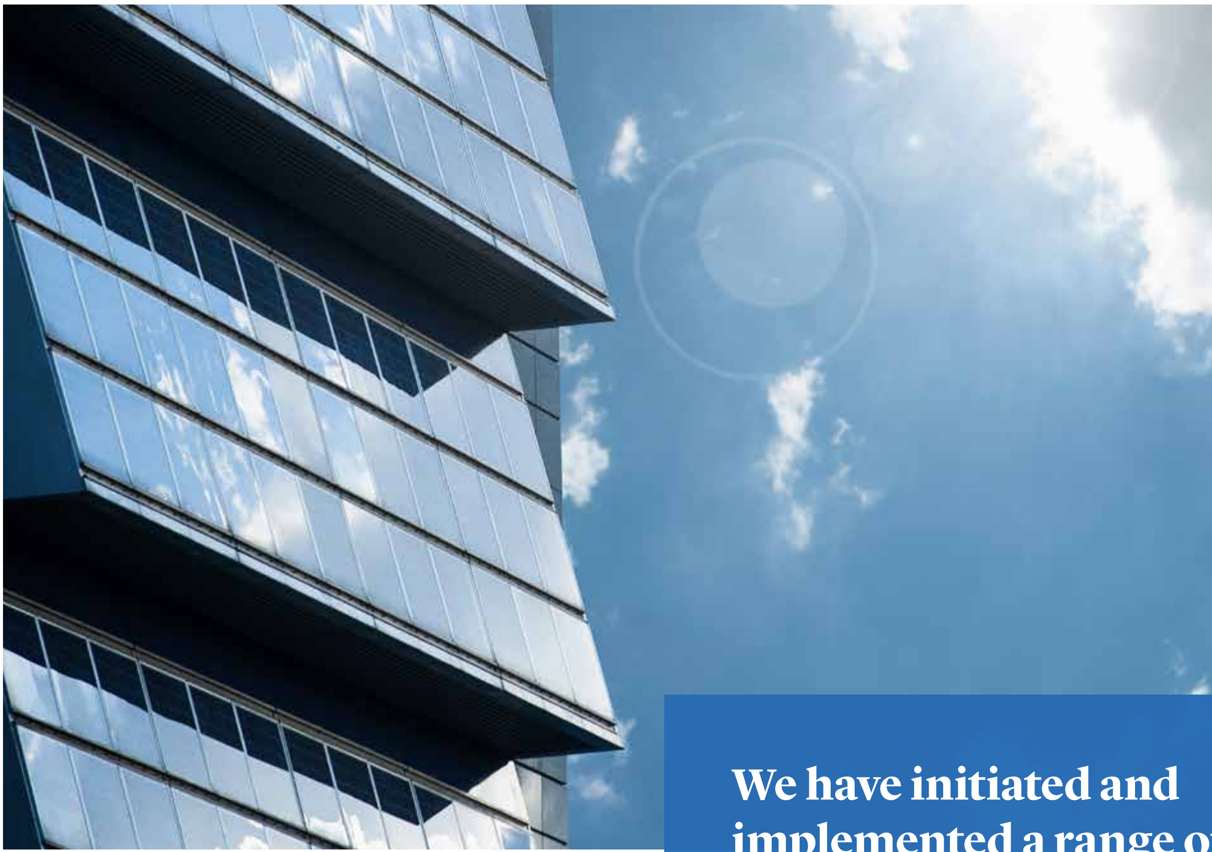
Scope 2
Landlord purchased electricity



Source: LGIM Real Assets

Our strategy

To achieve our commitments, we are focusing on the key elements across the whole carbon lifecycle.



We have started on our pathway to net zero by building on our existing sustainable and responsible real estate management policies and framework. Over the last few years, we have initiated and implemented a range of new components that form the building blocks of our net zero strategy, as summarised overleaf. We have also established a programme of pilot net zero audits across different asset types. The findings have provided valuable insights and confirmed the critical importance of using key intervention points in the building lifecycle to allow implementation of material improvements in a practical and cost-effective way. These key intervention points will be prioritised and embedded into our existing asset sustainability plans at asset level and will utilise new tools and procedures.

We have initiated and implemented a range of new components that form the building blocks of our net zero strategy

	Construction and refurbishment	Key intervention points	Progress to date	
Construction	• Target, measure and minimise embodied carbon from product and construction • Offset at practical completion using recognised framework and disclosure	New development	• New developments and refurbishment - Briefs and guidance • Acquisitions - new NZC due diligence audits • Net zero roadmap audits - pilots on new and existing assets, development of new net zero roadmap audits, to assess transition path and initial cost • Delivering actions & solutions - working with our supply chain on new asset sustainability plans estimates • Performance analysis and reporting – new integrated data platform, improving data quality and reporting at asset and fund level • Strengthening our occupier engagement strategy • Climate related risk and resilience – a new methodology to assess the physical risk profile of climate change scenarios at asset level	**Occupier engagement**
	Operational stage			
Operational	• Prioritise reduced energy demand, use 'Paris Proof' energy intensity targets • Optimise on-site renewables • Off-site renewables that demonstrate additionality • Offset using recognised framework and disclosure	Acquisition Lease event Refurbishment Void period		
	Disposal and demolition			
End of life	• Measure and minimise embodied carbon from demolition and disposal • Offset using recognised framework and disclosure	New development		

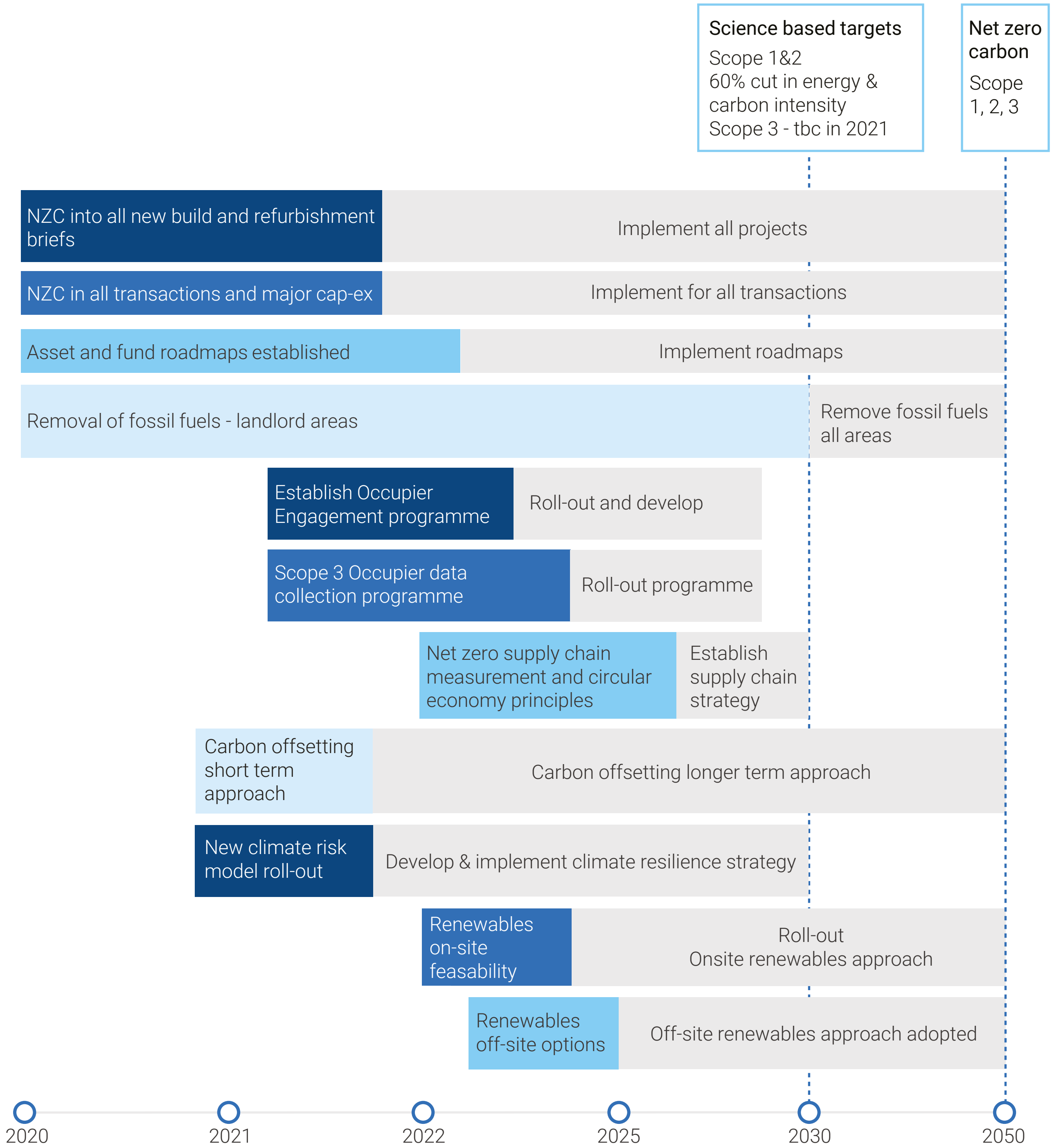
Independent audit and verification process

Given the importance of forward-looking assessments of climate-related risk, as recommended by the Taskforce on Climate-related Financial Disclosure (TCFD), we embarked last year upon an initiative to assess the physical risks of our portfolio, and in particular flood risk under different climate scenarios over the next 30 years and beyond. We will use this work to inform our climate risk and resilience strategy.

Our commitment to net zero has instilled a sense of determination and purpose in our race to a low carbon future. It has served to strengthen our responsible investing principles and, more importantly, has provided an impetus that aligns everyone across our business in contributing to the fight against climate change.

Milestones to net zero

The following outlines our delivery strategy and indicative milestones. These timelines will evolve as we move forwards and we will aim to accelerate progress wherever possible. Initiatives already exist in a number of these areas and we will be adapting them to meet our net zero programme.



Source: LGIM Real Assets

1. Introduction: climate challenge for the real estate sector

"Net zero" refers to achieving an overall balance between emissions produced and emissions taken out of the atmosphere.

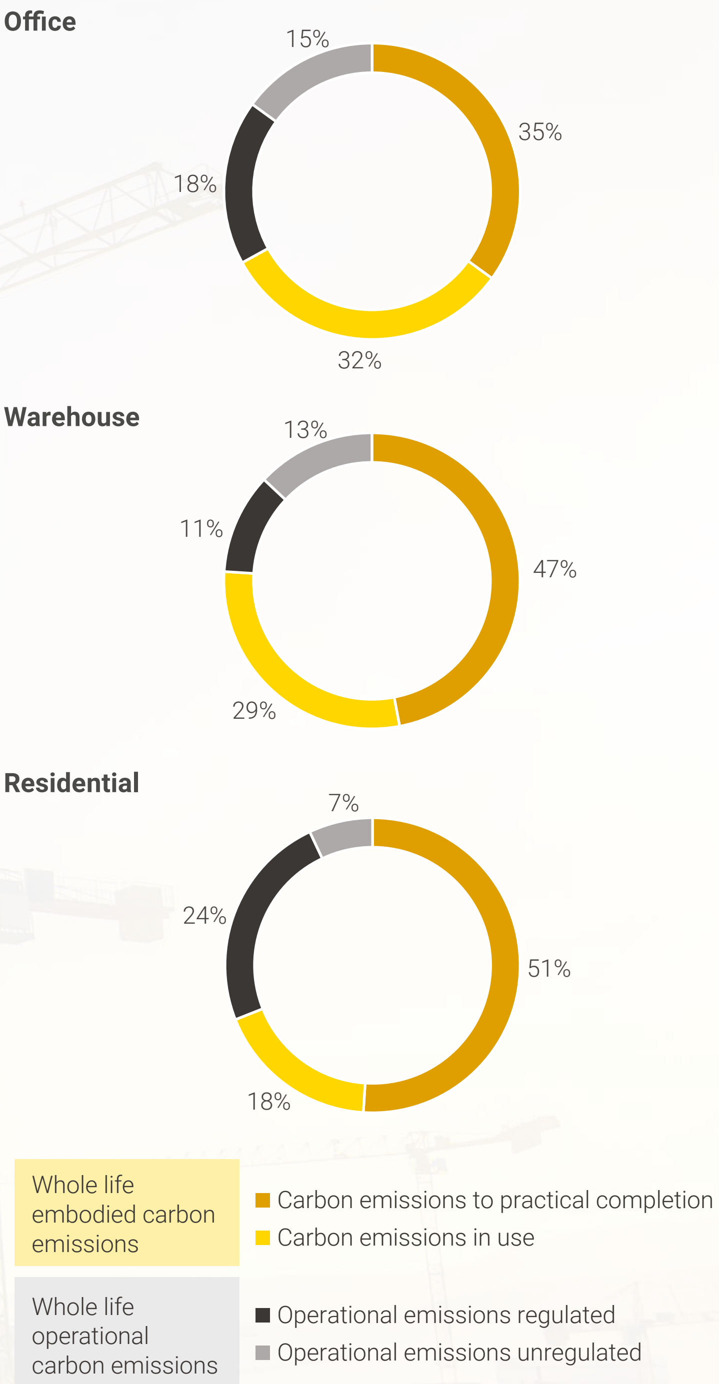
The challenge - climate emergency

Climate change has presented the world with an unprecedented challenge that requires coordinated and urgent action. The landmark 2016 Paris Agreement seeks to restrict the increase in the global average temperature "to well below 2°C above pre-industrial levels" and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. In order to reduce the huge gap between current emission levels and the reductions necessary to achieve the Paris targets, we must act now. The changes needed are extensive and necessary right across society and the global economy. In a global response, governments, central banks, investors, companies and civil society have declared a climate emergency. In the UK, the government has committed to achieving net zero carbon by 2050, which will require substantial changes in the way we produce and consume energy and materials. This means that we need to achieve drastic cuts in all carbon emissions over the next decade.

The role of the real estate sector

The operation of buildings (from energy used to heat, cool and light buildings) is responsible for 28% of all carbon emissions in the world. The remaining 11% comes from the embodied carbon associated with the materials and construction process throughout the whole building lifecycle. Many believe that the window for action in order to achieve net zero is rapidly closing. It is clear that building owners and operators have a central and urgent role to play in delivering the changes needed to drive down emissions in this key sector.

Whole life carbon



Source: UK Green Building Council

The charts above show the whole life carbon emission breakdown for a number of different building types.

It is clear that embodied carbon represents a significant proportion of total emissions.

It is also important to note that whilst operational emissions are gradually emitted over the lifetime of the building, the majority of embodied emissions are effectively created today on construction.

2. Our commitment

Our commitment to decarbonisation

At Legal & General, we have made it our responsibility to tackle climate change and to prioritise efforts to combat the deepening global crisis, which will have severe consequences for generations to come.

"Our organisation has a strong and long-term commitment to sustainability. Our journey to reduce carbon emissions in our real estate business started in earnest ten years ago. We are therefore proud to join others through the Better Buildings Partnership and commit to achieving net zero carbon."

Bill Hughes
Head of LGIM Real Assets

As a real asset owner and investor, we have been actively working to manage and reduce our carbon emissions over the last ten years. By 2018, we had achieved the target set in 2010 to cut our landlord operational carbon emissions by 20%. This was two years ahead of schedule and so during 2019, we put in place new science-based targets as a basis for setting our targets to 2030.

Commitment

Our **science-based targets,** which align with a 1.5°C global warming scenario, commit us to reducing the operational carbon and energy intensity of our landlord-controlled areas (scope 1 & 2 emissions) by 60% over the next 10 years. We will establish science-based targets for our scope 3 emissions during 2021, which will support our trajectory to net zero.

Commitment

In 2019, we declared our aim to achieve net zero carbon across our whole real estate portfolio **by 2050 or sooner.** This commitment goes beyond our landlord operations, covering the whole building emissions including our occupiers.

Commitment

To achieve net zero, we are firmly committed to the principles **defined by the UKGBC framework:** we will measure and reduce embodied carbon; we will use the energy hierarchy to drive down the demand of our properties to energy intensity levels which are 'Paris proof'; and we will increase renewable energy supply and only consider verified offsetting as the final step.

The full scope of our commitments is explained in the following sections.

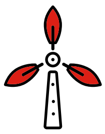
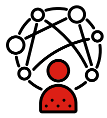
3. Our purpose and progress

Our net zero strategy and approach are underpinned by our overarching purpose and guiding principles in responsible real estate investment management.

LGIM Real Assets: Our purpose

To deliver long-term positive value to our stakeholders by committing to a responsible and sustainable approach to real asset investment management

Our guiding principles

Responsible investment must be integrated into every decision we make	The benefits of our investments should be felt broadly across the **communities** they serve	We work to advance the transition to a **low-carbon world**	We amplify our impact by promoting our values throughout our **stakeholder network**
			

What this means for our real estate business

As long term investors, we have a responsibility to integrate ESG considerations into the investment and management process of our assets This leads to better risk management and will drive long term value, as well as the potential to unlock opportunities	Our business is about improving societal outcomes and place-based impact across the assets that we manage This leads to better health and well-being and building a more inclusive economy and society	As an investor, builder and landlord, we recognise that the built environment is a significant contributor to climate change We are committed in our efforts to advance the transition to a low-carbon world, taking action to achieve net zero emissions	As a global institutional investor and leader in the real estate industry, we have a key role in driving change and creating real world impact We do this through strong collaboration and partnerships with organisations who are aligned with our core values

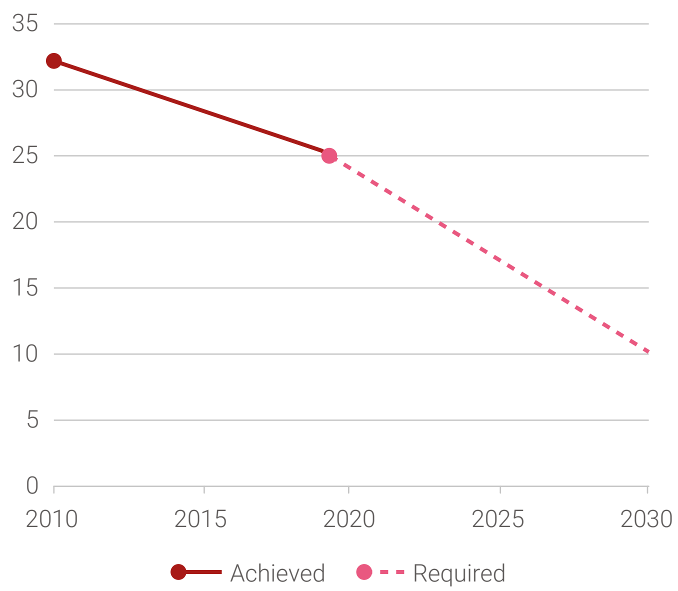
Our net zero approach through active portfolio management

Over the past 10 years, LGIM Real Assets has established a strong sustainability and ESG framework, based on active portfolio management. This framework sets out our policies and strategy, sustainable asset management plans, asset level targets, green lease clauses (since 2011), sector sustainability guides, and monitoring and reporting systems. For new developments and capital works, ambitious sustainability targets and requirements such as BREEAM and Soft Landings have been in place for many years.

Real estate performance since 2010
This approach has yielded positive outcomes, with average like-for-like electricity intensity (kWh/m²) having been reduced by over 20% since 2010 baseline levels.

However, the scale of the task over the next ten years can be seen in the chart opposite, with a further 60% cut in intensity required compared with 2018/19 performance.

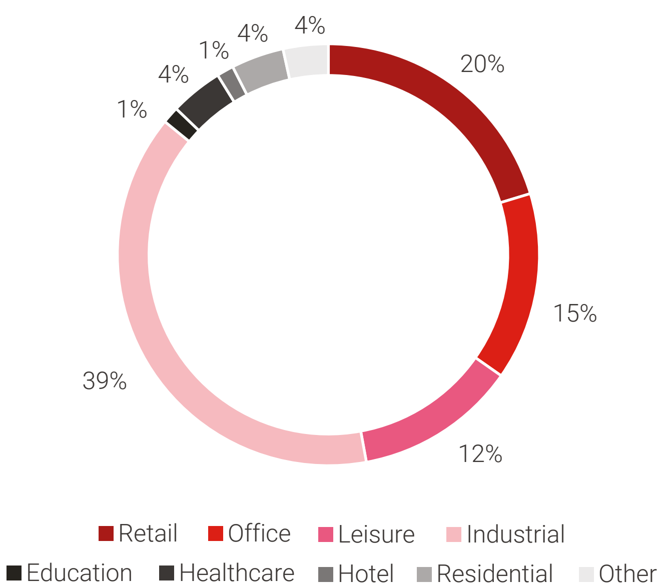
Electricity Intensity (kWh/m2) (like-for-like platform average



Source: LGIM Real Assets

LGIM Real Assets holds an extensive real estate equity portfolio of over 700 assets across the UK. These assets encompass over 76 million square feet of lettable real estate, incorporating thousands of buildings spread over all major commercial property sectors including offices, retail, warehousing and logistics, education, residential and leisure assets. This includes one of the UK's largest portfolio of industrial properties.

Real estate assets by property type
LGIM Real Assets holds an extensive and diverse portfolio of assets. The portfolio breakdown by property type is shown in the chart opposite.



Source: LGIM Real Assets

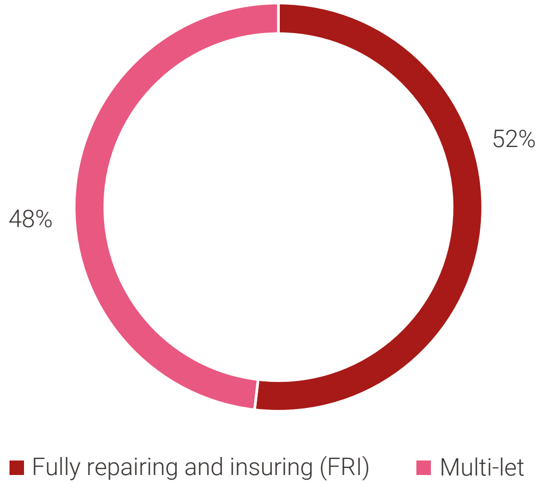
The diversity of our portfolio requires a range of flexible, sector-based approaches to carbon reduction. In addition, many of our properties are independently managed and operated by our occupiers. Looking ahead, this will necessitate a much deeper and more multi-faceted level of engagement and collaboration with our occupiers in order to align our net zero objectives. Some of these include sharing of data, agreeing performance targets and implementing the changes needed.

Real estate lettings

The LGIM real estate portfolio is broadly split between multi-let and single let (Fully Repairing and Insuring - FRI) properties. For single let FRIs, the occupier is generally responsible for the procurement of their own energy supplies and control of all site operations.

To reach net zero carbon, a large-scale occupier engagement programme will be required to achieve collaboration at key intervention points such as at lease renewals, refurbishments and fit-outs.

Source: LGIM Real Assets



Accelerating our efforts

Although we have successfully achieved our 10-year emission reduction targets between 2010- 2020, we realise that attaining net zero will be considerably more challenging. During 2019, we started working on our targets and strategy to 2030 and beyond. We are aware that the challenge of net zero is so significant that we need to repurpose our framework, strengthen it and add new elements as industry guidance and new regulations evolve.

New operating model

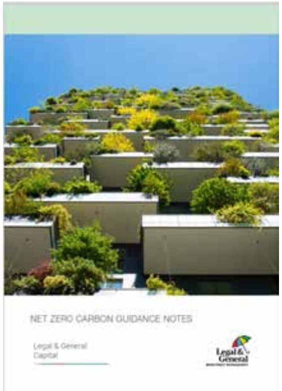
In 2019, we established a new innovative operating model (Mercury) for managing our buildings, which we believe will improve the financial, environmental and social performance of investments by developing stronger relationships with occupiers. A key part of our strategy is to provide transparency on building performance from an asset strategy, operational efficiency, occupier experience and sustainability perspective. Using a combination of lead and lag measures, our asset managers are able to identify issues or off-target trends early and through open discussion with our property management teams.

Under this new operating model, an Annual Operational Plan (AOP) has been put in place for all assets. Within this AOP, there is a key section that highlights the annual ESG plan for each asset, determining the priorities for action for the year, which will feed into fund-level targets for reductions in energy and water consumption and waste. Progress is monitored on a quarterly basis and discussed during the quarterly sustainability meetings.

Over the last 18 months, we have been initiating and implementing a range of new programmes that form the building blocks of our net zero strategy. The following illustrates an overview of the range of initiatives that have been implemented to date. Some of these initiatives are described in further detail under Our Delivery Strategy on page 30.

New developments and refurbishments

Net zero carbon design briefs and guidance documents drafted in 2020, for adoption in 2021.



Source: Arup

Acquisitions

New net zero carbon due diligence audits were trialled and rolled out in 2020. Implementation will continue during 2021.

Legal & General Investment Management (LGIM)
Aerospace Office Building, Cambridge
Net Zero Carbon Due Diligence Audit Report

Report Status: Final
Date: 26/06/2020
Prepared by: ClearLead Consulting Limited
The Barn, Cadhay, Ottery St Mary, Devon, EX11 1QY, UK

Client:	Consultant:
Malcolm Hanna LGIM, Sustainability Manager Real Assets malcolm.hanna@lgim.com +44 (0)20 3124 2835	Andy Greenall Senior Consultant, ClearLead Consulting andy@clearleadconsulting.com Phone: +44 (0) 1404 814273

Source: ClearLead

Delivering actions and solutions

By working with our agents, we started to put in place new Asset Sustainability Plans accross the platform in 2020.

Climate related risks and resilience

A new methodology to assess the physical risk profile of climate change scenarios at asset level was developed in 2020.

Source: XDI

Performance analysis and reporting

A new data platform introduced in 2019, providing integrated ESG data and carbon reporting at asset and fund level.

Source: Evora Global

Design for performance

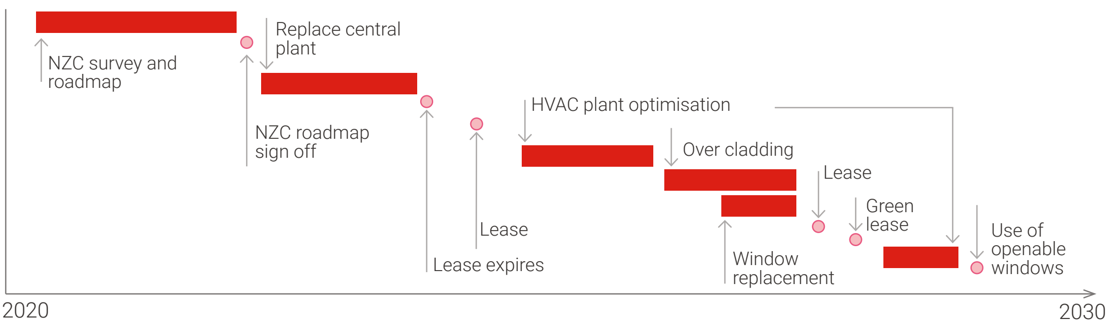
Ralli Quays, Salford development is Design for Performance pioneer and net zero carbon objective.

Embodied carbon studies

Detailed embodied carbon study carried out at our 245 Hammersmith Road office development.

Net Zero roadmap audits

Net zero roadmap audits, first piloted in 2020 at London office Senator House, help to understand practicalities and costs.

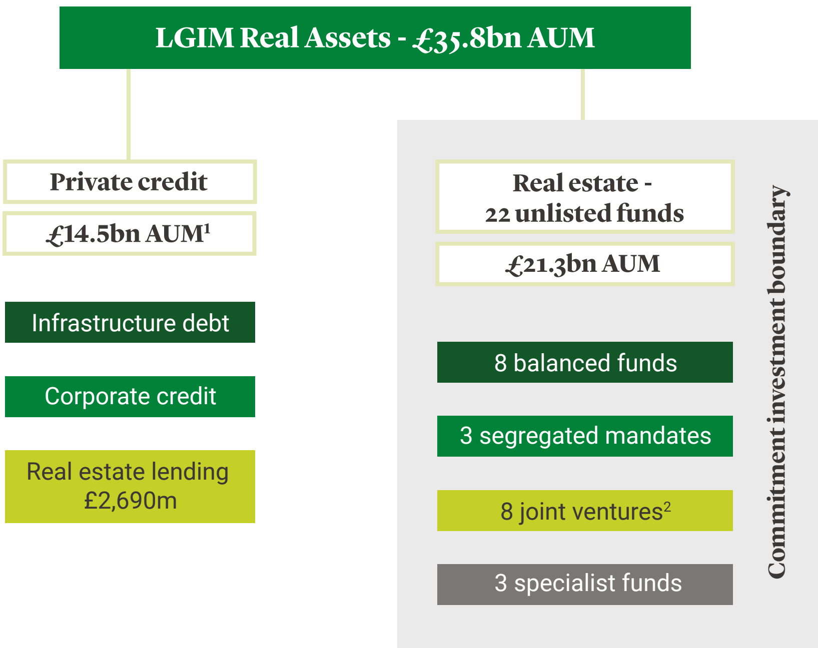


Source: Cundall

4. Scope of our commitment

Today, LGIM Real Assets is responsible for £21.3bn AUM of real estate investment in the UK, across 22 unlisted funds. The investment boundary of our commitment includes these 22 funds. Our net zero carbon target has been formally ratified for these real estate investments by our board. The scope of our investment boundary is highlighted in the diagram below.

Investment boundary



1. Includes Real Estate Lending, Infrastructure Debt and Corporate Debt. Private Credit AUM provided on a committed capital basis.
2. Our Joint Ventures are included within our investment boundary. Details of the basis on which carbon will be reported (equity share or operational control) is provided in Appendix 1.

Balanced funds are funds that broadly aim to represent the property market and offer institutional or retail investors a typically open-ended investment opportunity.

Segregated mandates are where a fund is outsourced to us to manage based on a specific investment mandate.

Joint ventures are partnerships with another investor(s) mostly on a single asset.

Specialist funds are vehicles dedicated to a sector or theme.

LGIM Real Assets has operational control of each of these funds through our managing agents. The only exception is for two of our Joint Venture funds, where operational control sits with a third party.

At this stage, our £2.69bn of real estate lending portfolio has been carved out from our net zero carbon target boundary due to a lack of data available regarding the carbon emissions of these investments. This is an area that we intend to address moving forwards. We are currently reviewing our due diligence and performance monitoring processes associated with real estate lending and for our wider private credit investment portfolio.

Only around 4% of our emissions come from the electricity and fuel that we buy to operate our buildings

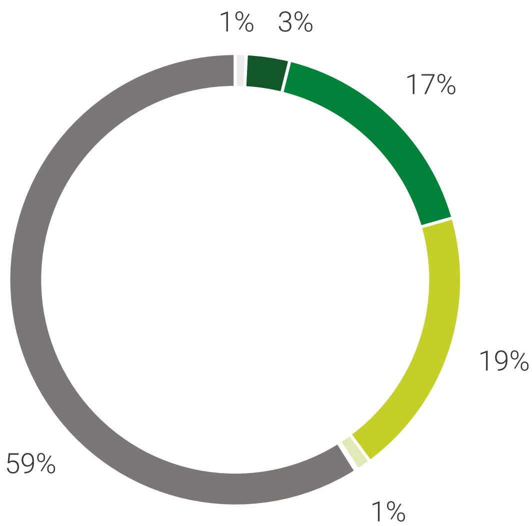
Carbon emissions boundary

We have been measuring and reporting the carbon emissions associated with managing our assets for many years. These scope 1 & 2 emissions come from the fuels and electricity that we purchase and control as a landlord in order to operate our properties.

In 2019, as part of setting our science-based targets, we carried out an exercise to estimate our wider carbon footprint. This was our first step in estimating the emissions associated with activities such as the energy being used each year by our thousands of occupiers, the embodied carbon being built into our new developments, and all of the carbon wrapped up in operating and managing our real estate portfolio. We were supported by an independent consultancy Eco-Act, using the UKGBC guidance on scope 3 reporting.

This work identified that only around 4% of our emissions come from the electricity and fuel that we buy to operate our buildings, the scope 1 and 2 emissions. The majority (around 60%) are due to the energy used and controlled by our occupiers. The second most significant source is from the capital goods, primarily the embodied carbon, built into our new developments. The carbon linked to the goods and services that we purchase to operate our assets is estimated as the third largest contributor. This includes OPEX expenditure on managing agents, building management and refurbishment contractors. A breakdown of our estimated emissions is provided overleaf.

Estimated wider carbon footprint



- Electricity purchased for landlord areas **(Scope 2)**
- Purchased goods and services **(Scope 3)**
- Capital goods (embodied carbon of new developments) **(Scope 3)**
- Fuel and energy related activities **(Scope 3)**
- Occupier energy use **(Scope 3)**
- Gas purchased for landlord areas **(Scope 1)**

Source: LGIM Real Assets

Other areas which are estimated to represent less than 1% of total emissions each include:

- business travel (Scope 3)
- waste generated in operations (Scope 3)
- employee commuting (Scope 3)
- upstream transportation & distribution (Scope 3)

Our net zero carbon target to 2050 includes the three key scope 3 emission sources mentioned above which, along with our scope 1 & 2 emissions, represents 99% of our estimated emissions. Further information about the activities included in the carbon boundary of our commitment is provided in the table below, with more detail in the Appendix. The availability and quality of scope 3 emission data is currently limited. For our estimate, we had to use benchmarks and proxy information, where available. We also recognise that some components such as fugitive losses (from refrigerant gases) are currently not included. An important component of our pathway to net zero is to improve the breadth and depth of this data, and to develop more accurate monitoring and reporting of all emission scopes.

Further work will be required to establish suitable science-based targets for these wider scope 3 emission sources to 2030. It is anticipated that based upon a 'Paris Proof' approach, these scope 3 targets will represent reductions of the order of 30-40% and will need to cover two thirds of the scope 3 emissions.

Activities which generate GHG emissions for real estate investment (directly or indirectly)	Activities controlled and managed by landlords	Activities controlled and managed by occupiers
Energy to operate buildings (electricity, fuels and heat networks)	✓	✓
Water to operate buildings	✓	
Waste generated during operation	✓	
Refrigerants (fugitive emissions)	✓	
Purchase of goods and services (M&E property management services)	✓	
Business travel	✓	
New development works	✓	✓
Refurbishment works	✓	✓
Fit-out works	✓	✓

Carbon boundary and our commitment

This carbon boundary will apply to all of the funds included in our real estate investment boundary and our commitment and target to 2050.

A number of our funds are in the process of developing an accelerated target, to meet operational net zero carbon by 2030.

5. Investment case for net zero

LGIM Real Assets has a strong, long-term commitment to sustainability and we have been at the forefront in terms of adopting and investing in pioneering solutions. Our commitment is driven by the recognition that the built environment has a very significant impact on UK society and its ecosystem, as well as being responsible for a large proportion of the UK's greenhouse gas emissions. Sustainability is today arguably one of the most important drivers of change in real estate ownership.

As long-term investors, the race to a net zero world will not only help to mitigate the risk of stranded assets but also potentially increase the value of our real estate portfolios. This is about getting ahead of emerging and 'inevitable policy' responses to the climate crisis. It is about future proofing our assets to create better quality, better performing real estate assets.

Investment opportunities of net zero

It is our belief that sustainability and ESG sits alongside location, occupier, building size and building quality as a key factor in real estate value and performance, and its importance will only increase over time. From a fund management perspective, the drivers are primarily about protecting the medium to long-term value of portfolios, whilst adding value and acting in a socially responsible manner. We believe that through the integration of sustainable thinking and behaviour in everything we do, we will deliver enhanced returns for our investors.

There is growing evidence that stronger sustainability credentials drive better financial outcomes for real estate owners in the form of higher occupancy and the ability to generate better rental income.

Higher rental value

Recent research by JLL[1] found that higher rent values were achieved for London offices with stronger than average BREEAM ratings since 2011.

Central London BREEAM rated new Grade A transactions rental premium compared to all new Grade A achieved rents

	2011-13	2014-16	2017-19
Outstanding / excellent	+9%	+11%	+10%
Very good	+11%	+5%	+6%

Green buildings

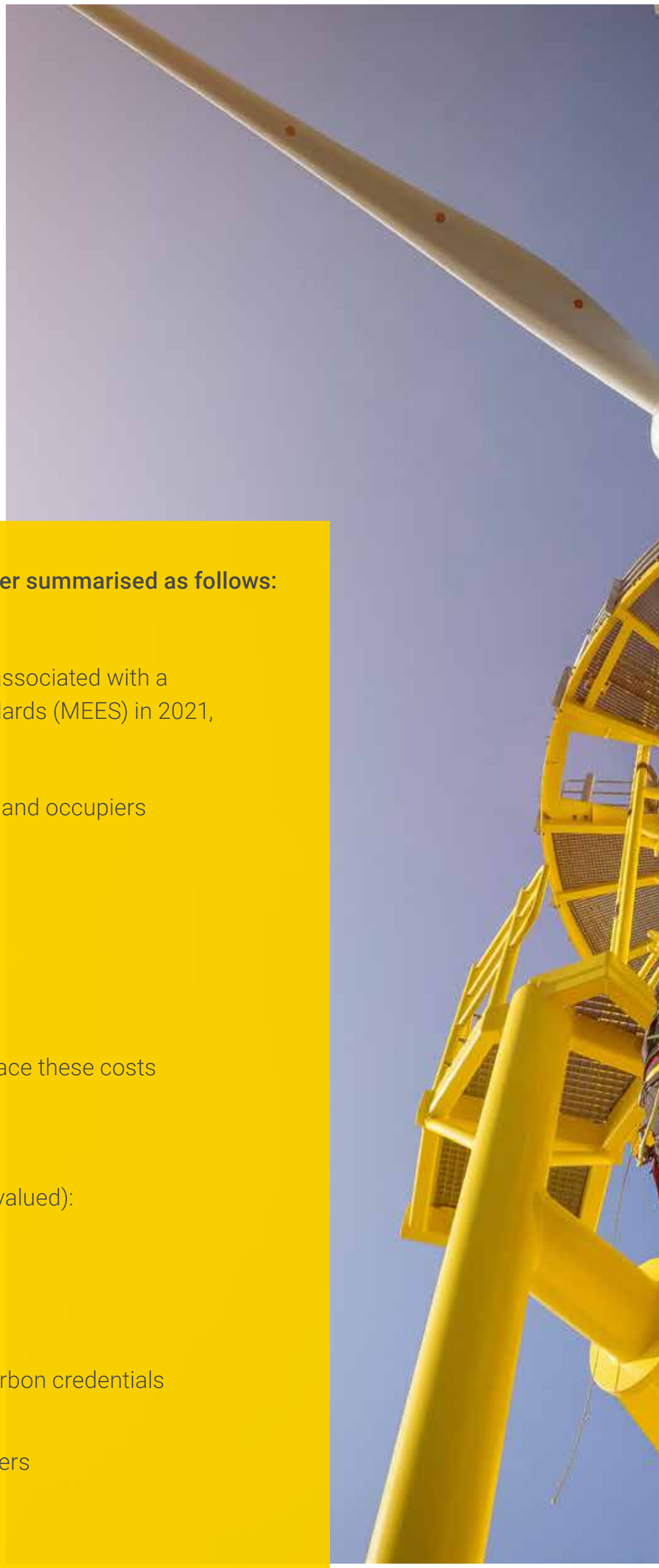
A recent survey[2] of 70 academic studies on a range of US and European markets since 2008 found that green building certifications were typically connected to:

- higher rents
- higher occupancy
- lower yields, and
- higher sales prices

Results of a survey of 70 peer-reviewed academic studies into the effects of green building certification

Financial parameter	Effect	Range of results	Median result
Rental income	Increased	+0-23%	+5%
Occupancy	Increased	+1-17%	+4%
Operating costs	Inconclusive	-14 to +26%	-5%
Yield	Decreased	-0.4% to -0.6%	-0.5%
Sales price	Increased	+0-43%	+14%

1. Report on the "Impact of Sustainability on Value (May 2020), JLL
2. Report "A Review of the Impact of Green Building Certification on the Cash Flows and Values of Commercial Properties" (March 2020), Leskinen, Vimpari & Junnila, "Sustainability"



Key benefits associated with achieving net zero carbon are further summarised as follows:

- Risk mitigation, reduce regulatory risks (e.g. risks associated with a tightening of the Minimum Energy Efficiency Standards (MEES) in 2021, requiring EPC ratings of C or B for all let property)
- Reduced costs of energy and carbon for landlords and occupiers
- Reduce the risk of stranded assets
- Getting ahead of the curve - the whole sector will face these costs
- Other benefits not currently recognised (or widely valued):
    - Shorter void periods
    - Greater occupier demand
    - Potentially higher rents from enhanced carbon credentials
- Opportunities to share costs / savings with occupiers
- Option not to pursue uneconomic works at time of choice, rather than compulsion

From a portfolio management perspective, it is important that any net zero carbon roadmaps are considered alongside the wider investment strategy.

In the past, the evaluation of sustainability factors has typically been an add-on consideration when developing and executing an investment strategy: this will need to change. Net zero considerations must be visible and evaluated by the Investment Committee, as many initiatives will require major capital expenditure decisions. Achieving net zero emissions in a real estate portfolio will require decisions that are integral to the investment strategy of a portfolio.

Overcoming challenges

Achieving net zero in the real estate sector will entail considerable financial cost. It is therefore important that we find the right commercial models to implement cost-effective methods of retro-fitting to net zero standards. This means being innovative and flexible in our approach, and utilising technological solutions to help us better measure and reduce emissions at both asset and fund level.

Over the last 12-18 months, we launched a series of pilot audits to investigate the practicalities and costs associated with transitioning our real estate properties to net zero. This work, which includes reviewing new developments, refurbishments and existing properties, is ongoing. Results so far have clearly indicated that for most existing assets, there is a requirement for significant intervention and investment in order to reach net zero.

There are also cost premiums associated with enhancing the performance of refurbishments and new developments. The UK Green Building Council (UKGBC) recently published estimates for cost premiums of 6-17% for new offices and 3 – 5.3% for domestic developments[3.] The UK Committee for Climate Change also published work by Currie & Brown[4] (based on modelled data) which estimated price premiums of retrofitting new build offices to net zero standards, rather than including in the original design, of between £150/m^2 - £300/m^2 (net lettable area).

We are in the process of undertaking further carbon liability audits in order to verify these estimates and we are confident that economies of scale and new methods and technologies will play an important role in helping to reduce some of these costs. Our work has also highlighted the importance of timing in terms of the cost of intervention. Taking the opportunity to build in improvements now during voids and refurbishments will prevent the need for a major retrofit later.

3. “Building the case for net zero: A feasibility study into the design, delivery and cost of new net zero carbon buildings” (September 2020), UK Green Building Council
4. A report for the Committee on Climate Change, “The costs and benefits of tighter standards for new buildings” (2019), Currie & Brown

6. Our delivery strategy

Our net zero carbon strategy will follow the principles laid out in the UK Green Building Council's Net Zero Framework definition. For construction, refurbishment and disposal we will aim to measure and minimise embodied carbon, in line with best practice targets. For operational emissions, we will adopt the energy hierarchy, with an initial focus on demand reduction in line with carbon and energy intensity targets, followed by an optimisation of renewable energy options both on-site and off-site. The final step will be to offset residual emissions using a recognised and verifiable 'gold standard' framework. Our net zero claims will be independently audited and disclosed.

Achieving net zero across the whole carbon life cycle

Construction

Construction and refurbishment

- Target, measure and minimise embodied carbon from product and construction
- Offset at practical completion using recognised framework and disclosure

Operational

Operational stage

- Prioritise reduced energy demand, use 'Paris Proof' energy intensity targets
- Optimise on-site renewables
- Off-site renewables that demonstrate additionality
- Offset using recognised framework and disclosure

End of life

Disposal and demolition

- Measure and minimise embodied carbon from demolition and disposal
- Offset using recognised framework and disclosure

Independent audit and verification process

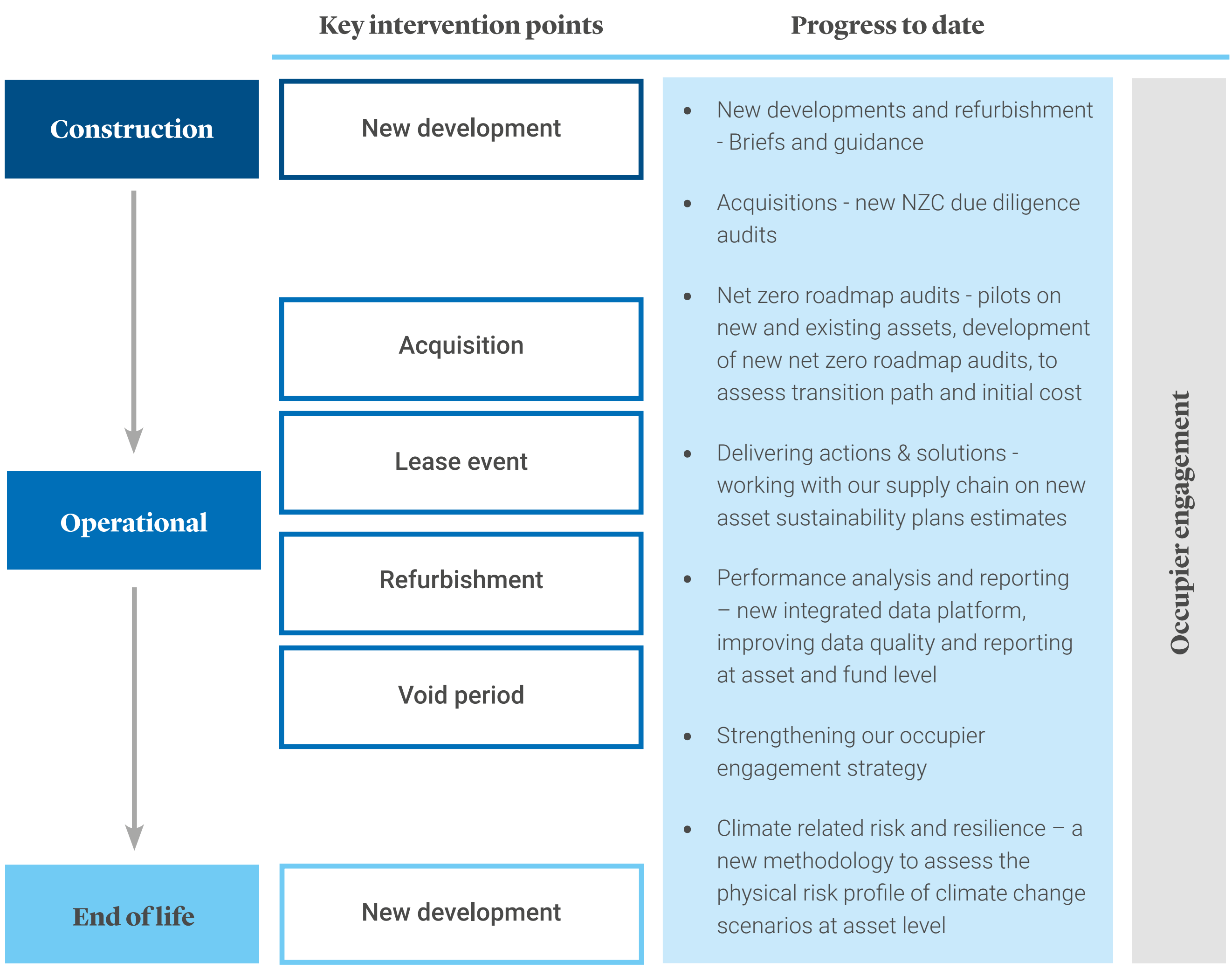
Prioritise key intervention points

Over the last 18 months, we launched a programme of pilot net zero audits to assess the practical challenges, opportunities and costs associated with achieving net zero. These pilots covered different stages in the property cycle and different property types.

This work confirmed that significant improvements in energy and carbon performance can be achieved through operational and maintenance measures and 'easy win' investment projects. However, for many properties to achieve net zero carbon requires more extensive improvement measures, in many cases including improvements to building fabric and the changing of major plant. These projects will require access to all building areas and may only be possible during unoccupied (void) periods.

This work has highlighted the critical importance of using key intervention points in the building lifecycle to gain access to implement improvements in a practical and cost-effective way. We will therefore prioritise the relevant intervention points with new requirements from our findings and utilise new tools and procedures to ensure that we take advantage of the opportunities presented and ensure that they are integrated into our Asset Sustainability Plans across all assets.

Key intervention points based on whole carbon lifecycle



The following provides an overview of the progress we have been making in each of these phases in the building carbon lifecycle. We recognise that we are still in the early stages of our net zero journey and there is much work to be done. However, we are confident that these key intervention points will provide the foundations for achieving our commitment to reducing emissions across our assets at the scale and pace required.

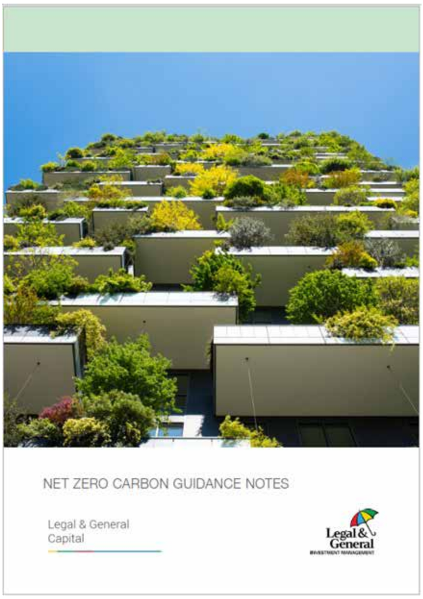
New developments and major refurbishments

New developments and major refurbishments offer the quickest and often the most cost-effective route to achieve net zero.

The key is to ensure that at the outset, the operational and embodied carbon targets are set and communicated for all new developments and refurbishments. These targets then need to be considered at each stage of the design and construction process.

During 2020, we started work to develop new net zero briefing and guidance for our new developments.

Net zero carbon guidance notes and design brief due to be launched in early 2021 (opposite)



Source: Arup

New developments and major refurbishments - embodied carbon study

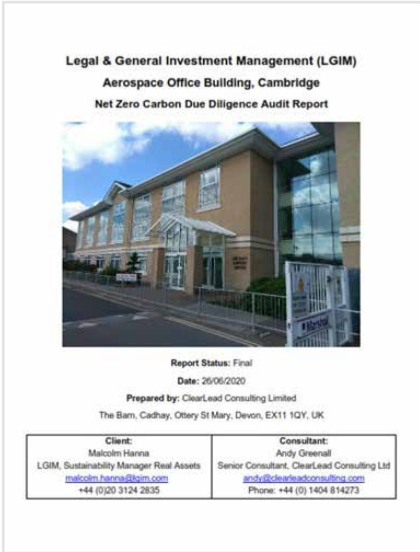
At a recently completed major office development at 245 Hammersmith Road in London, we carried out our first detailed embodied carbon study. Through this work we reduced embodied carbon by 10.4% resulting in embodied carbon levels of just over 800 $kgCO_2/m^2$. This office was confirmed as amongst the best performing developments that our consultants had assessed to date. This process demonstrated to us that we can reduce embodied carbon and has helped us to quantify the challenge ahead.

245 Hammersmith Road, embodied carbon study

Acquisitions

Property acquisition provides a key opportunity to implement improvement steps. We have always considered elements such as energy performance and EPC rating and flooding risk as part of a mandatory sustainability assessment carried out for all property transactions; these inform investment decisions and are part of our sustainability policy and procedures. The emerging challenges associated with climate risk and the need to achieve net zero carbon require additional enhancements to due diligence approaches, and we have sought to address this on two fronts. First, with the introduction of net zero carbon audits for all acquisitions and new transactions, and secondly with a new physical climate risk assessment of assets on acquisition to provide a forward-looking assessment of the physical risk profile of the asset over the coming decades under different climate scenarios.

Net Zero Carbon due diligence audit carried out on Cambridge office acquisition in June 2020 (opposite)



Legal & General Investment Management (LGIM)

Aerospace Office Building, Cambridge

Net Zero Carbon Due Diligence Audit Report

Report Status: Final

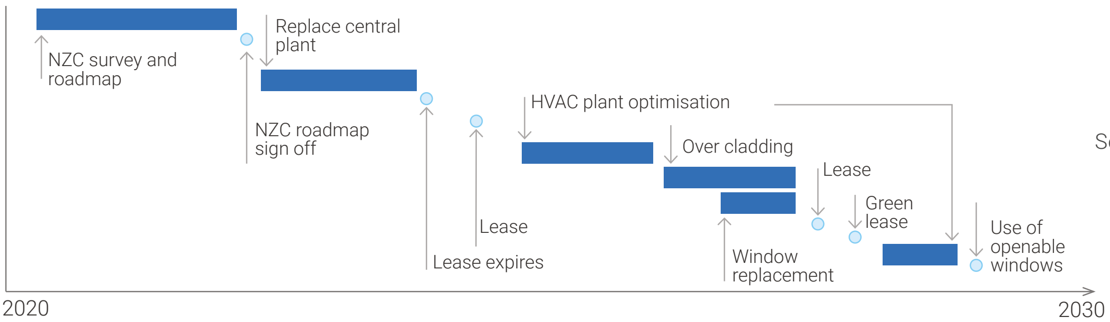
Date: 26/06/2020

Prepared by: ClearLead Consulting Limited

The Barn, Cadhay, Ottery St Mary, Devon, EX11 1QY, UK

Client:	Consultant:
Malcolm Hanna LGIM, Sustainability Manager Real Assets malcolm.hanna@lgim.com +44 (0)20 3124 2835	Andy Greenall Senior Consultant, ClearLead Consulting Ltd andy@clearleadconsulting.com Phone: +44 (0) 1404 814273

Source: ClearLead



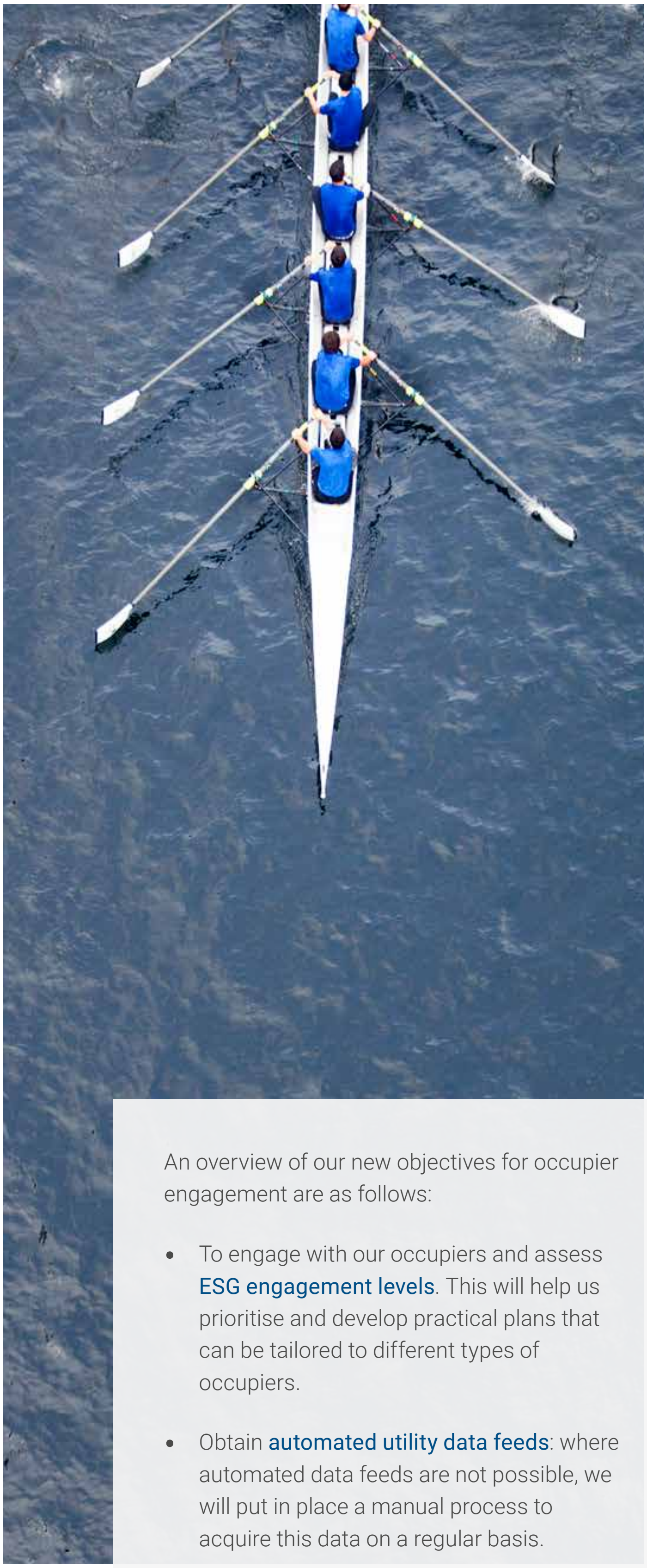
Source: Cundall

Establishing key intervention points based on voids and lease events

Whilst new buildings provide the best opportunity to build-in net zero performance, 80% of buildings which will exist in 2050 have already been built. Existing buildings (standing assets) therefore provide the greatest challenge in terms of the transition to net zero carbon. Through our pilot programme, we have gained greater insights into the challenges and opportunities presented by existing buildings. In particular, it has highlighted the need to focus on key leasing events and voids as key opportunities to gain access to buildings in order to make the required changes. In one example, we carried out a detailed investigation at one of our City of London office assets, Senator House. Site investigations and modelling revealed that the pathway to net zero was heavily dependent upon major plant and fabric changes, which relied upon key leasing events.

Senator House – Pathway to net zero (above)

Many of these intervention areas require the engagement and co-operation of our occupiers. It is clear that in order to achieve whole building net zero carbon, we must work together with our occupiers and align our efforts to tackle climate change.



Working in partnership with our occupiers

The ambitious targets associated with achieving net zero carbon will require new levels of cooperation between property owners and occupants. This will apply to both new developments and existing properties and will entail a significant level of collaboration with our occupiers. We are currently developing a programme of engagement with our occupiers around net zero carbon. This consists of data sharing, new guidance and information to help our occupiers with the net zero transition, along with new incentives and opportunities to work on carbon reduction programmes. This will be rolled out in 2021 and further developed and strengthened over the coming months. We have incorporated green clauses in our leases since 2011. However, in light of new net zero requirements, we will be reviewing these requirements during 2021.

As part of ramping up our engagement efforts with our occupiers, we have produced an Occupier Engagement Handbook to provide a guide for our asset management and property teams.

An overview of our new objectives for occupier engagement are as follows:

- To engage with our occupiers and assess ESG engagement levels. This will help us prioritise and develop practical plans that can be tailored to different types of occupiers.
- Obtain automated utility data feeds: where automated data feeds are not possible, we will put in place a manual process to acquire this data on a regular basis.
- Produce asset level net zero roadmaps for our priority assets, based on existing audits or new net zero recommendations where required. This will need to involve occupier engagement on many of our FRI assets. On multi-let properties, it may be possible to undertake such initiatives independently on communal areas, but occupier engagement would still be required when considering enhancements to the occupied areas.
- Occupier engagement objectives will be included in our Asset Sustainability Plans across all assets, which will be monitored against progress.

Circular economy

The adoption of circular economy principles will be key to enabling the real estate sector to meet the climate change challenge. To drive down the embodied carbon of property related products, goods, services and operations will require new thinking and new solutions. The need to focus upon whole life carbon reflects the importance of this circular perspective.

We are currently focusing on how best, practically and economically, to adopt these principles and approaches into our requirements. We will be working with our supply chain to develop these solutions and embed them into our net zero delivery strategy.

Net zero delivery and management strategy

The following table details how we will deliver our strategy. A range of indicative reporting metrics are provided against each topic. We acknowledge that data is not currently available for all of these metrics or is only available in an estimated form. Reporting will evolve over the next few years in line with availability, scope, materiality and quality of data.

Topic	Outcome / aims	Delivery / management strategy	Reporting metrics
Operational carbon (energy, water and waste)	Improve operational energy efficiency and reduce operational carbon emissions.	Establish clear annual operational targets for all assets, in line with our Science Based targets and net zero carbon aims. This will involve the use of best practice EUIs (Energy Use Intensity) such as those produced by UKGBC, LETI and CRREM. Monitor performance against targets.	Energy use (kWh), carbon emissions ($kgCO_2e$). Energy and carbon intensity (kWh/ m^2 / $kgCO_2e/m^2$).
	Increase the quality and accuracy of our scope 3 emissions measurement and reporting from our occupiers (particularly FRI properties).	Establish a new system to gather and share the scope 3 energy, water and waste data with our FRI occupiers. Establish a science-based target for scope 3 emissions to 2030.	Data completeness. Number of occupants sharing data (m^2, number, % of portfolio).
	Each asset and fund to understand the key steps needed, in order to achieve the transition to net zero.	We will carry out an assessment of asset ease of transition and support with further sample net zero roadmap audits and modelling. We will produce net zero carbon roadmaps for each asset and fund and build the asset roadmaps into new Asset Sustainability Plans. Fund specific net zero roadmaps will be reviewed alongside wider fund investment strategy.	% assets and funds with net zero roadmap plans.
	The inclusion of net zero carbon implications and considerations in all acquisitions, transactions and major cap-ex decisions.	Embed the new net zero carbon brief and guidance into all new developments and major refurbishments.	% of new developments and refurbishments incorporating new net zero brief and guides.
		Complete the process of embedding the new net zero due diligence audits into all new acquisitions.	% of acquisitions with net zero carbon audits completed.
		Introduce a new Investment Committee requirement for net zero carbon implications report for all transactions and major cap-ex decisions.	% of transactions and major investments with net zero implications reports.
		Review the use of internal carbon pricing mechanisms and carbon accounting to support net zero carbon project appraisal and investment.	Decision of review into carbon pricing (£/tonne of CO_2).

Topic	Outcome / aims	Delivery / management strategy	Reporting metrics
Operational carbon (energy, water and waste) cont.	Removal of fossil fuels from all real estate properties.	Implement replacement of gas boilers with all electric alternatives for all new developments and major refurbishments.	Gas use (kWh), carbon emissions from gas use ($kgCO_2e$), gas intensity kWh/m^2.
	Successful collaboration with our occupiers to achieve whole building net zero carbon for all property and lease types.	Develop and implement an occupier engagement strategy around net zero carbon to include new lease clauses, data sharing, fit-out collaboration and guidance and net zero road map projects initiated.	%, numbers, NLA m^2 of occupiers engaging.
	Reduce water use and associated scope 3 emissions.	Work with water suppliers and agents to improve water data completeness and quality.	% Water data completeness.
		Set new 10-year science-based targets for water intensity for all managed properties and establish a water efficiency programme.	Water use (absolute and intensity) M^3 / occupier / m^2 (FTE).
	Reduce waste produced and associated scope 3 emissions.	Work with waste suppliers and agents to improve waste data completeness, quality and granularity.	% Waste data completeness.
		Set new 10-year science-based waste and recycling targets for all managed properties and establish a waste management programme as part of our LGIM Real Asset circular economy approach.	% recycling, tonnes of waste, % diverted from landfill.
	Reduce emissions associated with business travel.	Establish a programme to reduce emissions associated with business travel across the platform.	Absolute and intensity ($kgCO_2e$, $kgCO_2e$ per passenger mile.
	To ensure that net zero design intent follows through into 'real world' performance.	Carry out a review of the Ralli Quays Pioneer project to assess the potential to adopt the Design for Performance approach for all new developments.	Decision of review. % of new build projects adopting DfP.
	Reduce emissions due to fugitive loss of refrigerant gases from our properties.	Work with our agents and suppliers to put in place a new programme to gather robust refrigerant gas (fugitive loss) data.	% of refrigerant data coverage for relevant assets.
		Develop a refrigerant GHG reduction programme with our design teams, consultants, agents and suppliers.	Kg of refrigerant gas losses, $kgCO_2e$ emissions (from refrigerant losses).
On-site generation	Maximise the use of on-site renewable energy wherever feasible.	Establish new on-site renewable energy targets for different new build asset classes. Monitor performance against targets.	% of new developments meeting target.
		Establish new on-site generation monitoring system to gather generation information.	% of on-site generation data collected (MW of installed load, kWh generated, $kgCO_2e$ avoided)
		Carry out platform-wide renewable energy feasibility assessment of existing assets to identify priority categories and commercial models for occupier collaboration.	MW of installed load, kWh generated, $kgCO_2e$ reduced.
Renewable energy procurement	Support national renewable energy supply sector.	Continue to procure REGO-backed renewable electricity for all managed assets.	% of electricity and gas supplies from renewable energy sources.
	Maximise the use of additional off-site renewable energy sources.	Investigate the opportunities to adopt and invest in new additional off-site renewable energy projects, such as Power Purchase Agreements, including Group-wide opportunities.	Size / number of additional renewable energy investments. MW of off-site power. Annual kWh generated / used $kgCO_2$ avoided.

Carbon associated with capital goods, services and capital works	Measuring and reducing the embodied carbon of new developments and major refurbishments.	In line with our new net zero briefs and guidance, implement the measurement and target setting of embodied carbon for all new developments and major refurbishments, in line with industry best practice. New targets initially based upon LETI target (offices) of 600 $kgCO_2/m^2$. It is anticipated that these targets will be refined as more real projects are completed. This work will adopt our LGIM Real Asset circular economy principles and approach.	% of new developments and major refurbishments with embodied carbon studies. Embodied carbon of projects measured $kgCO_2/m^2$, against targets.
	Measuring and reducing the embodied carbon of operations, maintenance and disposal.	Initiate a project with our FMI (Facilities Management Integrator) and suppliers to measure and mitigate the embodied carbon of operations, maintenance and disposal. This work will adopt our LGIM Real Asset circular economy principles and approach.	Key maintenance / operational/ disposal activities measured. Embodied carbon of activities measured $kgCO_2/m^2$.
		Investigate and identify suitable targets for the embodied carbon of operation, maintenance and disposal of assets.	$kgCO_2$/ m^2 per activity.
	Measuring and reducing the embodied carbon of our supply chain (purchased goods and services).	Investigate how we can more accurately measure and reduce the largest emission sources associated with procurement of goods and services. Develop a Net Zero Supply Chain strategy and scope 3 targets in line with science-based approach to 2030. This work will adopt our LGIM Real Asset circular economy principles and approach.	$kgCO_2$/ m^2, $kgCO_2$/£ expenditure per procurement category.
Carbon offsetting	Credible, effective, consistent, robust, transparent and verifiable carbon offsetting approach adopted as the final step to net zero.	Establish carbon offsetting policy, including offsetting standards, offset scope, steps prior to offset, measurement and monitoring and sign-off procedure through Board and Investment Committee.	Sign-off of offsetting policy.
		Engage third party ‘Gold Standard’ verified offset provider, to meet immediate requirements. Develop longer term Real Assets offsetting strategy, considering the use of existing asset resources and new investment.	Number of ‘Gold Standard’ verified offsets $kgCO_2$ (%).
		Engage independent net zero audit and verification organisation to carry out third party auditing of net zero claims.	% of offsets independently audited and verified.
Third-party verification	Independent and transparent verification of progress made towards our targets.	Establish a net zero auditing and verification process in line with UKGBC framework requirements.	Numbers of projects successfully audited and verified net zero.
Climate related physical risk & resilience	Visibility of future climate related risks for all assets.	Roll out our new methodology for assessing forward-looking climate related physical risk across all existing assets, new developments and acquisitions.	% assets assessed for climate related risk.
	Management and mitigation of climate related risks.	Building upon existing due diligence processes to develop a wider Climate Risk Resilience Strategy, to manage the physical and transitional risks and adaptations required at asset, fund and platform level.	Annual climate risk rating of assets. Annual Value at Risk metrics.

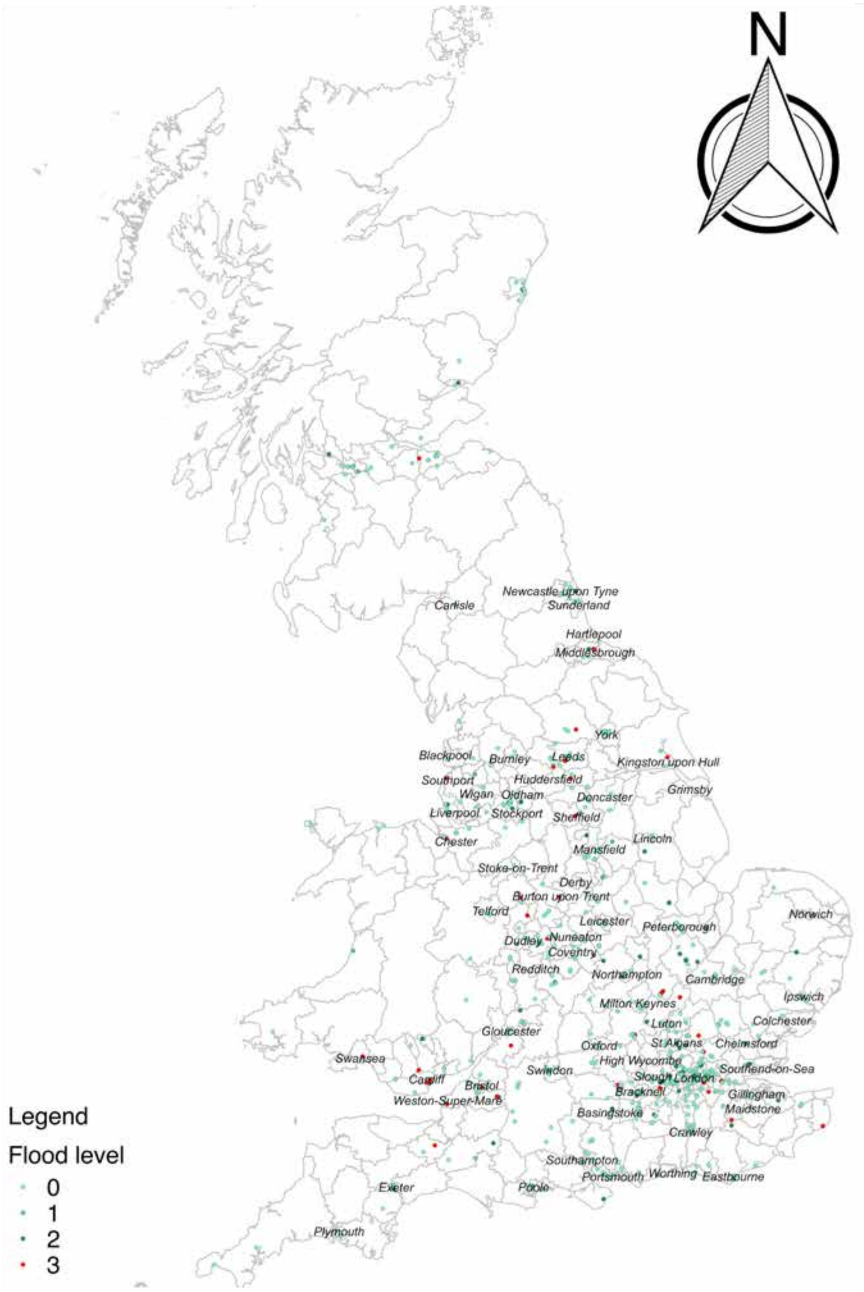
7. Climate risk and resilience

At LGIM Real Assets, we have always conducted detailed sustainability assessments on all acquisitions as part of our due diligence process. These assessments have always included a review of environmental risks such as flooding. For existing assets, these assessments have been reviewed and updated as required. This work enables the flood risk to each to be categorised and zoned. These risk categories cover very low, low, medium and high-risk zones, based upon the probability of flooding.

Our policy is to reject properties in high risk zones, unless a specific review confirms there is no structural or operational risk and that flood defences will be constructed and maintained. Properties in medium risk zones are investigated in detail for resilience.

We have co-developed a new methodology that aims to provide meaningful forward-looking climate physical risk data

Flood risk mapping – current and future scenarios



Source: LGIM Real Assets

During 2019, we worked with our insurers to map the location of all of our real asset commercial properties against flood risk zones.

This work illustrated that 82% are located in very low and low risk zones. This was a first filter review which enabled us to confirm the prioritised properties located in medium and high-risk zones.

This assessment was based upon historical weather data. With the emergence of the Taskforce on Climate-related Financial Disclosure (TCFD), we have been engaged in a project to utilise forward-looking climate modelling to help us better manage and mitigate climate related risks to 2050 and beyond.

Historical weather data has generally been used across the property sector as an indicator of the likelihood of future climate related risks. Over recent years, unprecedented weather events right across the globe have demonstrated that using climate records from the past is no longer a good enough indicator of future risk.

An increasing body of published scientific research indicates that climate change is linked to an increased risk of flooding in the UK, along with rising costs to deal with the damage caused. This is driving the need for increased scrutiny of flood risk through regular review and reassessment.

In 2019, as part of a wider Legal & General Group and LGIM initiative, we embarked on an initiative to model our portfolios under different climate scenarios. Through this work, we have focused on assessing forward-looking physical climate risk, and how best to utilise new climate modelling techniques to help us map the potential physical risk implications that may occur in the future, under different climate change scenarios over the next 30 years and beyond.

Having identified and quantified the forward-looking physical climate risks, we will use this new analysis to inform our acquisition and development strategies. We also intend to use the full capability of the modelling tools available, to enable us to target prioritised assets for interventions and adaptations to improve the resilience of our assets. This will form a key element of our Climate Resilience Strategy which we are committed to publishing by 2022.

Forward looking flood risks

Flood risk mapping at a large industrial estate

Source: XDI

We have co-developed a new methodology with a physical climate risk specialist XDI that aims to provide meaningful forward-looking physical risk data. The methodology is location specific and can be delivered cost effectively and at scale across our large and diverse portfolio of assets in the UK.

The challenge has been to obtain suitably granular information for assets with larger footprints.

We will be carrying out final testing of the approach in late 2020, with the aim of rolling it out in 2021 as part of our TCFD reporting and disclosure.

Appendix

Investment boundary – basis of carbon reporting

Fund category	Fund name	Basis of carbon reporting (equity / operational control)
Balanced funds	Managed Property Fund	Operational control
	L&G UK Property Fund (PAIF)	Operational control
	LPI Income Property Fund	Operational control
	Linked Life	Operational control
	Life Fund	Operational control
	Linked Pensions Fund	Operational control
	UK PIF II Fund	Operational control
Segregated mandates	Annuity Fund	Operational control
	BMW Fund	Operational control
	Shareholder Fund	Operational control
Joint ventures	Central St Giles	Operational control
	Performance Retail LP	Operational control
	Bracknell Regeneration Fund	Equity share
	English Cities Fund	Equity share
	Vantage London LP	Operational control
	245 Hammersmith	Operational control
	Access Development Partnership	Operational control
	Bishopsgate	Operational control
Specialist funds	IPIF	Operational control
	The Leisure Fund	Operational control
	UK Build to Rent Fund	Operational control

Detailed scoping table and greenhouse gas protocol alignment

Business area	Sub-area	GHG protocol reporting category	Carbon scope	Commitment inclusion
Direct real estate holdings (including JVs with management control)	Landlord purchased energy (electricity and fuels)	Purchased electricity, heat and steam	1,2 & 3	✓
	Tenant purchased energy (electricity & fuels)	Downstream leased assets	3	✓
	Landlord refrigerants	Purchased goods and services	1	✓
	Tenant refrigerants	Tenant scope 3	3	
	Landlord purchased water	Purchased goods and services	3	✓
	Tenant purchased water	Tenant scope 3	3	
	Landlord managed operational waste	Waste generated in operations	3	✓
	Tenant managed operational waste	Tenant scope 3	3	
	Tenant transport emissions	Tenant scope 3	3	
	Tenant supply chain emissions	Tenant scope 3	3	
Investments (Indirect Real Estate Holdings, e.g., where investments are managed by a third party such as JVs with no management control or investments in other real estate investment vehicles)	Landlord purchased capital goods & services (M&E & property management services)**	Purchased goods and services	3	✓
	Landlord purchased energy (electricity and fuels)	Investments (proportional to the investment)	3	✓
	Tenant purchased energy (electricity & fuels)	Investments (proportional to the investment)	3	✓
	Landlord refrigerants	Investments (proportional to the investment)	3	✓
	Tenant refrigerants	Tenant scope 3	3	
	Landlord purchased water	Investments (proportional to the investment)	3	✓
	Tenant purchased water	Tenant scope 3	3	
	Landlord managed operational waste	Investments (proportional to the investment)	3	
	Tenant managed operational waste	Tenant scope 3	3	
	Tenant transport emissions	Tenant scope 3	3	
	Tenant supply chain emissions	Tenant scope 3	3	
	Landlord purchased capital goods & services (M&E & property management services)**	Purchased goods and services (proportional to the investment)	3	✓
Development	New development (including those where funding is being provided)	Purchased goods and services	3	✓
	Refurbishments	Purchased goods and services	3	✓
	Fit out (landlord controlled)	Purchased goods and services	3	✓
	Fit out (tenant controlled)	Tenant Scope 3	3	✓
	End of life	End of life treatment of sold products	3	

Glossary

Better Buildings Partnership (BBP)	The BBP is a collaboration of the UK's leading commercial property owners who are working together to improve the sustainability of existing commercial building stock.
BREEAM	Developed by the Building Research Establishment, BREEAM (Building Research Establishment Environmental Assessment Method) is a widely used method of assessing, rating, and certifying the sustainability of buildings.
Carbon Dioxide equivalent (CO_2e)	A way to place emissions of various radiative forcing agents on a common footing by accounting for their effect on climate. It describes, for a given mixture and amount of greenhouse gases, the amount of CO_2 that would have the same global warming ability, when measured over a specified time period. For the purpose of this report, greenhouse gas emissions (unless otherwise specified) are the sum of the basket of greenhouse gases expressed as CO_2e assuming a 100-year global warming potential.
Carbon offsets	A carbon offset is a reduction in emissions of carbon dioxide made to compensate for emissions made elsewhere.
CRREM	Carbon Risk Real Estate Monitor (CRREM) is a research project to define science-based decarbonisation pathways for real estate, to help manage transition risks.
Design for Performance (DfP)	The Design for Performance (DfP) initiative is an industry backed project established to tackle the performance gap and provide an approach, based on measurable performance outcomes, to ensure new office developments deliver on their design intent.
Embodied carbon	Embodied carbon means all of the carbon dioxide emitted in producing materials or products. This includes the energy used to extract and transport raw materials as well as emissions from manufacturing processes and production.
Energy hierarchy	The Energy Hierarchy is a classification of prioritised energy options, to assist progress towards a more sustainable energy system.
EPC	An Energy Performance Certificate (EPC) provides a rating of the energy efficiency of a property on a scale of A-G. It is an estimate based upon a model of the intrinsic design of the building.
FRI	A full repairing and insuring lease (FRI) is a lease whereby the costs of all repairs and insurance are borne by the tenant.
LETI	The London Energy Transition Initiative (LETI) is a network of built environment professionals that collaborating to put the UK on the path to a net zero carbon future.
MEES	The Minimum Energy Efficiency Standards (MEES) is a set of Minimum Energy Efficiency Standards set out by the Government for commercially-let properties.
Operational carbon	Operational carbon is the term used to describe the emissions of carbon dioxide and other greenhouse gases during the in-use operation phase of a building.

Paris Proof	The 'Paris Proof' methodology establishes the amount of energy reduction required for the UK to be fully net zero by 2050. It clearly demonstrates that energy efficiency is essential to achieving a net zero carbon economy.
REGO	The Renewable Energy Guarantees of Origin (REGO) scheme provides transparency to consumers, through certificates, about the proportion of electricity that suppliers source from renewable generation.
Refrigerant gas (fugitive losses)	Refrigerant gases are heat transfer materials commonly used in refrigeration and air conditioning systems. These gases often high global warming potential and their losses from systems need to be measured and reduced.
Science Based Target Initiative (SBTI)	The Science Based Targets initiative (SBTi) is a joint initiative by CDP, the UN Global Compact (UNGC), the World Resources Institute (WRI) and WWF which aims to increase corporate ambition on climate action by enabling companies to set emission reduction targets consistent with the decarbonisation required by science to limit warming to less than 1.5°C / 2°C compared to preindustrial temperatures
Scope 1 emissions	These are the direct emissions from the activities of an organisation or under their control. For example the emissions directly from burning gas in a boiler at an asset.
Scope 2 emissions	These are the indirect emissions from sources that are owned or controlled by on organisation. For example from the electricity purchased for an asset.
Scope 3 emissions	These are all of the other indirect emissions from activities of the organisation, occurring from sources not owned or controlled by the organisation. For example from procured goods and services.
Soft Landings	'Soft landings' refers to a strategy adopted to ensure a smooth and planned transition from construction and completion to occupation and that the operational performance is optimised.
TCFD	The Task Force on Climate-Related Financial Disclosures (TCFD) is an organization that was set up with the goal of developing a set of climate-related financial risk disclosures, which can be adopted by companies so that they can inform investors and other stakeholders about climate related risks and mitigation.
UK Committee on Climate Change	The Committee on Climate Change (CCC) is an independent, statutory body established under the Climate Change Act 2008. The purpose is to advise government on emissions targets and to report to Parliament on progress made and preparing for and adapting to the impacts of climate change.
UKGBC	The UK Green Building Council (UKGBC) is a charity with over 400 member organisations across the sector. It has a mission is to radically improve the sustainability of the built environment, by transforming the way it is planned, designed, constructed, maintained and operated.
UKGBC framework definition	The UKGBC's net zero framework provides a route for building developers, owners or occupiers to clearly demonstrate how a building, tenancy or portfolio of buildings has achieved net zero carbon via defined steps, targets and the use of third-party verification.
Value-at-Risk (VaR)	Value at risk is a measure of the risk of loss for investments. It estimates how much a set of investments might lose, given normal market conditions, in a set time period.

Key contacts

For further information about LGIM Real Assets, please visit lgim.com/realassets or contact:

Malcolm Hanna
Sustainability Manager, LGIM Real Assets
malcolm.hanna@lgim.com

Shuen Chan
Head of ESG, LGIM Real Assets
shuen.chan@lgim.com

Contact us

For further information about LGIM Real Assets, please visit lgim.com/realassets or contact your usual LGIM representative

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