**For professional clients only. Not to be distributed to retail clients. Capital at risk.**

## 2023 update

# Real estate equity: Net-zero carbon roadmap

LGIM Real Assets

"Our decarbonisation strategy will enable us to meet our long-term net-zero goals with the aim to future proof our investments. It is only by working closely with policymakers and partners across the industry that we will be successful in this journey."

**Bill Hughes**, Global Head of Real Assets, LGIM

LGIM

# Contents



# Our net-zero journey so far

1. **Signatory** to the Better Buildings Partnership Climate Commitment - **2019**

2. **Publication of our** Net-zero carbon roadmap - 2020

3. **New** science-based **targets** to **2030** set for Scope 1,2 and 3 emissions

4. Net-zero **audits completed** across **115** existing assets

5. **100%** of landlord purchased **electricity** is from REGO-backed **renewable** energy **sources**

6. **Launch** of **Vizta digital platform** to support occupier engagement

7. **Occupier** energy **data** collected for **over 12 million** square feet of property

8. **Automated meter reading** systems **installed** across **80 assets and instructed on a further 53 assets**

9. **Launch** of **Globechain**, an **ESG sustainability re-use exchange** for occupiers

10. Forward-looking **climate** risk **assessed** for **100%** of **real estate** assets

Source: LGIM RA as at 31 December 2022.

Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

# Executive summary

The direct environmental, social and economic impacts of climate change are increasingly affecting many parts of the world. Avoiding a climate catastrophe is of paramount importance and represents a huge global challenge requiring concerted efforts by all parts of society.

As a global institutional investor, we have a responsibility and fiduciary duty to protect and generate value for our clients. It is our belief that sustainability 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 seeking to safeguard our assets to create better quality, better performing real estate assets.

At the end of 2020, we published our real estate net-zero carbon roadmap, which laid out our strategy to transition our real estate portfolio to net-zero carbon. Through a series of practical case studies we aim to show the progress we are making across this portfolio. The implementation of this strategy will enable us to deliver on the commitments that we made in 2019 as signatories to the Better Buildings Partnership's Climate Change Commitment, to achieve net-zero for all of our real estate equity assets by 2050 or sooner.

This update provides a summary of the progress made to implement our strategy since our roadmap was published and covers the work done up until the end of 2022. More details can be found in the delivery strategy section of this report.

**We have a responsibility and fiduciary duty to protect and generate value for our clients.**

## Setting new science-based targets

During 2022, we established new science-based targets to 2030, in line with Legal & General (L&G) Group's commitment to the science-based approach. This involved re-baselining against 2019 performance. It also expanded the scope of the targets from Scope 1 and 2 (our landlord-controlled areas) to include the wider Scope 3 emissions associated with the energy that our occupiers procure and control.

Scope 1 and 2 annual reduction targets are set for each asset and fund.


**2030**
Science-based targets

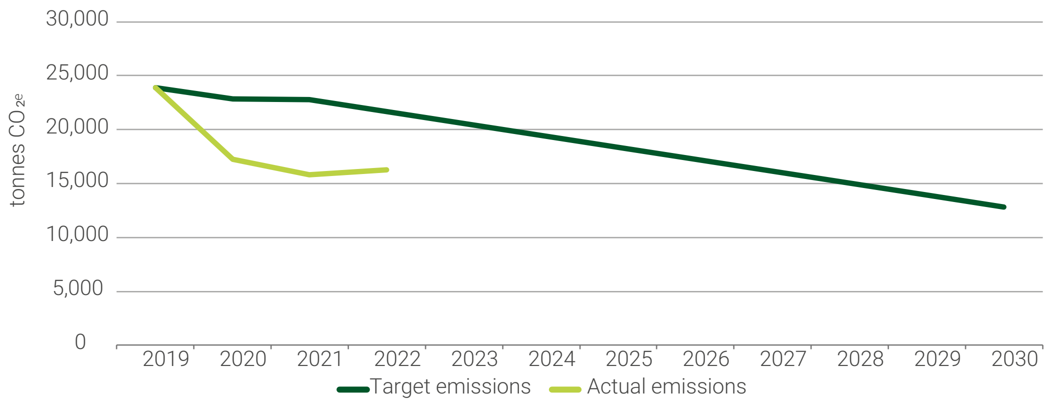
- Scope 1 and 2 target to 2030: 42% reduction in absolute carbon emissions, compared with 2019 baseline*
- Scope 3 target to 2030 – 55% reduction in carbon intensity, compared with 2019 baseline

*Occupier energy use of downstream leased assets

**2050**
Net-zero carbon

- To achieve net-zero carbon by 2050 or sooner for real estate property assets, under the Better Buildings Partnership Climate Change Commitment (2019)
- Published net-zero carbon roadmap in 2020

### Platform performance against SBTi pathway




Source: LGIM RA, 2022. Measured scope 1 and 2 carbon emissions data, compared with science-based target initiative (SBTi) pathway. (tonnes since 2019). The impact of COVID-19 in terms of reduced building occupancy and consequentially lower energy use can be seen during 2020 and 2021.

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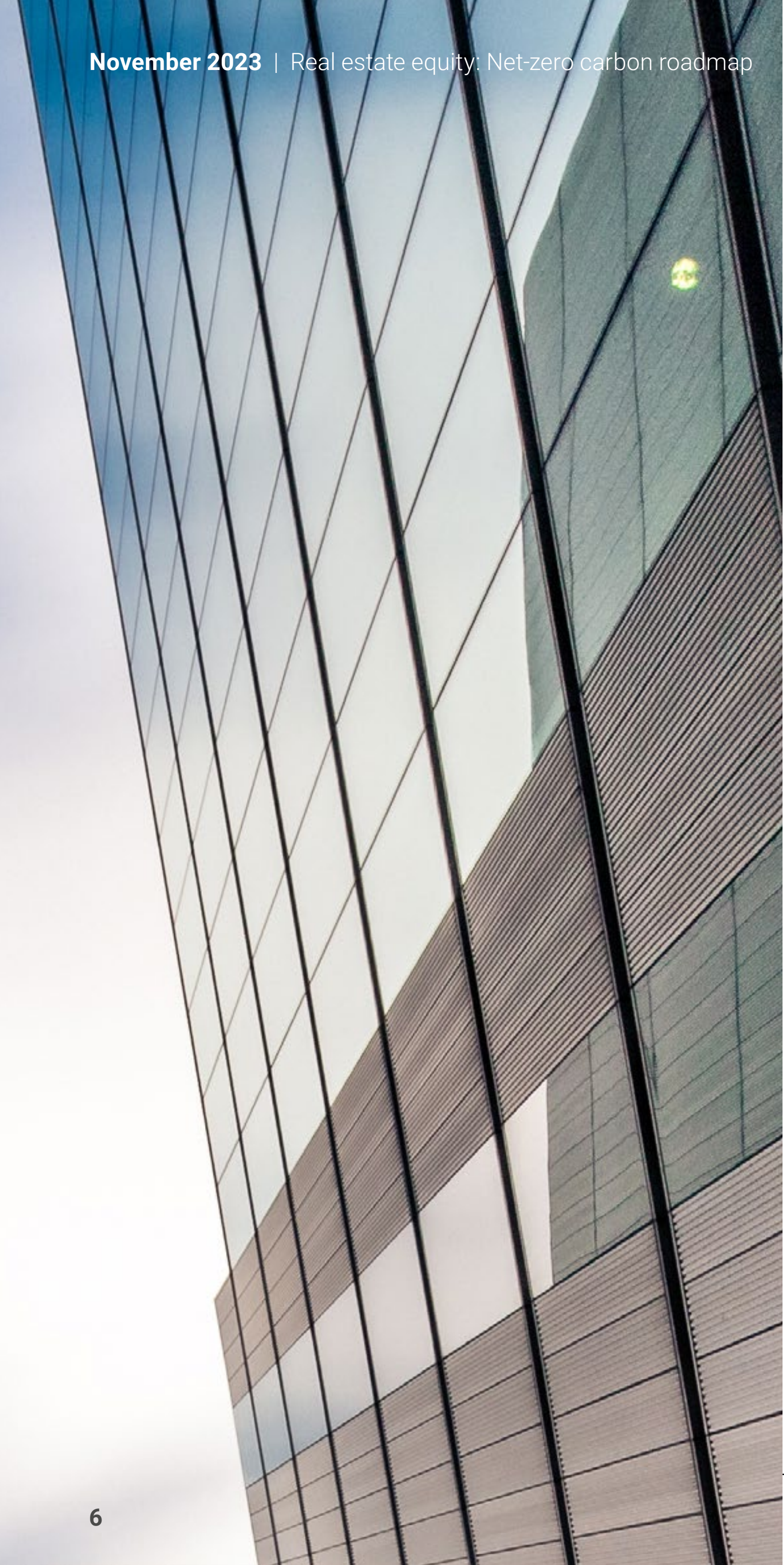


## Delivering on our net-zero strategy

### Improving data quality and coverage

In order to increase the scope, accuracy and robustness of the emissions data that we hold for our occupiers, we launched a programme to sub-meter occupier energy use, starting at our Bermondsey Trading Estate asset. By the end of 2022, we had completed sub-metering for 80 assets, with 53 more instructed. We also collected occupier data directly from tenants. This represents a total coverage of 30% of our portfolio by floor area, which we are working to increase.

During 2022, we carried out a review and market test of our ESG data platform partner. This was followed by a competitive tender, which resulted in us adopting a new platform provider, Deepki. The transition to Deepki was completed in December 2022. We believe that this technology-led platform will enable us to more rapidly progress towards remote data collection and will provide more effective reporting capabilities.

Our 2020 roadmap highlighted the importance of incorporating net-zero requirements at key intervention points in the property management lifecycle. Key steps taken include:

### New development and major refurbishment projects

New net-zero requirements have been incorporated into our Brief for Sustainable Works, which is issued to our design teams. This includes a requirement for new developments and major refurbishments to set net net-zero targets and carry out operational and embodied carbon studies as appropriate. Our work at North Quay House in Bristol demonstrated the opportunities to achieve reductions in embodied carbon through refurbishment over new builds.

### Design for performance

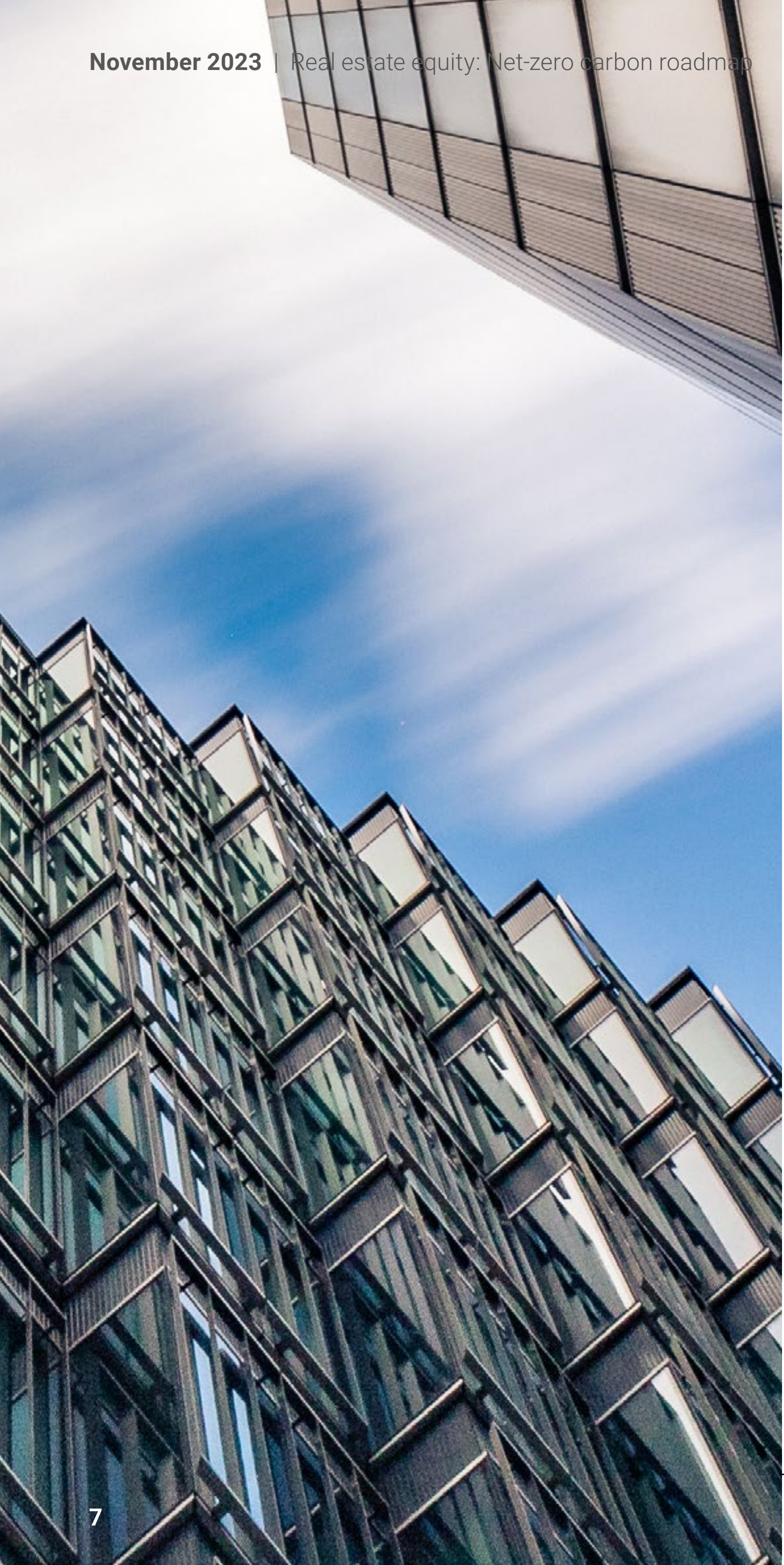
In order to help ensure that the design aspirations of our projects are delivered, we have adopted NABERS Design for Performance for all new office developments and major refurbishments of over 2,000m².

### Net-zero on acquisition

New requirements have been established for net-zero audits to be carried out as part of the due diligence process for our acquisition of existing properties. These audits provide an initial indication of the key interventions needed to achieve net-zero, which will have implications for the cost-benefits of the asset decarbonisation plan.

### Net-zero audits on existing assets

During 2021, we initiated the rollout of net-zero carbon audits for existing priority assets. This continued through 2022 and by the end of the year we had completed audits on 115 assets across different sectors such as offices, retail and the industrial sector. The findings of these audits are incorporated into the Asset Sustainability Plans, which are in place for all assets. They provide a short and long-term plan for driving sustainability improvements.



## Occupier engagement

With many of our properties managed and operated by our occupiers, LGIM Real Assets (RA) recognises the need for extensive and ongoing engagement and collaboration with our occupiers, in order to achieve our sustainability objectives. We have continued to roll out a programme of occupier engagement to better understand our occupiers' aims as a basis for collaboration. An example of this is our work with Aberystwyth University. In November 2021, we launched Vizta, an innovative technology-led occupier engagement platform, which includes a key focus on sustainability. We encourage our occupiers to share data in return for insights and support. During 2022, work was done to update our green lease clauses, including new collaboration requirements around net-zero carbon.

## Accelerating implementation

Work targeting implementation of net-zero carbon has been continuing across the platform. Our Sustainable DC Property Fund (SDCF) has an accelerated target of achieving net-zero operational carbon by 2030 and has led on this through the development and rollout of detailed implementation plans for key assets, such as the Compass West Industrial Estate.

## Renewable energy – on site

During 2022, we launched a pilot project to help develop a holistic view of the opportunities and considerations around on-site renewable generation. This focused on four pilot studies and included the potential adoption of on-site renewables as well as new requirements for electric vehicle charging.

## New net-zero tools and guidance

Refurbishment and fit-out are key intervention opportunities to embed energy improvements. In order to take advantage of these opportunities, we have been developing new tools to support net-zero refurbishments including a big shed modelling tool, an industrial refurbishment guide and a new office fit-out guide.

## Carbon offsetting

Offsetting is the last step of our decarbonisation strategy to reduce residual emissions to meet net-zero targets. During 2023, we worked with consultants Deloitte to engage with internal stakeholders across L&G Group in order to build knowledge and to inform the development of a robust approach to carbon offsetting.

## Physical risk and climate resilience

Over the last two years work has continued with specialist climate risk modelling provider, XDI. This has included a new approach to improve the granularity of analysis, through new building-level risk information and on-site intelligence. In addition, we have been working to include the use of new climate-risk tools in our development and acquisition processes, providing insights out to 2100.


# Case study

## Bermondsey Trading Estate*

Occupier engagement

### Identify and engage

A pilot project for Bermondsey Trading Estate, London, saw the installation of data loggers (i.e., devices that record data over time) to capture and analyse the energy supply and demand profile of each occupier. Since 2019, we've used the information to increase knowledge of asset-level energy profiles and to seek to future-proof the power supply of assets.

The project has been particularly pertinent given its location within the Ultra Low Emission Zone (ULEZ), which is likely to result in increased demand for electric vehicles (EVs).

### Deliver positive outcomes

For occupiers, the project provided information around methods of reducing energy consumption and power demand, the practicalities of EV rollout and recommendations for increasing use of renewables. We believe this will help improve asset efficiency, while reducing costs and carbon emissions.

For the Industrial Property Investment Fund, this helped to provide a clear and accurate baseline to support target setting and implement emission reduction plans.

This initial pilot is being rolled out more widely, with estates in ULEZ zones a priority.

A programme of sub-metering has been initiated, in order to gather occupier Scope 3 emissions data.

*Case study shown for illustrative purposes only. The above information does not constitute a recommendation to buy or sell any security.

# Case study

**North Quay House, Bristol***

Refurbishment not demolition

## Identify and engage

The North Quay House project involved the refurbishment of an existing office building overlooking the Floating Harbour in Bristol city centre.

A net-zero audit was undertaken for the asset.

## Deliver positive outcomes

Analysis showed that reusing the existing building represented a significant carbon saving relative to demolition and new build, as well as a significant reduction in waste.

Planned upgrades to the building fabric and systems were also identified to substantially reduce operational emissions.

By refurbishing and not demolishing the building, the asset is on track to achieve around 30% lower embodied emissions than industry net-zero targets when complete.

Our work measuring and mitigating embodied carbon has highlighted the benefits of refurbishment over redevelopment.

*Case study shown for illustrative purposes only. The above information does not constitute a recommendation to buy or sell any security.

# Case study

## Aberystwyth University*

Enhancing engagement

### Identify and engage

We've been engaging with Aberystwyth University on its ESG goals since 2021, most notably its commitment to achieving net-zero carbon by 2030, in line with the Welsh Public Sector Roadmap.

On-campus accommodation and amenities account for 20% of the university's overall energy consumption and are key to meeting its goals.

This asset is also an example of a single-let Fully Repairing and Insuring (FRI) property, where the occupier is generally responsible for the procurement of its own energy supplies and control of all site operations.

### Deliver positive outcomes

We've supported the university by connecting it with our network of specialist sustainability consultants. Together, they have developed a net-zero roadmap audit, as well as an implementation plan.

For the Annuity Fund, this exercise has provided increased asset level data and will contribute to portfolio level net-zero targets. This degree of advanced engagement is crucial, particularly across FRI properties where intervention opportunities are limited.

*Case study shown for illustrative purposes only. The above information does not constitute a recommendation to buy or sell any security.

# Case study

## Compass West Industrial Estate*

Net-zero audit


### Identify and engage

A net-zero carbon roadmap was developed at Compass West Industrial Estate to identify the required measures to achieve net-zero operational carbon.

Feasibility of measures, associated costs and timeframe for completion formed part of an agreed implementation plan.

The asset is owned by the LGIM Sustainable DC Property Fund (SDCF), which has an accelerated target to achieve net-zero operational carbon by 2030.

### Deliver positive outcomes

The plan proposed installation of automated meter readers to better understand and reduce energy consumption, remove gas and review feasibility of onsite renewable energy generation.

Since its completion, all landlord-controlled lighting has been upgraded.

These actions support the fund in meeting its net-zero objectives and provide a positive benefit to occupiers, through energy-saving measures and a more cost-efficient building.

*Case study shown for illustrative purposes only. The above information does not constitute a recommendation to buy or sell any security.

# Case study

## Taking action on flood risk in the UK*

Climate resilience

### Identify and engage

In 2021, all of our assets were included in our high-level, forward-looking flood risk assessment process with XDI, our climate risk modelling provider.

The granularity of our analysis was enhanced using unique property reference numbers (UPRNs), enabling analysis of assets at the individual building level.

### Deliver positive outcomes

The preliminary risk scan identified those assets requiring further analysis. Here, we are working through a process to capture more granular, asset-specific information, such as building age, floor height and, crucially, any existing flood adaptation measures.

Once incorporated into the model, this detail will generate a much clearer representation of the risk profile and enable more targeted adaptation strategies for assets still deemed to be at risk.

*Case study shown for illustrative purposes only. The above information does not constitute a recommendation to buy or sell any security.

# 1. 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 including our occupiers. This also includes the embodied carbon of our new developments and refurbishments.

During 2021, our Sustainable DC Property Fund (SDCF) set an accelerated target to achieve net-zero operational carbon by 2030.

## Science-based targets

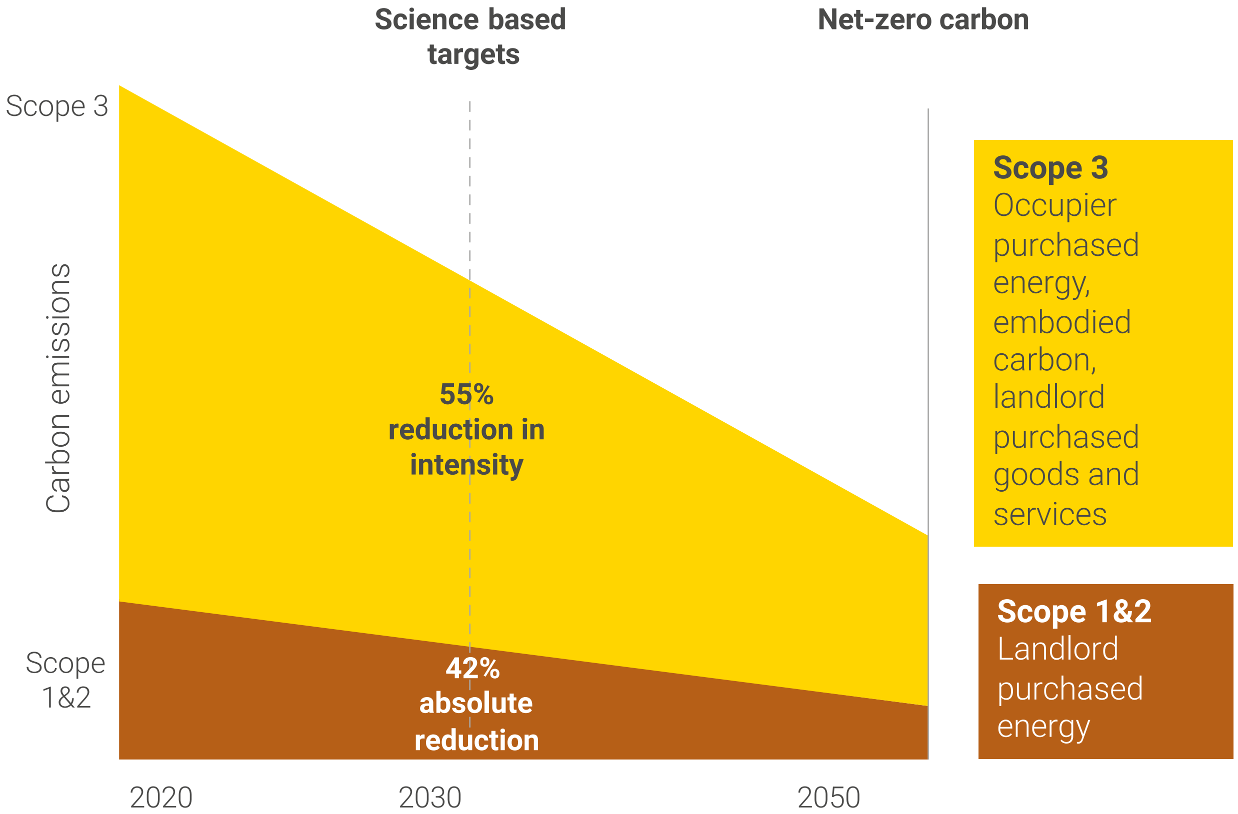
During 2022, we established new science-based targets to 2030, in line with L&G Group's commitment to the science-based approach. This involved a re-baselining against 2019. It also expanded the scope of the targets from Scope 1 & 2 (our landlord-controlled areas) to include the wider Scope 3 emissions associated with the energy that our occupiers procure and control.

Our science-based targets will help support our trajectory to net-zero to 2030. As illustrated in the graphic on the next page, we will reduce the absolute operational carbon of the Scope 1 & 2 emissions from our landlord-controlled areas by 42%. For the Scope 3 emissions, associated with the energy use of our occupiers we will reduce their carbon intensity by 55%.

## Best practice standards

To achieve net-zero, we are firmly committed to the principles as 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 lower energy levels
- We will increase renewable energy supply and only consider verified offsetting as the final step

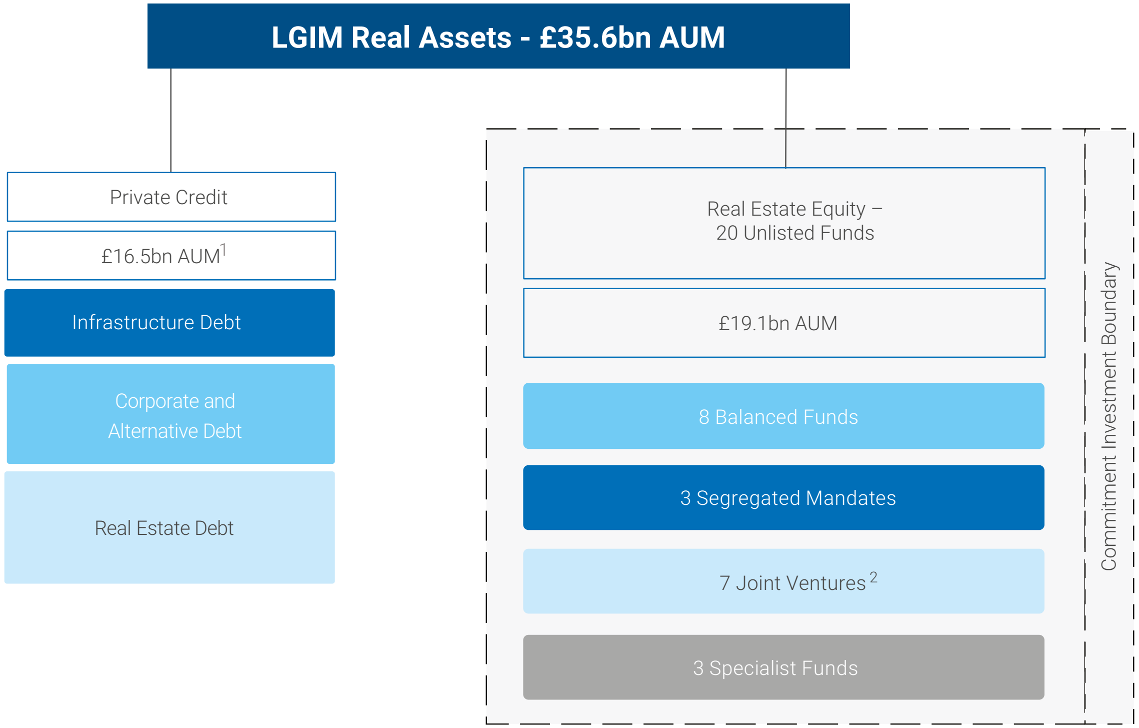



Source: LGIM RA as at 31 December 2022.

Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass

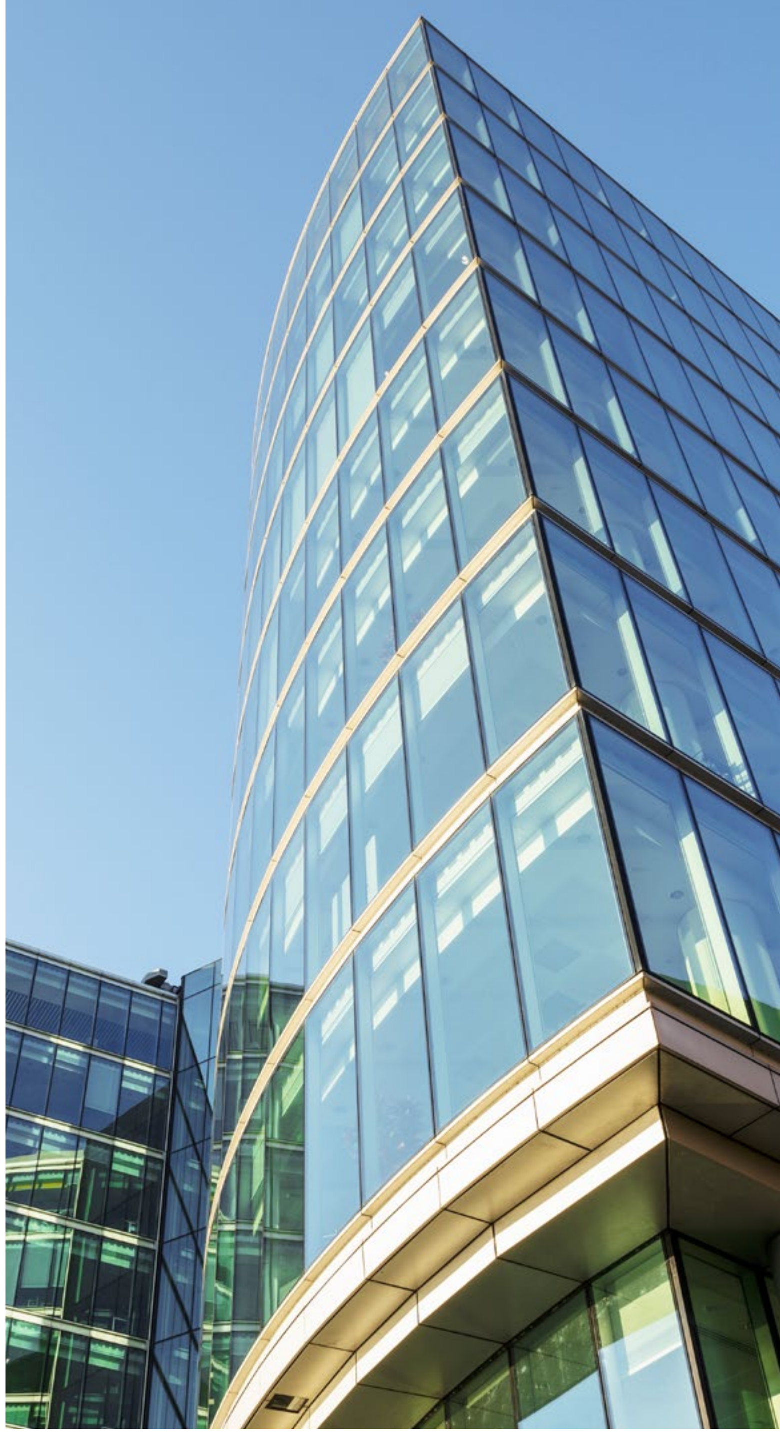
# 2. Scope of our commitments

L&G has been an investor in UK commercial, alternative and residential real estate since 1971. Today, LGIM RA is responsible for over £19 billion in UK real estate equity assets, across 20 unlisted funds. Since the publication of our roadmap in 2020, LGIM RA no longer has investment in or operational control of two funds, the Bracknell Regeneration Fund and the Shareholder Fund. These two funds have therefore been removed from the scope of our commitment. The scope of our investment boundary is highlighted in the diagram below:




Source: LGIM Real Assets. AUM data estimates at 31 December 2022.
**Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

1. Includes real estate debt, infrastructure debt, corporate and alternative debt.
2.Our joint ventures are included within our investment boundary. We have also invested in certain joint venture funds over which we do not have operational control; we have operation control of other funds through our managing agent.



# 3. Carbon emissions boundary

We have been measuring and reporting the carbon emissions associated with managing our assets for more than 10 years. These Scope 1 and 2 emissions come from the fuels and electricity that we purchase and control as a landlord in order to operate our properties.

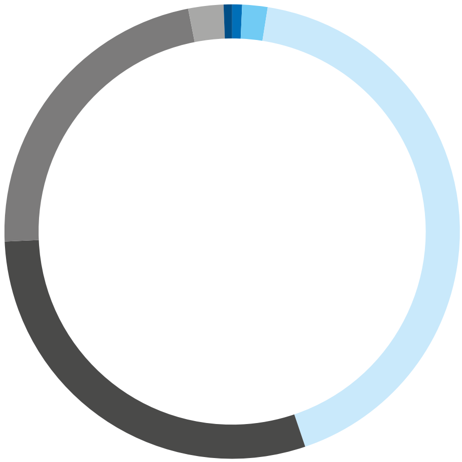
During 2022, as part of our work to establish new science-based targets, we carried out an exercise to estimate our wider carbon footprint. This is an estimate of the emissions associated with activities such as the energy being used each year by our many occupiers, the embodied carbon being built into our new developments, and all of the carbon wrapped up in operating and managing our real estate portfolio. We were supported by independent consultancy Eco-Act, using the UKGBC guidance on Scope 3 reporting.

This work identified that only around 3% of our emissions come from the electricity and fuel that we buy to operate our buildings (Scope 1 and 2 emissions). The majority (around 71%) 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 operational expenditure on managing agents, building management and refurbishment contractors. It is recognised that the majority of this footprint is based on current estimates. This includes the use of industry benchmarks and other proxy data sets. The intention is to improve the scope, quality and accuracy of this data as we move forwards. More information about how we are improving data quality is provided in this update.

**During 2022, as part of our work to establish new science-based targets, we carried out an exercise to estimate our wider carbon footprint.**

Other areas estimated as less than 1% of total emissions each include:

- Transmission & distribution losses **(Scope 3)**
- Landlord district heating **(Scope 3)**
- Waste generated in operations **(Scope 3)**
- Business travel **(Scope 3)**



- Scope 1 - Landlord gas use 0.7%
- Scope 2 - Landlord electricity use 1.8%
- Scope 3 - Occupier gas use 42.3%
- Scope 3 - Occupier electricity use 29.5%
- Scope 3 - Capital goods (embodied carbon) 22.6%
- Scope 3 - Purchased goods and services 2.5%
- Other 0.6%

Source: LGIM RA as at 31 December 2022.

| Emission category | Emissions (tonnes $CO_2e$) |
|---|---|
| Scope 1 - Landlord gas use | 4,273 (0.7%) |
| Scope 2 - Landlord electricity use | 10,740 (1.8%) |
| Scope 3 - Occupier gas use | 250,669 (42.3%) |
| Scope 3 - Occupier electricity use | 175,065 (29.5%) |
| Scope 3 - Capital goods (embodied carbon) | 133,978 (22.6%) |
| Scope 3 - Purchased goods and services | 14,628 (2.5%) |
| Scope 3 - Other | 3,675 (0.6%) |
| **Total** | **593,028** |

Note: The majority of scope 3 data is currently based upon benchmark estimates. We are working to increase the scope and quality of this data as explained in section 4 of this report.

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# 4. Delivery strategy update

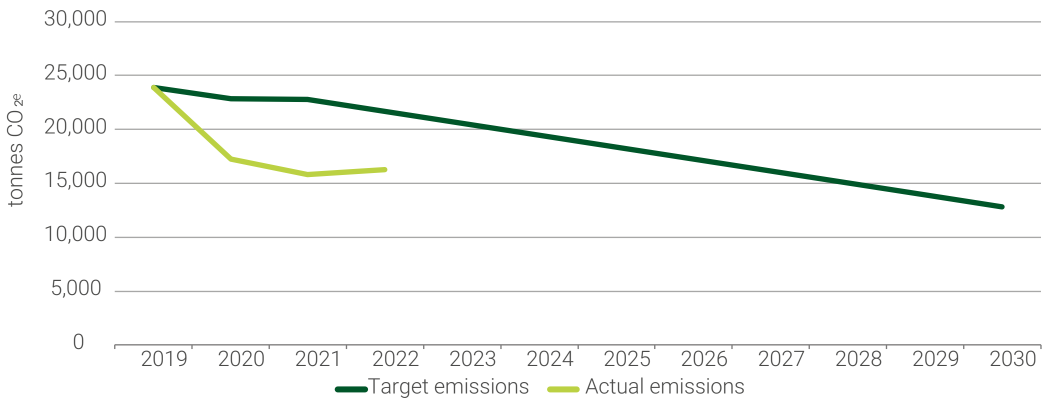
The following table provides a summary of key progress made against our roadmap aims. This covers the period January 2019 – December 2022.

| Topic | Aims | Progress update |
|---|---|---|
| Operational carbon (energy, water and waste) | To improve **operational energy efficiency** and reduce operational carbon emissions | During 2021/22 we established new science-based targets in line with L&G Group commitments. This involved setting a new 2019 baseline and includes the following:<br>• Scope 1 and 2 target to 2030 – 42% reduction in absolute carbon emissions, compared with 2019 baseline<br>• Scope 3 target to 2030 – 55% reduction in carbon intensity, compared with 2019 baseline<br>• Scope 1 and 2 annual reduction targets are set annually for every asset and all funds<br>Our platform-wide Scope 1 and 2 performance since 2019 is shown in the tables and charts below: |

**Scope 1&2 (tonnes of $CO_2e$)**

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Target emissions** | 23,857 | 22,855 | 22,755 | 21,653 | 20,550 | 19,448 | 18,346 | 17,244 | 16,142 | 15,039 | 13,937 | 12,835 |
| **Actual emissions** | 23,857 | 17,261 | 15,830 | 16,292 | | | | | | | | |

**Platform performance against SBTi pathway**




Source: LGIM RA as at 31 December 2022.

Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass. The impact of COVID during 2020 and 2021 can be seen in the above. During this period occupancy of many buildings was significantly reduced, with a consequential impact upon energy use and associated carbon emissions.

| Topic | Aims | Progress update |
|---|---|---|
| Operational carbon (energy, water and waste) | To improve operational energy efficiency and reduce operational carbon emissions. | **Scope 1 and 2 annual tonnes $CO_2e$** |

| Platform | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Electricity (landlord purchased) (kWh) | 69,429,969 | 53,095,906 | 50,581,844 | 56,416,696 |
| Gas (landlord purchased) (kWh) | 33,237,476 | 26,554,834 | 23,326,683 | 25,034,282 |
| District heating (landlord purchased) (kWh) | 0 | 0 | 4,738,722 | 4,760,859 |
| Energy intensity (kWh / $m^2$) | 12.98 | 10.59 | 9.57 | 10.78 |
| Emissions factor electricity ($tCO_2e$ / kWh) | 0.0002556 | 0.0002331 | 0.0002123 | 0.0001934 |
| Gas factor electricity ($tCO_2e$ / kWh) | 0.0001839 | 0.0001839 | 0.0001832 | 0.0001825 |
| Scope 1 emissions ($tCO_2e$) | 6,111 | 4,883 | 4,273 | 4,570 |
| Scope 2 emissions ($tCO_2e$) (location based) | 17,746 | 12,379 | 11,558 | 11,723 |
| Total (Scope 1 and 2) emissions ($tCO_2e$) | 23,857 | 17,261 | 15,830 | 16,292 |
| Scope 3 emissions | N/A | N/A | N/A | N/A |
| Intensity ($tCO_2e$ / $m^2$) | 0.0030 | 0.0023 | 0.0019 | 0.0020 |
| Intensity ($kgCO_2e$ / $m^2$) | 3.0173 | 2.2955 | 1.9270 | 2.04 |
| Floor area ($m^2$)(NLA) | 7,906,859 | 7,519,545 | 8,214,938 | 7,999,292 |

Source: LGIM RA as at 31 December 2022.

The impact of COVID during 2020 and 2021 can be seen in the above. During this period occupancy of many buildings was significantly reduced, with a consequential impact upon energy use and associated carbon emissions.

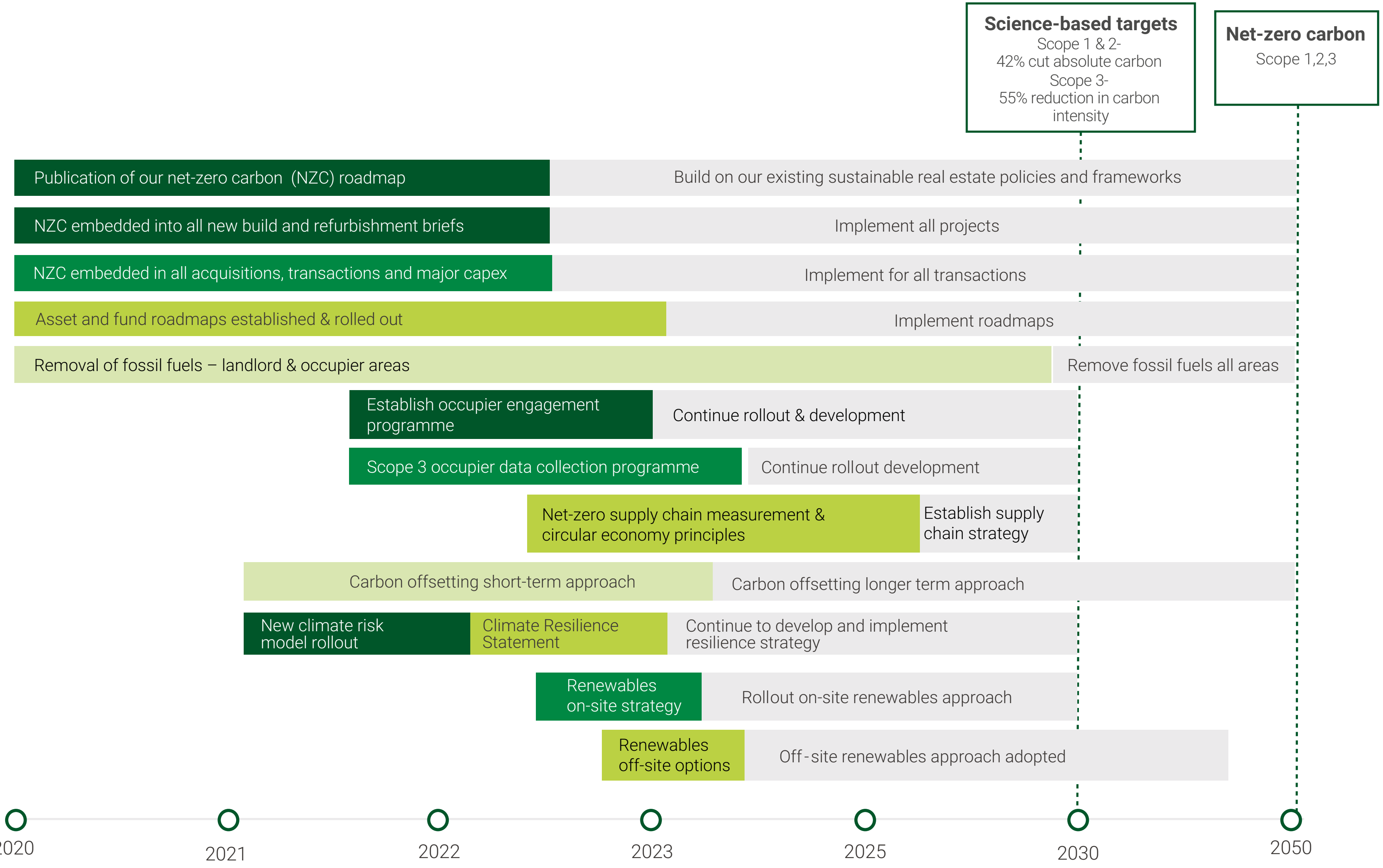
The work also included an estimation of Scope 3 emissions, based upon 2021 data. A breakdown of these estimated emissions is provided in section 3 of this report.

| Topic | Aims | Progress update |
|---|---|---|
| Operational carbon (energy, water and waste) | Increase the quality and accuracy of our **Scope 3 emissions** measurement and reporting from our occupiers. | In 2021, we launched a programme to sub-meter some of our occupiers' energy use, in order to increase the scope, accuracy and robustness of the data that we hold for our Scope 3 occupier energy use.<br>By the end of 2022, we had completed sub-metering installations at 80 assets, with 53 more instructed for installation. This equated to a floor area of 8,083,667 sq ft covered by sub-metering. We also collected occupier data directly from tenants occupying a further 12,435,417 ft². This represents a total coverage of 30% of our entire portfolio by floor area. We are working to increase this proportion year-on-year.<br><br>During 2022, we carried out a review and market test of our ESG data platform. This was followed by a competitive tender, which resulted in us adopting a new platform provider, Deepki. The transition to Deepki was completed in December 2022. We believe that this technology-led platform will enable us to achieve remote data collection more rapidly and will provide new reporting capabilities. |
| Operational carbon (energy, water and waste) | In order to help each asset to understand the key steps needed to achieve the transition to net-zero, we have been rolling out a programme of **net-zero roadmap audits and technical studies**<br>The inclusion of net-zero carbon implications and considerations in all new developments, major refurbishments, acquisitions, transactions and major capex decisions. | Our 2020 roadmap highlighted the importance of incorporating net-zero requirements at key intervention points in the property management lifecycle, particularly when improvement works are required or on new development and major refurbishment. Key progress and new elements include the following:<br><br>**New developments and major refurbishments**<br>New requirements around net-zero have been incorporated into our Brief for Sustainable Works, which is issued to our design teams. This includes a requirement for new developments and major refurbishments to set net-zero targets and carry out operational and embodied carbon studies as appropriate. Achieving existing embodied carbon targets for new developments is proving to be particularly challenging. Our work measuring and mitigating embodied carbon has highlighted the benefits of refurbishment over redevelopment. We have a number of major refurbishment projects which have managed to achieve these targets at design including North Quay House, Bristol. We use industry recognised embodied carbon targets, provided by LETI and RIBA.<br><br>**Design for performance**<br>There is a large body of research which shows that there is often a significant performance gap between a building's energy performance as per the design and the actual performance of that building in operation. In order to help ensure that the design aspirations of our projects result in real-world performance, we have adopted NABERS Design for Performance for all new office developments and major refurbishments of over 2,000m². We have been rolling this out across our projects and should be publishing verified performance ratings for these projects during 2023/24.<br>During 2022, we carried out some initial pilot work on the use of NABERS energy for offices, which provides an operational star rating for existing offices, with an annual assessment. We intend to roll this out during 2023.<br><br>**Acquisition due diligence**<br>A new requirement has also been established for net-zero audits to be carried out as part of the due diligence process for acquisition of existing properties. This provides an early indication of the steps, costs and risks associated with transitioning a potential acquisition to net-zero. The findings of this audit are incorporated into the Asset Sustainability Plan of any purchased assets. These plans retain the identified opportunities over the short, medium and long term.<br><br>**Existing assets**<br>During 2021, we initiated the rollout of a programme of net-zero carbon audits for priority existing assets. This involved developing a new specification for this work and the engagement of specialist technical consultancies capable of carrying out this work. The findings of these audits are then incorporated into the Asset Sustainability Plans, which are in place for all assets and provide a short, medium and long-term improvement plan. They are also included in the planned maintenance plans for the asset, wherever relevant.<br><br>This rollout continued through 2022 and by the end of the year we had completed audits on 115 assets equating to 21% of real estate platform by floor area. |

| Topic | Aims | Progress update |
|---|---|---|
| Operational carbon (energy, water and waste) | **Fossil fuel removal** Removal of fossil fuels from all real estate properties. | LGIM RA has been gathering and reporting on gas use, as part of our Scope 1 emissions, for over 10 years. In order to achieve our science-based targets and our net-zero carbon objectives, it is recognised that the removal of gas from our properties is of key importance. We have therefore set a target to remove gas from at least 75% of our landlord-controlled areas and from 50% of our occupier-controlled premises by 2030. To support this target, during 2022 we initiated a new programme of gathering and reporting on the existence of gas supplies across the platform. This will utilise our new data platform, Deepki, along with the information gained from new utility management documents, which involves the detailed surveying and mapping of utility supplies and metering of key assets. |
| Operational carbon (energy, water and waste) | **Occupier engagement** Successful collaboration with our occupiers to achieve whole building net-zero carbon for all property and lease types. | With many of our properties managed and operated by our occupiers, LGIM RA recognises the need for extensive and ongoing engagement and collaboration with our occupiers, in order to achieve our sustainability objectives. We have continued to roll out a programme of occupier engagement to better understand our occupiers' aims and as a basis for collaboration. An example of this is our work with Aberystwyth University, which is also targeting net- zero carbon. Through connecting the university with our network of specialist consultancies we have helped the university to put in place a net-zero carbon roadmap. This collaboration has also improved data sharing.<br><br>In September 2021, we launched Vizta, a new occupier engagement platform, which includes a key focus on sustainability. We encourage our occupiers to share data in return for insights and support. This platform also provides opportunities to reduce waste through a new and innovative waste trading module, enabling organisations to sell waste materials to those who value it.<br><br>During 2022, we also launched a programme of engagement with our major retail occupiers. This has helped to identify a range of opportunities e.g. around collaboration in on-site renewable energy projects as well as challenges around data sharing.<br><br>During 2022, work was done to update our green lease clauses. This included new collaboration requirements around net-zero carbon. |
| Operational carbon (energy, water and waste) | **Water** Reduce water use and associated Scope 3 emissions. | A key requirement for improving water efficiency and reducing use is the acquisition of good quality water data, as a basis for target setting and progress monitoring. Data quality and completeness has been an ongoing issue for many water suppliers. In response to this we have carried out an exercise to consolidate our water supply contracts. This has involved transitioning from 29 water suppliers to one. We believe that this will enable us to leverage improved service, including better water data quality.<br>In 2022, as a landlord, we purchased 194,140 $m^3$ of water, equivalent to a water intensity ($m^3/m^2$) of 0.024.<br>Water data completeness (for landlord purchased water) was 71%.<br>As water data quality increases, we will be adopting new targets for water use, based upon achieving the good practice benchmarks under the Better Buildings Partnership's Real Estate Environmental Benchmarks (REEB) for our managed offices and shopping centres. |
| Operational carbon (energy, water and waste) | **Waste** Reduce waste produced and associated Scope 3 emissions | Work is ongoing to improve the quality and completeness of the data associated with the waste generated by our activities as a landlord. We have an ongoing target to maintain our standard of 100% waste diverted from landfill. During 2022, we achieved 100% waste diverted from landfill.<br>During 2022, we launched a new waste management platform for our occupiers, called Globechain. This enables our occupiers to trade their waste streams with others who might value or need them. |
| Renewable energy | Maximise the use of **on-site renewable energy** wherever feasible. | During 2022, we launched a pilot project to help develop a holistic view of the opportunities and considerations around on-site renewable generation. This focused on four pilot studies and included the potential adoption of on-site renewables as well as new requirements for electric vehicle charging. These pilots will inform a platform-wide approach and strategy. |

| Topic | Aims | Progress update |
|---|---|---|
| Renewable energy | Support national **renewable energy supply** sector | 100% of our landlord purchased electricity continues to be supplied from REGO-backed natural renewable generation sources (including from wind, solar and hydro sources). |
| Carbon offsetting | Credible, effective, consistent, robust, transparent and verifiable **carbon offsetting** approach adopted as the final step to net-zero. | Offsetting is a last step of our decarbonisation strategy to reduce residual emissions to meet net-zero targets. During 2022, we worked with consultants Deloitte to engage with stakeholders across L&G Group in order to build knowledge and to inform the development of a robust approach to carbon offsetting. |
| Climate related physical risk and resilience | Visibility of future **climate-related risks** for all assets | Over the last two years work has continued with specialist climate risk modelling provider XDI. This has included a new approach to improve the granularity of analysis, through new building-level unique property reference numbers (UPRNs) risk information and on-site intelligence. In addition, we have been working to include the use of new climate risk tools in our development and acquisition processes, providing insights out to 2100.<br>During 2021, through our continued industry-wide engagement as an active member of the Better Buildings Partnership, we helped to develop a new industry guide on climate resilience for the commercial real estate sector. |
| Industry collaboration and partnerships | We believe that it is important to **work in collaboration** with our peers and industry groups in the sector, to drive standards and best practices | We continue to be involved in the following industry groups in relation to our work on net-zero carbon, including:<br>• Better Buildings Partnership Net-Zero Carbon Working Group<br>• UK Net-Zero Carbon Buildings Standard – Operational Carbon Task Group<br>• UK Net-Zero Carbon Buildings Standard – Office sector group |

# 5. Timeline of events




Source: LGIM RA as at 31 December 2022.
Assumptions, opinions and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

# 6. Glossary

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| **Balanced funds** | Funds that broadly aim to represent the property market and offer institutional or retail investors a typically open-ended investment opportunity. |
| **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 carbon dioxide equivalent is a measure used to compare the emissions from different greenhouse gases on the basis of their global-warming potential (GWP). Each gas is converted to the equivalent amount of carbon dioxide with the same 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. |
| **Joint ventures** | Joint ventures are partnerships with mutiple investor on a individual asset. |
| **LETI** | The London Energy Transition Initiative (LETI) is a network of built environment professionals 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. |
| **NABERS** | The National Australian Built Environment Rating System (NABERS) is a tool developed in Australia to measure buildings' environmental performance on a six-star range. |
| **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 Aligned** | To be climate-resilient and consistent with the Paris Agreement's long-term mitigation goal of limiting global warming to well below 2°C and pursuing 1.5°C compared to preindustrial temperatures. |

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| **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. |
| **RIBA** | Royal Institute of British Architects |
| **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. |
| **Segregated mandates** | Funds outsourced to us to manage based on a specific investment mandate. |
| **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. |
| **Specialist funds** | Vehicles dedicated to a sector or theme. |
| **TCFD** | The Task Force on Climate-Related Financial Disclosures (TCFD) is an organisation 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** | 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. |

# Contact us

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

**Key risks**

The value of investments and the income from them can go down as well as up and you may not get back the amount invested. Past performance is not a guide to future performance.



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