It takes Aviva Investors

REAL ASSETS

Aviva Investors Real Assets net-zero pathway: One year on

2021 Progress Report

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AVIVA INVESTORS

Our progress towards net zero in real assets

Aviva Investors is the global asset management business of Aviva plc. We are an active manager, with £267 billion of assets under management, as of 31st December 2021, of which £46 billion is invested in real assets, including real estate debt and equity, infrastructure debt and equity, private corporate debt and structured finance. Our platform invests directly in and finances buildings and infrastructure that play a crucial role in shaping our evolving society.

In September 2019, the Better Buildings Partnership (BBP) launched a historic climate change commitment. Signed by 23 of its members, including Aviva Investors, and covering over £300 billion of assets under management in real assets globally, the commitment will see 1.2 million tonnes of carbon emissions per annum reduced to net zero by 2050.

In 2021, Aviva plc announced the most demanding net-zero target set by any insurance company in the world. This includes the carbon emissions from Aviva's own operations, as well as those contributed by suppliers and in its own investments. Investments made for customers and shareholders are the largest source of emissions in Aviva's carbon value chain. This commitment was reinforced with short-term targets, aimed at cutting the carbon intensity of investments by 25 per cent by 2025, and 60 per cent by 2030.

In this document, we outline the progress we have made towards meeting the requirements of the BBP commitment and our own net-zero target for real assets, which we announced in January 2021[1]. We demonstrate the action we have taken to invest in low-carbon solutions and decarbonise existing assets across our platform, protecting our clients' interests whilst reducing the negative impacts of our investments on our shared environment and society.

£1.04bn

In 2020, we committed to delivering £1 billion of climate transition-focused loans by 2025, accelerating the transition to a low-carbon economy in real estate. We have made incredible progress in the past year, with £1.04 billion of sustainable lending delivered to date, exceeding the target three years early.

£1.2bn

We originated £1.1 billion of green assets in 2021, 78 per cent of our infrastructure origination for the year. This included district heating, electric rail, energy centres, smart meters, solar and onshore wind. This takes our installed low-carbon and renewable energy generation capacity to 1.1 giga watts, enough to power a large city.

£1.4mt/C02e

In 2021, we acquired 6,300 hectares of Scottish moorland in Glen Dye, West Aberdeenshire. In partnership with Par Equity, over 3,000 hectares of land will be newly planted and 1,800 hectares of peatlands restored. An estimated 1.4 million tonnes of carbon will be sequestered over the lifetime of the project.

£3m

In 2021, our smart buildings programme, in collaboration with Carbon Intelligence, delivered over £800,000 in savings for our occupiers, bringing savings over the lifetime of the programme to £3 million.

1. www.avivainvestors.com/en-gb/about/company-news/2021/01/aviva-investors-publishes-net-zero-pathway-for-real-assets/

AVIVA INVESTORS

The commitment we made to our clients

We will support our clients to transition their real asset investments to net-zero emissions by 2040

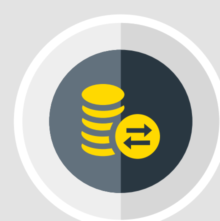
This means we will support our clients to reduce greenhouse gas emissions from their directly owned and financed real asset investments in line with limiting warming to 1.5 degrees Centigrade. By 2040, we will have supported our clients to balance their residual emissions, by offering financing or direct ownership of carbon removals, such as carbon credits or forestry. Our commitment extends to clients' assets across our entire real assets platform, comprised of real estate, infrastructure, and private debt.

Focus on sustainable lending

£1bn

In 2020, we committed to delivering £1 billion of climate transition-focused loans by 2025, accelerating the transition to a low-carbon economy in real estate. We have made incredible progress in the past year, with £1.04 billion delivered to date, exceeding our initial target.

March 2021



We provided £48 million of sustainability-linked financing to Urban Logistics Reit plc to refinance a portfolio of 14 logistics assets across the UK, totalling 1.1 million sq ft.

The transaction includes a commitment from Urban Logistics REIT to work towards an agreed set of sustainability transition criteria, which will see it benefit from margin reductions upon meeting these targets.

April 2021

We provided a £72.9 million sustainable transition loan to Commercial Estates Group.

A portion of the loan will part-fund the development of Globe Point, a 37,842 sq ft Grade A office in the Temple area of Leeds, which aims to achieve BREEAM excellent and EPC A ratings.

July 2021

We provided Bruntwood with a £155 million, 15-year sustainable-linked loan facility secured against 22 high quality UK office assets.

The sustainability performance metrics included in the deal primarily focus on reducing carbon emissions and procuring green, renewable energy to help tackle climate change in the real estate sector.

October 2021

We completed a further £50 million financing agreement with Big Yellow Group, the UK-based self-storage company.

A set of KPIs was included as part of the agreement, linked to improvements in the sustainability credentials of Big Yellow's portfolio of buildings. These include the continued installation of solar panels across properties to reduce emissions and running costs, and the business being on-track to achieve 'Net Renewable Energy Positive' status by 2030.

October 2021

We provided JSE REIT Stor-Age, South Africa's leading and largest self-storage property fund, with a new £21 million, seven-year sustainability-linked loan facility.

November 2021

We agreed a £200 million facility with Primary Health Properties plc with margin incentives conditional on a prescribed set of sustainability-linked KPIs being achieved by PHP on 61 NHS primary care centres.

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Progress against our 2025 goals

1 Invest £2.5 billion in low-carbon and renewable energy infrastructure and buildings by 2025

Direct investments ✔ Financed emissions ✔

Definition

Support and enable our clients to secure debt and equity assets comprising solar PV, offshore and onshore wind, energy centres, energy-from-waste, hydrogen generation, battery storage, low-carbon public transport, electric vehicle charging infrastructure, and energy efficient buildings (certified LEED, BREEAM).

2020 progress

In 2020, we invested directly in and financed £283 million towards this target, under our target of £625 million for the year.

2021 progress

In 2021, we invested directly in and financed £1.2 billion of low-carbon and renewable energy infrastructure and buildings, comprising 78 per cent of new infrastructure origination. In addition, we acquired three EPC A-rated properties in the office, retail and industrial sectors.

2 Increase low-carbon and renewable energy generation capacity to 1.5GW by 2025

Direct investments ✔ Financed emissions ✔

Definition

Installed energy generation capacity from solar photovoltaic (PV), offshore and onshore wind, energy centres, energy-from-waste, hydrogen generation and any other low-carbon and renewable sources. We account for our generation capacity and avoided emissions from these investments on a proportional basis, considering the guidelines of the GHG Emissions Protocol and the principles of the Partnership for Carbon Accounting Financials.

2019 baseline and 2020 progress

Our 2019 baseline is 0.73 GW. In 2020, we originated and developed eight projects to contribute a further 93MW and took our running total to 0.82GW.

2021 progress

We originated and developed ten projects to contribute a further 0.22 GW and take our running total renewable energy capacity to 1.1 GW, representing 48 per cent progress towards our 2025 target.

Additional performance measures

Zero emissions assets:
The percentage of assets that have no operational emissions.

In 2021, we acquired a portfolio of 2,939 rooftop solar panels and two ground-mounted solar installations. These assets have an installed capacity of 12.6MW, the equivalent of meeting the energy demands of 13,500 local homes per year. This takes the total renewable generation capacity from our zero emissions assets to just under 1 GW, 87 per cent of our total capacity.

AVIVA INVESTORS

Progress against our 2025 goals (cont'd.)

3 Deliver £1 billion of climate transition-focused loans by 2025

Direct investments ✘ **Financed emissions** ✔

Definition

Increase our volume of transactions focused on the climate transition, meeting the Loan Market Association's green or sustainability linked lending criteria. Our focus areas include decarbonisation of heat, energy reduction, renewables and reduction of carbon emissions. Initially this goal will focus on real estate finance, and we hope to broaden it to include all private debt asset classes in 2022.

2020 progress

In 2020, we originated a single accredited sustainable transition loan worth £154 million.

2021 progress

In 2021, we made significant progress with the origination of a further eight sustainable transition loans, taking the cumulative total up to £1.04 billion. We have exceeded our initial target and plan to set a higher target for 2025.

4 Create at least 50 per cent of new pooled strategies with sustainable or impact labels until 2025

Direct investments ✔ **Financed emissions** ✔

Definition

Volume of new pooled strategies meeting Aviva Investors' 'sustainable' or 'impact' criteria, with explicit climate transition or related ESG objectives. Achieving this goal will require over 50 per cent of any new pooled AUM to be placed in sustainable strategies until 2025. This goal does not include bespoke client mandates that invest in existing strategies.

2020 progress

In 2020, we conducted research and feasibility work to develop our pipeline of future pooled strategies that were intended to be classified as 'sustainable' or 'impact'.

2021 progress

In July 2021, we launched the Aviva Investors Real Assets Climate Transition Fund. One of the world's first sustainable multi-asset real assets funds, this targets net zero by 2040 by offering investors direct investment in nature-based solutions such as forestry and peatland restoration through the acquisition of Glen Dye Moor, alongside real estate and infrastructure. Accordingly, 100 per cent of new pooled strategies were classified under Article 8 of the Sustainable Finance Disclosure Regulations.

AVIVA INVESTORS

Progress against our 2025 goals (cont'd.)

5 Reduce real estate carbon intensity by 30 per cent and energy intensity by ten per cent by 2025, measured against a 2019 baseline

Direct investments ✔ Financed emissions ✘

Definition

Reduce directly owned and managed real estate carbon emissions (kgCO2e/m^2) by 30 per cent and energy intensity (kWh/m2^2) by ten per cent by 2025 compared to the 2019 baseline. This target is underpinned by supporting strategies and metrics throughout the real estate lifecycle, encompassing acquisitions, developments, asset management, disposals and occupier engagement. Developments will be included in this target after being under our management for two years. At present, we have data covering 196 assets, which comprises just over 20 per cent of the total floor area of our portfolio.

	2019 baseline and 2020 progress	2021 progress
Carbon	Our 2019 baseline was 60.7 kgCO2$_2$e/m^2. In 2022, we set a new baseline for 2019 of 28 kgCO^{2}e/m^2. This is because we increased the number of assets in the baseline from 44 to 196. This includes the common parts of all directly owned and managed assets, including industrials which have lower carbon intensity.	By the end of Q4 2021, we had achieved a reduction of 43 per cent, reaching 16 kgCO$_2$e/m^2. Our data shows a 23 per cent improvement as a result of sales (15 per cent) and our smart buildings programme (eight per cent), with a further 19 per cent resulting from office occupancy rates during COVID-19 and other factors such as weather. Accordingly, we have made 23 per cent progress against our 30 per cent target and will reassess our reporting once office occupancy begins to reach a stable position.
Energy	Our 2019 baseline was 288 kWh/m^2. In 2022, we set a new baseline of 124 kWh/m^2 for the reasons noted above.	By the end of Q4 2021, we had achieved a reduction against the new baseline of 35 per cent, reaching 81 kWh/m^2. Performance can be partly attributed to sales (15 per cent), as well as the success of our smart buildings programme (7.5 per cent), which has delivered £3 million in savings to occupiers, as of Q3 2021. Twelve per cent of our progress is attributable to building occupancy and other factors such as weather. Accordingly, we have made 22.5 per cent progress against our target of ten per cent; however, we will reassess our reporting once office occupancy begins to reach a stable position.

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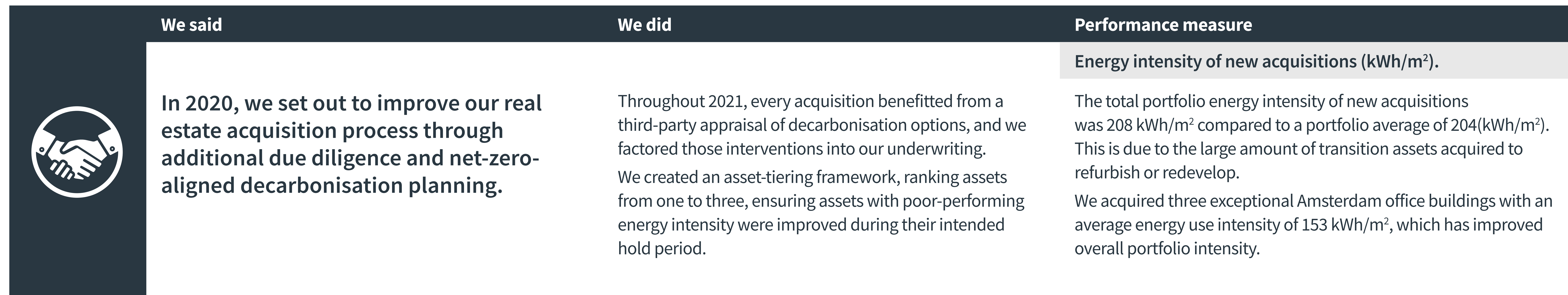
Our progress in real estate equity

Acquisitions



We said	We did	Performance measure
		Energy intensity of new acquisitions (kWh/m^2).
In 2020, we set out to improve our real estate acquisition process through additional due diligence and net-zero-aligned decarbonisation planning.	Throughout 2021, every acquisition benefitted from a third-party appraisal of decarbonisation options, and we factored those interventions into our underwriting. We created an asset-tiering framework, ranking assets from one to three, ensuring assets with poor-performing energy intensity were improved during their intended hold period.	The total portfolio energy intensity of new acquisitions was 208 kWh/m^2 compared to a portfolio average of 204(kWh/m^2). This is due to the large amount of transition assets acquired to refurbish or redevelop. We acquired three exceptional Amsterdam office buildings with an average energy use intensity of 153 kWh/m^2, which has improved overall portfolio intensity.

Developments

We said	We did	Performance measure
		Energy intensity of completed developments (kWh/m^2)
In 2020, we targeted several improvements to our development process. This included adopting the UKGBC's advancing net-zero energy use intensity pathway, following design for performance processes and targeting NABERS certification.	Seven developments are going through the formal NABERS design for performance process. Learnings from these are being embedded across all development projects. Eighteen buildings are carrying out advanced energy modelling. These are either on track, or have a route towards achievement of the UKGBC's target EUIs.	Of the buildings that have undergone operational energy analysis, three are predicted to meet best practise (100kWh/m^2), one is safely meeting minimum standards and two are borderline minimum standards (144kWh/m^2). The worst-performing projects have had upgrades to mechanical and electrical design to enable better control of the internal environment. We continue to focus our efforts to ensure these progressive targets are delivered through construction and operation.

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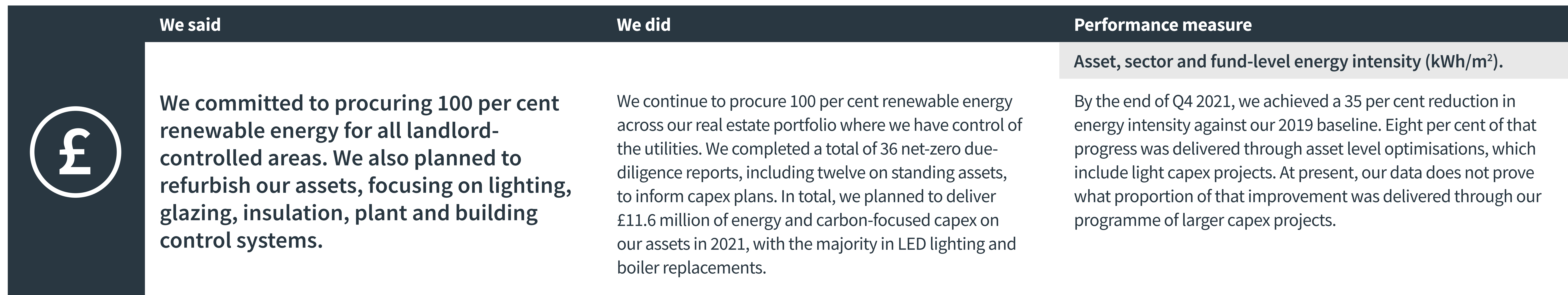
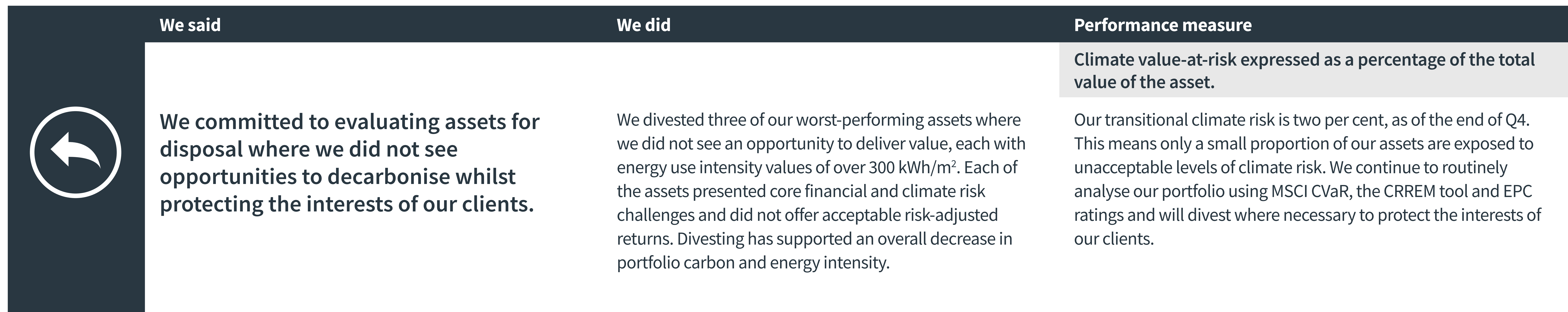
Our progress in real estate equity (cont'd.)

Asset management



We said	We did	Performance measure
		Asset, sector and fund-level energy intensity (kWh/m²).
We committed to procuring 100 per cent renewable energy for all landlord-controlled areas. We also planned to refurbish our assets, focusing on lighting, glazing, insulation, plant and building control systems.	We continue to procure 100 per cent renewable energy across our real estate portfolio where we have control of the utilities. We completed a total of 36 net-zero due-diligence reports, including twelve on standing assets, to inform capex plans. In total, we planned to deliver £11.6 million of energy and carbon-focused capex on our assets in 2021, with the majority in LED lighting and boiler replacements.	By the end of Q4 2021, we achieved a 35 per cent reduction in energy intensity against our 2019 baseline. Eight per cent of that progress was delivered through asset level optimisations, which include light capex projects. At present, our data does not prove what proportion of that improvement was delivered through our programme of larger capex projects.

Disposals



We said	We did	Performance measure
		Climate value-at-risk expressed as a percentage of the total value of the asset.
We committed to evaluating assets for disposal where we did not see opportunities to decarbonise whilst protecting the interests of our clients.	We divested three of our worst-performing assets where we did not see an opportunity to deliver value, each with energy use intensity values of over 300 kWh/m². Each of the assets presented core financial and climate risk challenges and did not offer acceptable risk-adjusted returns. Divesting has supported an overall decrease in portfolio carbon and energy intensity.	Our transitional climate risk is two per cent, as of the end of Q4. This means only a small proportion of our assets are exposed to unacceptable levels of climate risk. We continue to routinely analyse our portfolio using MSCI CVaR, the CRREM tool and EPC ratings and will divest where necessary to protect the interests of our clients.

AVIVA INVESTORS

Our progress in real estate equity (cont'd.)

Occupier engagement and full-repairing and insuring (FRI) leases

We said	We did	Performance measure
		Data coverage of occupier demises
We committed to continuing our smart buildings programme, focused on addressing the performance of the assets in our portfolio with the highest carbon intensity. To support this, we committed to establishing an occupier engagement programme that would focus on FRI and long-income occupiers who control their own assets.	In 2021, we delivered an occupier engagement programme in our jointly owned real estate portfolio, focused on occupiers with large floorplates or several sites. Targeting 100 occupiers, we spoke with over 40, and gathered data as well as progressed discussions concerning electric-vehicle charging, solar installations and improvements to building fabric. We continued to grow our smart buildings programme across our UK and European real estate funds, with 22 of our worst-performing assets now in the programme. We implemented improvements to controls, ventilation, chillers and boilers, along with other measures, and delivered a 20 per cent average energy use intensity reduction across all 21 sites.	We have changed the metric to reflect progress on gathering data from our occupier demises. In 2021, most of the progress with increasing data coverage was in our LIME fund in our real estate long income portfolio. For this fund, we gathered data for 24 assets, increasing our data coverage from two per cent to 45 per cent.

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Our progress on financed emissions

We said	We did
Join and adopt the principles of the Partnership for Carbon Accounting Financials In 2021, we will join the PCAF and adopt its principles and accounting methodologies to report emissions associated with our portfolio of loans and investments.	We joined PCAF in 2021 and carried out a project to understand the emissions from the private debt investments of our largest client, Aviva. This was delivered with our strategic partner Carbon Intelligence and involved mapping over 1,000 loans across 35 sectors against the PCAF methodology, almost 70 per cent of our £32.8 billion AUM in real estate debt, infrastructure debt and structured and private debt. This will enable our client to better understand its portfolio as well as giving us an opportunity to benchmark emissions intensity in this complex asset class.
Pushing for greater coverage of GRESB in infrastructure debt We will use our role on the GRESB Infrastructure Advisory Board and the Infrastructure Debt Industry Working Group to drive the GRESB scheme and its members to disclose and scrutinise financed emissions from infrastructure investments.	In 2021, we joined a group of major infrastructure lenders to enable an ESG covenant package designed to enable a unified approach on ESG-related information and reporting requirements for infrastructure debt financings. The package addresses a critical information gap and provides a best practice reporting template for ESG data at an asset level, thereby satisfying the disclosure requirements of lenders. We have engaged GRESB and its members to continue to maintain alignment between this project and its assessment methodology.
Driving better understanding of emissions in real estate debt We will improve our own processes and capabilities to report financed emissions and share our learning with our peers in real estate debt through the Commercial Real Estate Finance Council (CREFC).	In 2021, we began to review progress on our sustainable transition loans programme, collecting the first annual updates from borrowers who delivered on their transition obligations. We intend to publish a report detailing progress later in 2022 once the majority of loans reach a year of maturity. In addition, we carried out a project to map the majority of our real estate debt investments against the PCAF methodology and will use this in 2022 to support investment decisions.

AVIVA INVESTORS

Our progress on financed emissions (cont'd.)

We said	We did
Establishing a baseline and targets in real estate long income We will use the MSCI climate value-at-risk and real estate energy benchmarking service to establish a 2020 baseline for energy performance and carbon emissions. We will use this to set 2025 carbon and energy targets to complement the core targets disclosed in this document.	We used the MSCI climate value-at-risk service extensively in 2021 to support our acquisitions process and portfolio review meetings, which assess the level of risk in funds we manage. In addition, our occupier engagement activity in our long-income programme gave us a significant amount of real data that was sufficient to derive a 2021 baseline.
Engaging real estate long-income occupiers We will engage with occupiers in our real estate long income portfolio to encourage adoption of renewable energy tariffs, improvements in energy performance and the sharing of energy data.	In 2021, we delivered an occupier engagement programme in our long-income portfolio, focused on occupiers with large floorplates or several sites. Targeting 100 occupiers, we spoke with over 40, and gathered data as well as progressed discussions concerning electric-vehicle charging, solar installations and improvements to building fabric. We improved data coverage in our Lime and REaLM Commercial strategies through 20 net-zero due-diligence audits and are progressing several conversations with occupiers to support them on a trajectory to net zero.

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The challenges of reaching net zero

Although this report cites several cases of progress against our short-term goals, we are still a long way from reaching our long-term target of net zero by 2040. For this to happen, we will need substantial and systemic changes to our industry, focused on collaboration between asset owners, asset managers and their stakeholders.

One immediate issue is the lack of transparency in institutional private credit. In most transactions it is uncommon for borrowers to disclose ESG and impact data to lenders. We have made some progress towards unlocking this through our reporting covenant project this year; however, it will take several years for this to permeate the industry and network of borrowers.

Similarly, in real estate capital markets, we see little ESG data being made available at the point of sale. Although we have rectified this to a point through carrying out net-zero due-diligence audits on every asset we purchase, in many cases a lack of data from the vendor means transactions must be taken forward with incomplete information. We continue to engage with agents to address this and commit to providing energy data for buildings we sell, where available.

More broadly, within real estate there is overreliance on energy performance certificates and green building certifications, neither of which are correlated to energy and carbon intensity. For investors seeking genuinely low-carbon assets that can be managed in line with a 2040 net-zero pathway, essential KPIs are rarely available. We have addressed this in part by undertaking net-zero due-diligence audits on twelve assets in 2021, a further 25 in 2022 and another 36 are planned. This enables us to work directly with occupier data to understand true building performance rather than relying on certification. However, this approach needs to be rolled out across our entire portfolio and the industry must also adopt it to expose true performance and the challenge ahead.

Elsewhere, in private credit and infrastructure, we see a lack of interest in sustainable loans outside of real estate and impact-focused funds. There has been little uptake in sustainable lending from large institutional non-bank lenders and far broader and faster adoption is needed to create change in the sector. This is especially true of infrastructure, where the size and nature of projects requires several lenders to come together for a single transaction.

We also see a mismatch between the risk appetite of most institutional investors and the nascent technologies desperately needed to reach net zero. More targeted government subsidies are needed in hydrogen, battery storage and electrified transportation to attract long-term investors with low-risk appetites. Without this backing, we will continue to see investors flocking to proven low-risk technologies, which often involve fossil fuels, to meet asset owners' demands for long-term risk-adjusted cashflows.

In real estate, we see a significant lack of green building stock across Europe, particularly in terms of high-quality sustainable logistics, office and mixed-use assets. Competition for such assets is high, and institutional buyers seeking value over the medium term can be priced out. In general, the quality of European building stock is poor and many assets coming to market require significant defensive spending to be aligned to a 2040 net-zero pathway, making the assets less attractive where there are few refurbishment opportunities.

> There has been little uptake in sustainable lending from large institutional non-bank lenders and far broader and faster adoption will be needed to create change

AVIVA INVESTORS

The year ahead

We intend to take the following steps in 2022 to progress towards our short-term carbon and energy targets for 2025.

PUSH Energy partnership

In 2021, we worked to form a solar partnership with PUSH energy, focused on delivering the UK's largest rooftop solar portfolio. We have £11 million of installations planned for 2022, dependent on achieving agreements with our occupiers to use the energy. Rooftop solar is a straightforward way to generate income for our clients whilst creating energy resilience for our occupiers. We intend to commence installations in 2022 and will disclose our progress in this annual update in 2023.

Embedding CRREM

In 2022, we will adopt CRREM data in our asset acquisition and asset management processes. We intend to embed this into our core reporting for assets on a quarterly basis to help our teams make more informed decisions about our clients' assets. We will also further embed MSCI climate value-at-risk metrics into our processes to ensure the physical risks of climate change are well understood.

Sustainable design partnership

In 2022, we will extend our partnership with Buro Happold, deepening its focus on acquisitions due diligence, developments, refurbishments and capex projects.

The partnership will bring together the sustainable design heritage and engineering expertise of Buro Happold with our £1.5 billion development pipeline and c. £11 million capex delivery plan. Both parties will commit to sharing knowledge and learning to cross-permeate design expertise into the investment process.

This will allow our customers to benefit from economies of scale and high-quality design expertise across all decarbonisation projects, whilst reducing obsolescence risk.

Net zero audits

In 2021, we undertook 16 due-diligence audits of standing assets in our portfolio to assess their potential for being transitioned to net zero by 2040. This year, we intend to audit a further 50 assets, alongside every asset we acquire, to build up a picture of how our portfolio can be transitioned. Working with our strategic partner Carbon Intelligence, the audits involve a physical examination of the property's fabric and plant and result in a fully costed pathway to net zero. This can then be implemented step by step as and when the building is available for refurbishment.

Embedding PCAF

In 2022, we will broaden our net-zero due-diligence process to include the infrastructure and debt parts of our business. Supported by our client Aviva Life, and through partnership with Carbon Trust, we will perform a net-zero analysis for all new Aviva Life assets acquired. This will involve the application of the PCAF methodology to around 80 assets in a broad range of sectors. Analysis of the assets will initially be considered in a pipeline review meeting, with the intention of all Aviva Life investment committees receiving carbon analysis and insight by the end of the year.

AVIVA INVESTORS

Case studies

Carbon removals

To make a real impact on the climate agenda through our direct investments, solely purchasing carbon offsets cannot be at the core of our net-zero strategy. We must find direct investment opportunities in carbon removal solutions, the most investable of which today is forestry.

The Aviva Investors Real Assets Climate Transition Fund (RACTF), launched in 2021, allocates ten per cent of capital to forestry. The carbon impact of every investment from the fund is measured, with the intention that nature-based assets will sequester sufficient carbon to ensure the RACTF is our first measurable net-zero real assets fund.

Our first direct investment in natural capital was 6,300 hectares of Scottish moorland in the Glen Dye area of West Aberdeenshire. In partnership with Par Equity (Par), the Scottish-based forestry investment fund manager, over 3,000 hectares of land will be newly planted, and 1,800 hectares of peatlands restored. An estimated 1.4 million tonnes of carbon will be sequestered over the lifetime of the project. Up to one third of the replanted land will be productive conifer, providing employment for the local community in future timber production. The remaining 2,000 hectares of replanting will be native woodland, the management of which will be led by Scottish Woodlands Ltd.

UK first sustainability-linked swap repack

Following our commitment to originate £1 billion in sustainable transition real estate debt by 2025, we recognised incentivising the net-zero transition through finance can be a powerful mechanism to accelerate decarbonisation.

This year, alongside BNP Paribas, we completed the first institutional swap repack transaction with sustainability-linked key performance indicators (KPIs) attached, which we provided to Associated British Ports (ABP). The performance targets were subject to second-party verification by ISS, to ensure they were both sufficiently material and ambitious in nature, whilst also remaining aligned to LMA sustainability-linked loan principles.

As part of the deal, a discount is offered to ABP on its hedging rate, provided it meets certain ESG KPIs, including a significant reduction in combined Scope 1 and Scope 2 emissions by 2030, building on the 36 per cent reduction it has achieved in absolute greenhouse gas emissions since 2014. This demonstrates our ability to incorporate tailored sustainability considerations into bespoke transactions, without compromising on outcomes for borrowers or risk-adjusted returns for clients. We hope this transaction will catalyse the adoption of ESG-linked transactions in swap repacks.

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Case studies (cont'd.)

Packaged Living

Aviva Investors has partnered with Packaged Living, the UK build-to-rent specialist, to develop affordable and energy-efficient single-family homes across the UK. The partnership will acquire and forward-fund homes from housebuilders and let them out to families. This will offer a flexible and affordable solution to the UK's housing shortage.

Our Perpetual Capital strategy will be one of the first at Aviva Investors to target the single-family housing market. The properties will have a focus on sustainability, targeting an Energy Performance Certificate (EPC) 'A' rating, meaning these will be highly energy efficient with lower-than-average running costs. All new homes will be fossil-fuels free. Only electrical equipment will be installed, including air source heat pumps, photovoltaics, and EV charging stations.

The move away from gas will be three years ahead of government plans to ban gas boilers from new homes. This will help futureproof the assets in terms of climate change and regulations, as well as supporting the financial wellbeing of the occupiers. The partnership will target an initial £200 million portfolio, with a pipeline of investments expected to add a further £500 million in the coming years. This is a huge opportunity to drive net zero across the strategy.

Nuffield and Pegasus House

A progressive project in our development pipeline, Nuffield House and Pegasus House completed Stage 4 of the design programme in 2021. The project will be our first asset to use the Design for Performance (DfP) methodology, a new initiative to ensure refurbished offices deliver on their design intent, driving efficiencies across assets.

The design will target a 4* National Australian Built Environment Rating System (NABERS) in-use energy rating, which will measure and verify the actual energy usage of the building, overcoming the well-evidenced performance gap between design and operation. Annual energy consumption of the building will be 80-110 kWh/m^2, significantly better than the Real Estate Environmental Benchmark (REEB) average of 190 kWh/m^2 per year for typical office buildings.

The NABERS and BREEAM ratings demonstrate our commitment to optimising building performance. This is key to ensuring it aligns with our goal of net zero by 2040. Investing in asset performance will also benefit our tenants through lowering operational costs, prioritising their financial welfare, thus maintaining more stable leases.

Case studies (cont'd.)

Sustainable leasing

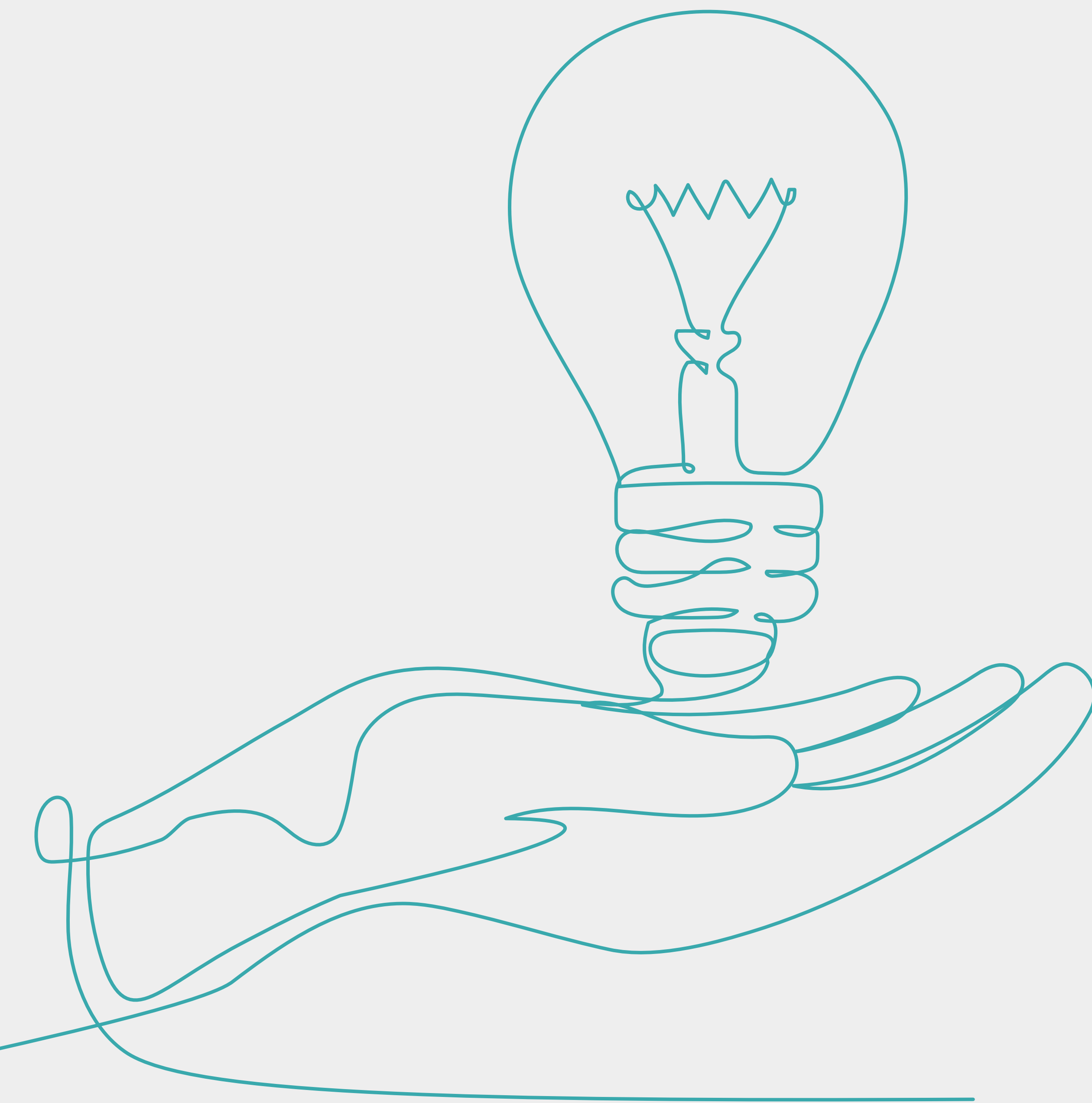
Efforts to decarbonise the real estate sector must involve greater owner and occupier collaboration to improve the sustainable occupancy and management of buildings. An effective tool gaining traction in the commercial property sector to address this problem is sustainable real estate leasing. A sustainable lease includes additional clauses where both owner and occupier(s) agree to specific initiatives to enhance the environmental performance of a building. In our real assets business, we have implemented several sustainability-linked leases that have successfully embedded sustainable KPIs as well as commercial incentives within the lease structure.

The first example was a sustainable lease with an office-letting company, encouraging the occupier to initiate an energy optimisation programme. This will seek to identify opportunities to optimise the energy performance of the building in use and reduce energy demand at site, creating a future-proof asset whilst reducing costs for the occupier.

The second example was a lease regear, where we expanded the lease term to seven years and provided a three-month rent-free incentive, worth approximately £275,000. This incentive was linked with the requirement to improve the EPC rating of the South London warehouse from a D to a B or higher. This incentive structure allows a partnership between owner and occupier where both have a vested interest in improving the property.

Finally, the Lime Property Fund commenced installation of a solar photovoltaic (PV) installation at a distribution centre in Southampton. The solar project will facilitate renewable energy supply for Next and involves the installation of a 2,900 kW system expected to generate over 1,980 MWh of clean energy each year.

The Lime Property Fund financed the cost of the solar array at a cost of £3 million, in return for an additional rent of £210,000 per annum. This demonstrates the value-add of incorporating low-carbon technology into our assets.



AVIVA INVESTORS

Detailed disclosures

Absolute portfolio: Carbon emissions from direct real estate and infrastructure investments

GHG Scope	Category	Unit	2019 baseline	2020	2021	2019-2021 % change
Scope 1*	Gas	tCO_2e	23,543	19,979	13,237	-44%
	Fugitive emissions	tCO_2e	17	16	16	-10%
Scope 2**	Electricity	tCO_2e	95,970	71,798	70,733	26%
Scope 3	Fugitive emissions (tenant)	tCO_2e	24	12	21	-13%
	Infrastructure business travel	tCO_2e	1	3	2	+86%
	Waste	tCO_2e	209	66	9	-96%
	Water	tCO_2e	132,138	135,077	33,815	-74%
	Tenant electricity	tCO_2e	63,401	65,117	65,196	+3%
	Tenant gas	tCO_2e	7,549	7,823	3,026	-60%
	Supply chain	tCO_2e	-***	-***	35,058	-***
	Infrastructure upstream T&D	tCO_2e	-***	2	5	-***
Scope 1	Total	tCO_2e	23,560	19,996	13,253	-44%
Scope 2	Total	tCO_2e	95,970	164,827	78,694	-18%
Scope 3	Total	tCO_2e	203,322	208,100	137,132	-33%
Carbon Intensity		$kgCO_2/m2$	61	83	46	-25%

* Gas consumption from direct real estate and infrastructure investments
** Electricity consumption from direct real estate and infrastructure investments
*** Scope three carbon emissions reporting commenced in 2021

AVIVA INVESTORS

Detailed disclosures (cont'd.)

Like for like portfolio: Carbon emissions from direct real estate and infrastructure investments

GHG Scope	Category	Unit	tCO2e 2019-2020	tCO2e 2020-2021	tCO2e 2019-2021	2019-2021 % change
Scope 1	Gas and infrastructure fuels	tCO_2e	29,410	23,992	28,513	-3%
	Fugitive emissions	tCO_2e	16	16	15	-6%
Scope 2	Electricity and infrastructure	tCO_2e	129,456	134,349	147,213	+14%
Scope 3	Fugitive emissions (tenant)	tCO_2e	24	12	21	-13%
	Infrastructure business travel	tCO_2e	0	3	3	-
	Waste	tCO_2e	173	39	70	-60%
	Water	tCO_2e	132	133	65	-51%
	Tenant electricity	tCO_2e	95,298	109,733	104,821	+10%
	Tenant gas	tCO_2e	9,922	4,479	4,948	-50%
	Supply chain	tCO_2e	-	-	35,058	-
	Infrastructure upstream T&D	tCO_2e	0	2	5	-
Scope 1	Total	tCO_2e	29,426	24,008	28,528	-3%
Scope 2	Total	tCO_2e	129,456	134,349	147,213	+14%
Scope 3	Total	tCO_2e	105,549	114,400	144,991	+37%

AVIVA INVESTORS

Detailed disclosures (cont'd.)

Absolute portfolio: Energy consumption from direct real estate and infrastructure investments

Category		Unit	2019 baseline	2020	2021	2019-2021 % change
Electricity	Total electricity consumption	(kWh)	309,122,025	306,704,222	331,316,066	+7%
	Within Aviva's operational control	(kWh)	94,894,171	55,537,591	49,960,588	-47%
	Available tenant data	(kWh)	214,227,854	251,166,631	281,355,479	+31%
	Number of assets included	(kWh)	312	347	308	-1%
Gas	Total Gas consumption	(kWh)	93,195,674	86,327,067	53,676,806	-42%
	Within Aviva's operational control (shared)	(kWh)	64,344,562	57,270,113	43,258,330	-33%
	Available tenant data	(kWh)	28,851,112	29,056,954	10,418,477	-64%
	Number of assets included	(kWh)	312	347	308	-1%
Total EUI	Number of buildings	Number	312	347	308	-1%
	Floor area	m^2	1,970,042	2,239,754	2,009,323	+2%
	Total use	(kWh)	402,317,698	393,031,289	384,992,873	-4%
	Total energy use intensity	(kWh/m2)	204	175	192	-6%

AVIVA INVESTORS

Detailed disclosures (cont'd.)

Like for like portfolio: Energy consumption from direct real estate and infrastructure investments

Category		Unit	2019 baseline	2020	2021	2019-2021 % change
Electricity	Total electricity consumption	(kWh)	555,272,103	632,418,111	693,321,143	**+25%**
	Within Aviva's operational control	(kWh)	146,515,130	115,615,433	199,648,786	**+36%**
	Available tenant data	(kWh)	408,756,974	516,802,679	493,672,356	**+21%**
	Number of assets included	(kWh)	250	308	219	**-12%**
Gas	Total Gas consumption	(kWh)	159,947,283	130,651,000	155,671,836	**-3%**
	Within Aviva's operational control (shared)	(kWh)	105,985,414	106,195,890	128,656,917	**+21%**
	Available tenant data	(kWh)	53,961,869	24,455,110	27,014,919	**-50%**
	Number of assets included	(kWh)	250	308	219	**-12%**
Total EUI	Number of buildings	Number	250	308	219	**-12%**
	Floor area	m^2	3,193,782	4,018,646	4,304,437	**+35%**
	Total use	(kWh)	715,219,386	763,069,111	848,992,979	**+19%**
	Total energy use intensity	(kWh/m2)	224	190	197	**-12%**

AVIVA INVESTORS

Scope and boundary of our net-zero pathway

The scope of our commitment extends to our real assets platform, comprised of directly and jointly owned pan-European real estate equity, debt and long income, and financed emissions in infrastructure equity and debt, structured finance and private corporate debt.

For jointly owned investments, we attribute our carbon emissions on a proportional share basis relative to ownership. Scope one, two and three emissions from operations and developments are included in direct real estate and infrastructure, excluding forward-funded developments where we do not have control of the design process. Occupier emissions from our direct real estate investments are included, as well as the additional emissions or emissions avoidance generated by our infrastructure assets.

The scope of our target is defined as annual greenhouse gas emissions, reported in line with the Greenhouse Gas Protocol and verified to ISO14064-3, including Scope one, two (market based and location based) and three (factoring market and location-based variations for tenant emissions). Emissions from financing activities will be reported as a separate line items in our GHG reporting as Scope four or financed emissions. Measurement and verification of our energy management programme is carried out in accordance with the International Performance Measurement and Verification Protocol (IPMVP).

Direct investments – directly owned and managed equity assets

Real estate and infrastructure assets that are owned by our clients and directly managed by us and our suppliers.

Real estate equity pan-Europe	Real estate long income pan-Europe	Infrastructure equity pan-Europe
£12.5 billion AUM	£5.9 billion AUM	£1.5 billion AUM

Financed emissions – loans and other debt instruments

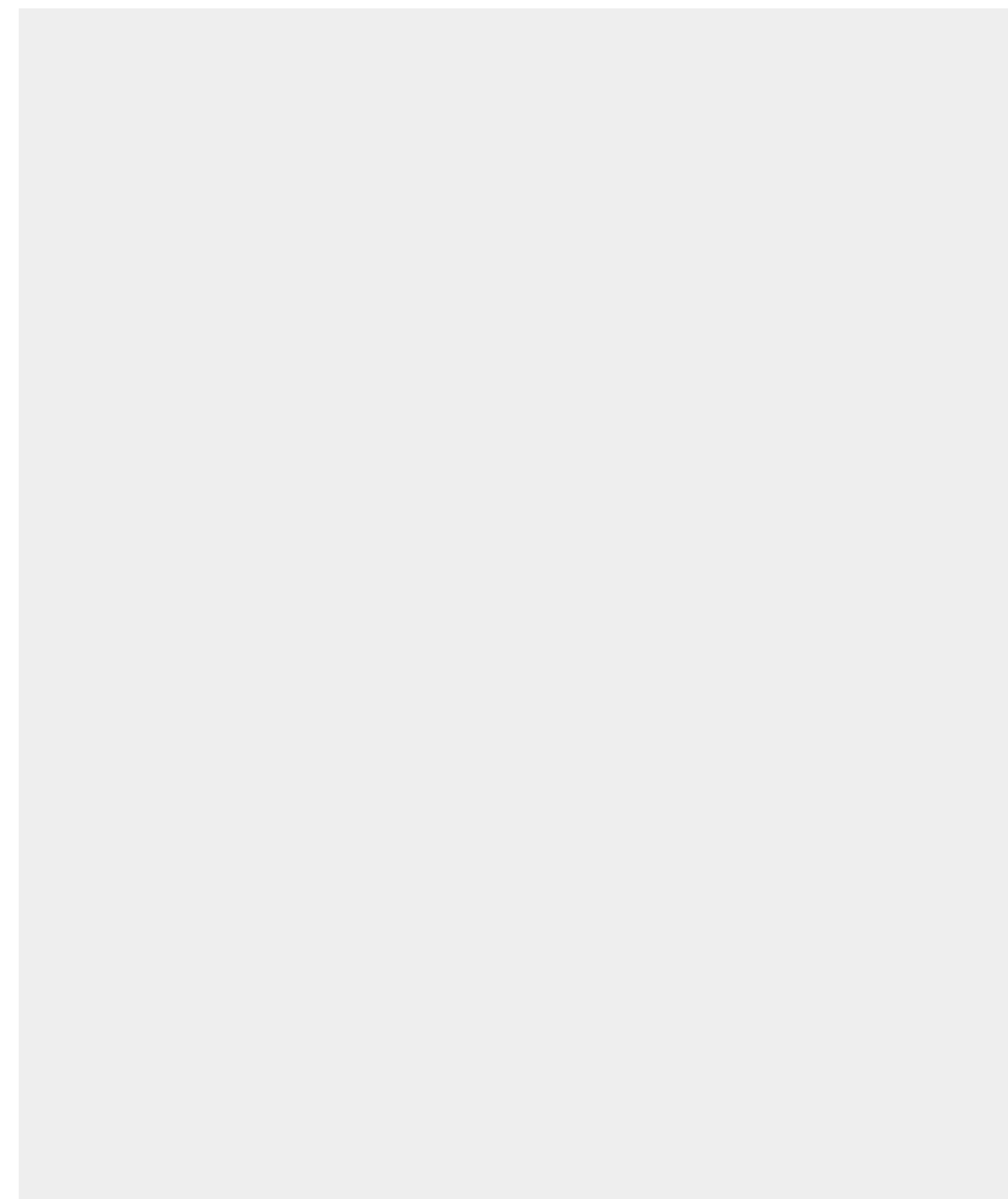
Real estate and infrastructure assets owned by third parties, where all or part of the financing for the asset is provided by us on behalf of our clients. This is typically in the form of loans, where we act as a single lender or as part of a group of lenders.

Real estate debt	Infrastructure debt	Structured finance and private corporate debt
£8.7 billion AUM	£10 billion AUM	£8.1 billion AUM

AVIVA INVESTORS

Scope and boundary of our net-zero pathway (cont'd.)

Scope	What does this mean?
Scope one	Direct emissions from buildings and infrastructure, linked to landlord/owner-controlled energy consumption, for example fuel, gas and refrigerants.
Scope two	Emissions from landlord/owner energy consumption, for example electricity, heating and cooling networks.
Scope three (occupier)	Emissions from the real estate occupier energy use, for example electricity and gas.
Water, waste, refrigerants	Other emissions from water use, waste management and refrigerants.
Scope three (supply chain, developments)	Emissions from purchased goods and services, and manufacturing and construction, measured as parts A1 to A5 of the RICS Whole Life Carbon methodology.
Scope three (occupier refurbishments)	Emissions from the fit-out activities of real estate occupiers
Financed / avoided emissions	Emissions from the activities of our borrowers, linked to the assets which are financed by us on behalf of our clients.



Other notes on our methodology and reporting

- Defra emission factors for calculating carbon footprint from electricity usage has decreased during 2021 by 17 per cent compared to 2019 emission factor: water factor has decreased by 43 per cent.
- The number of assets reported during 2021 has increased from 44 to 196, covering approximately 20 per cent of our total portfolio floor area.
- The baseline for collecting Scope 3 emissions is 2021. During the year we worked very closely with our suppliers to obtain data to calculate their Scope 3 carbon emissions.
- Tenant electricity increased due to better data coverage during 2021.

AVIVA INVESTORS

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