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The investment case for net zero buildings

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Key points

- Buildings have a major part to play in supporting the transition to a low carbon economy and society
- Many continue to operate at standards that are not consistent with meeting the objectives of the Paris Agreement on climate change
- This will require a major shift in the way that buildings are constructed and operated, and in the way that owners and occupiers work together to manage environmental and social impact
- We believe that portfolios that position towards the highest net zero standards will see benefits to both occupier demand and investment performance, as well as risk reduction
- We see an early mover advantage to positioning portfolios to capture this performance and future proof assets for a changing world

Introduction

By way of background, in 2019, in support of meeting the objectives of the 2015 Paris Agreement, the UK government was the first in the world to enshrine a target of net zero carbon emissions by 2050 in law. This has increasingly been matched by an understanding of the role that asset owners can play in meeting the Paris objective of limiting climate change to well below 2 degrees, and preferably 1.5 degrees.

Carbon emissions associated with buildings account for a significant share of the global footprint. The operation of buildings (from energy used to heat, cool and light buildings) is responsible for 28% of global carbon emissions, with a further 11% arising from the construction process. The reductions required by Paris will only be achieved if the built environment plays a major part in supporting the transition to a low-carbon economy.

This paper sets out what those steps will look like, with a focus on institutionally invested UK real estate. It will argue that this is not only positive for environmental, social and governance (ESG) outcomes but should also safeguard and enhance the long-term financial value of assets. Direct ownership and management of assets give a level of control in driving outcomes that is not possible through the public markets. We will also explain why an accelerated timetable to meeting the net zero agenda can make financial sense as well as forming part of an overarching ESG strategy.

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What are net zero carbon buildings?

Whilst net zero has become shorthand for the position that the world needs to transition towards to avert climate change, there is a need to translate this into specific targets for different activities and asset types.

This process involves a significant amount of technical work to project the energy consumption and carbon emissions of different sectors, and calculate the contributions required from each to deliver net zero. LGIM contributes to, and makes use of, standards being developed by a number of industry organisations – chief among these are the UK Green Building Council (UKGBC) and the London Energy Transition Initiative (LETI). We have also commenced the process of developing science-based targets for the portfolios we manage, which play a particular role in defining timelines on the path to net zero.

Key to the net zero standards for buildings are levels of energy consumption (Energy Use Intensities, or EUIs) and the use of low-carbon technologies that are assessed as being consistent with net zero. All buildings require energy to function, and while there have been major steps towards decarbonising energy through the introduction of renewables, buildings still create carbon emissions. The introduction of net zero standards drives down energy consumption and carbon emissions to levels that are analysed as being consistent with meeting the Paris objectives.

These standards typically involve a hierarchy of steps:

1. Measuring and reducing the carbon created by the construction of new buildings, including major refurbishments (embodied carbon) as well as the impact of demolition and disposal
2. Reducing operational energy demand, both through how the building is specified and how it is used
3. Maximising the opportunities for on site renewable energy generation
4. Making use of offsite renewable energy generation that demonstrates ‘additionality’¹
5. Offsetting residual carbon emissions using a recognised framework and disclosing publicly

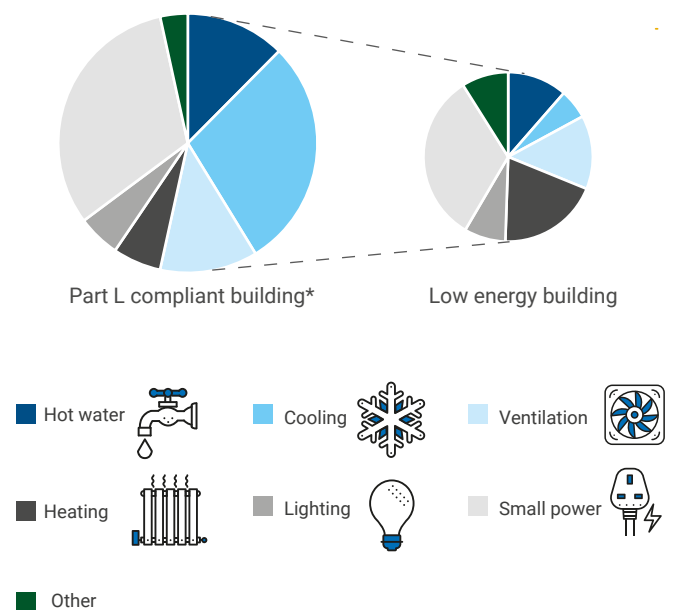
1. Additionality, in this context, is renewable energy supply directly attributed to the building developer, owner or occupier which would not otherwise have taken place. (Source: UKGBC)

*Part L is the component of building regulations that covers energy efficiency

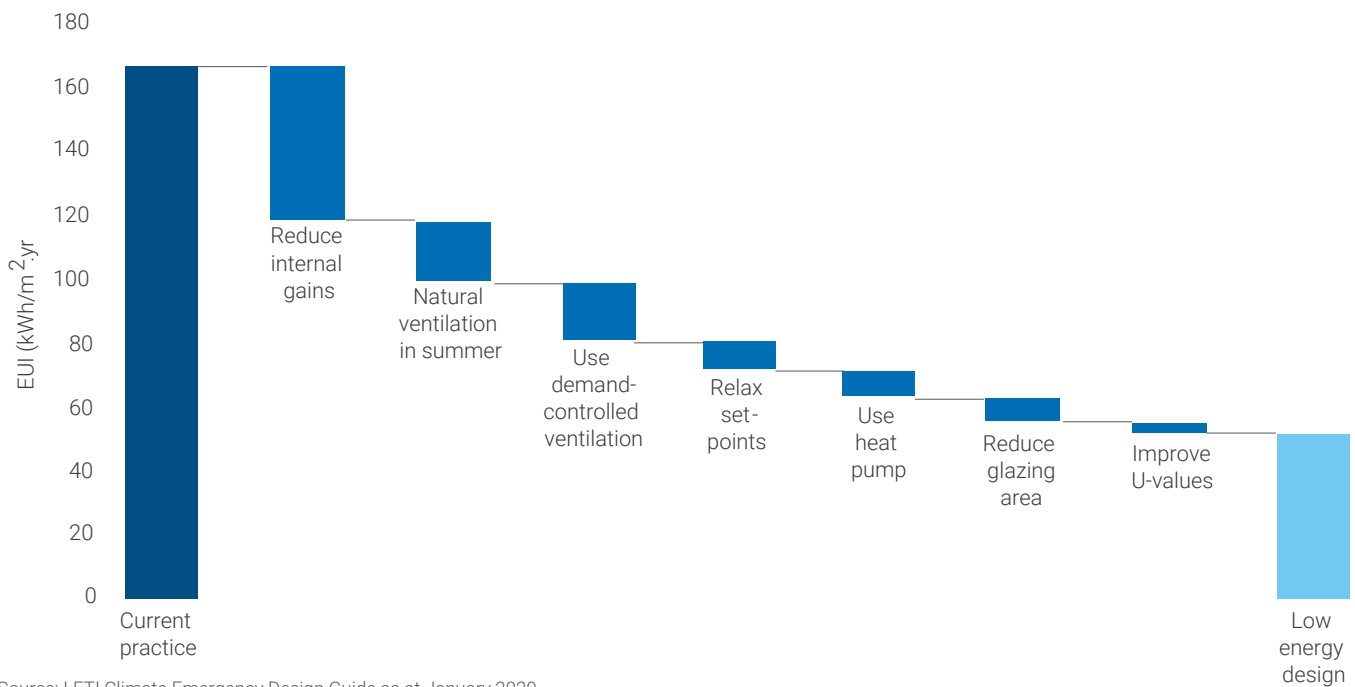
Case study – steps to a net zero office

The steps that are available vary according to the specifics of the building – whether it is a new build or a refurbishment, its age and the type of building – office and industrial buildings need different approaches to apartments or hotels, for instance. The analysis from LETI, which is not specific to an individual building but more generic, is a useful illustration. It illustrates a series of steps available to reduce Energy Use Intensity in line with the objective of meeting their standards for net zero. One of the key points is that there are both design features as well as steps associated with how the building is operated. Changing set points on heating and cooling and ensuring ventilation is only activated when needed can reduce energy consumption with modest upgrades to equipment – the main objective is to ensure that equipment is used efficiently. That said, to meet net zero, there are major gains required from how buildings are initially designed and configured. In the case of offices, design changes to reduce the build-up of heat, and reducing the energy impact of cooling via natural ventilation rather than air conditioning for instance, are critical to making significant inroads to energy consumption.

Office energy breakdown



Opportunities to reduce energy consumption in a new commercial office development



Source: LETI Climate Emergency Design Guide as at January 2020

We should acknowledge that the detail of specific certifications and standards for what constitutes a net zero building remain a work in progress and will evolve. The technical work that is involved is highly complex, relying as it does on projecting targets not just for buildings but for the entire span of human activity across the useful life of a building. Rather than pinning our strategy exclusively on achieving one set of standards, the focus should be on the outcomes the standards are designed to achieve, i.e. driving down energy consumption and associated carbon emissions. We are committed to gathering and disclosing data on these aspects for the portfolios we manage, building knowledge and skills across our supply chain and driving greater transparency on the performance of individual buildings.

How will achieving net zero in buildings work in practice?

As you see from the case study below, there are a range of steps in the toolkit for moving towards net zero. Some of them are only available when the building is first being constructed. There is a major focus on maximising the opportunities available when buildings are being designed and reducing the carbon emissions associated with construction. That said, 80% of the buildings that will exist in 2050 have already been built.² So, retrofitting the existing stock of buildings is going to be central to delivering the transition to net zero. For existing buildings, the layout and specification often define what steps are available and this requires detailed technical due diligence and cost modelling to determine the right pathway. This analysis is integral to converting high-level commitments into ‘on the ground’ delivery.

While there are a whole range of steps available, the drive now is to integrate them towards net zero into the broader business plan. That means deriving roadmaps for each asset to reflect their physical characteristics and current usage. In this way, we can ensure that the pathway to net zero is achieved in the most cost-effective way and is consistent with optimal risk-adjusted returns.

Central to this is the relationship between the asset owner and the firms and individuals that use buildings. While the asset owner has a large degree of influence on the initial physical specification of a building, occupiers have a major role in influencing its design, as well as how they make use of a building. The data is clear that behaviour, whether it be of individual employees in an office or someone living in a Build-to-Rent development, has a major impact on energy consumption. Buildings that are used inefficiently will not achieve the intended energy performance standards.

The engagement with occupiers is therefore key to delivering the potential embodied in low-energy design. This works most effectively when it is integrated into the wider relationship with occupiers, rather than something along the lines of “Asset Owner X’s ESG team is talking to Occupier X’s ESG team.”

2. <https://www.ukgbc.org/news/ukgbc-responds-to-ccc-housing-report/>

Case study - occupier engagement

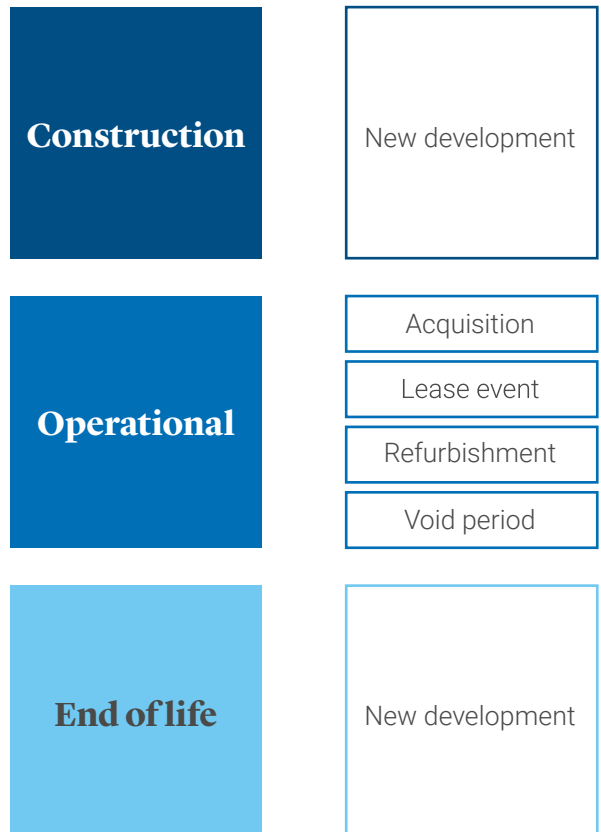
As part of our platform wide ESG occupier engagement initiative, we held a series of discussions with members of Marston’s senior management team over the last 12 months. This has already led to Marston’s committing to provide automated utilities data across the long-lease assets in our portfolios (49 pubs) and their HQ, as well as the establishment of a continuing dialogue on possible initiatives to improve carbon performance across these pubs. The automated utilities data greatly simplify the data collection process and allow us to easily monitor carbon intensity by site, so that we can commission energy surveys where required and work with Marston’s to reduce emissions down to science-based targets by 2030 and net zero carbon by 2050 as per the LGIM Real Assets Roadmap. We have now also earmarked two specific sites for net zero carbon retrofit pilot projects, which will start with technical surveys and then move to project implementation.



At the same time, wider changes in the relationship between asset owners and occupiers are giving asset owners more influence over the energy performance of buildings. Historically, long-lease terms and an industry focused on meeting the needs of large occupiers with their own real estate teams led to a relatively hands-off approach. With occupiers increasingly moving towards flexible options and a greater proportion of services provided by the building owner, the scope for influence has increased. This influence is both direct, for instance in sourcing and monitoring energy consumption, and indirect, with a greater level of day-to-day contact increasing the scope for asset owners to ‘nudge’ space users to low-carbon behaviours.

Another facet of the integrated approach is that ESG considerations need to be part and parcel of the asset business plan. While managing energy performance is an ongoing effort, major step changes are made much more achievable by capitalising on natural ‘intervention points’. The most obvious is when a building is first designed and constructed. But over a long-life cycle, a range of others will arise, incorporating physical changes to the building as well as opportunities to shift the relationship with occupiers. Developing an understanding of the current energy performance of buildings, the steps available to manage that and the wider context for the asset are the keys to developing individual roadmaps to net zero.

Key intervention points



Sustainability and its impact on asset values

Sustainability, and the identification of ESG factors that support it, are of course not limited to carbon emissions or even environmental factors more broadly. That said, the very tangible connections between buildings and the environment, and the focus on fighting climate change from a variety of organisations does place a special emphasis on the 'E' in ESG.

There is now broad-based evidence that stronger sustainability credentials can be shown to positively impact asset values. A recent survey aggregating the results of 70 academic studies on a range of US and European markets since 2008 found that green building certifications were typically connected to:

- Higher rents
- Higher occupancy (lower vacancy rates)
- Lower yields
- Higher sales prices

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

Source: "A Review of the Impact of Green Building Certification on the Cash Flows and Values of Commercial Properties", Leskinen, Vimpari & Junnila, "Sustainability", March 2020.

Researchers continue to debate the interpretation of these results. For one thing, the way in which building certifications assess 'greenness' varies across different countries and time periods. For another, it is often challenging to disentangle the 'greenness' of a building from other factors. Buildings which are specified to high environmental standards are often newer and in central locations, both factors which also appeal to occupiers and investors alike. That said, data now exist, such as the below from JLL for central London, which show that high quality 'Grade A' buildings achieving high environmental standards (demonstrated here by the BREEAM certification standard) command stronger rents. We believe this is a reflection of occupiers placing a greater emphasis on this factor in making their space decisions and, with the supply of highly rated buildings being limited, ultimately being willing to pay extra to occupy a more sustainable building.

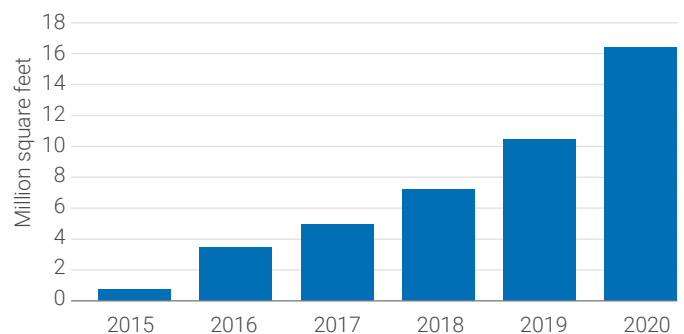
Central London BREEAM rated new Grade A transactions rental premium compared to all new Grade A achieved rents

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

Source: JLL, "The Impact of Sustainability on Value", 2020.

We believe that the gap between the best and 'the rest' will widen. For many occupiers, occupying a more sustainable building will move from being a 'nice-to-have' to a 'must-have'. While a wide range of ESG factors will be considered, we expect to see a strong focus on energy consumption and carbon emissions. There has been a rapid increase in the number of companies committing to introduce science-based targets for their carbon emissions. This will create aggressive targets for them to reduce energy and carbon. For many service businesses, this will be unachievable without drastic reductions achieved through the buildings they occupy.

London offices occupied by companies adopting science-based targets

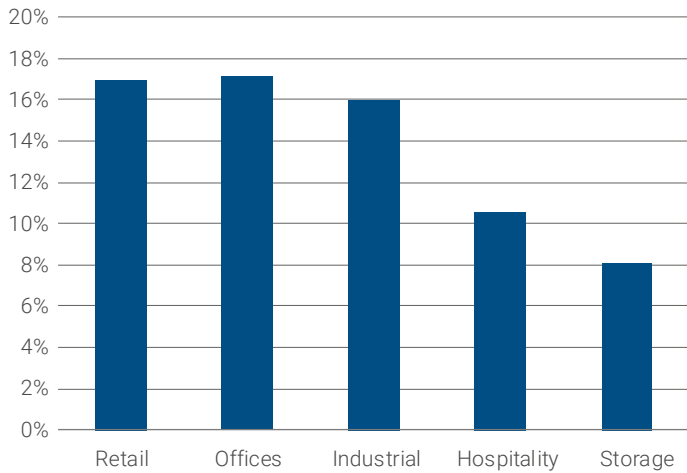


Source: JLL, data as at December 2020

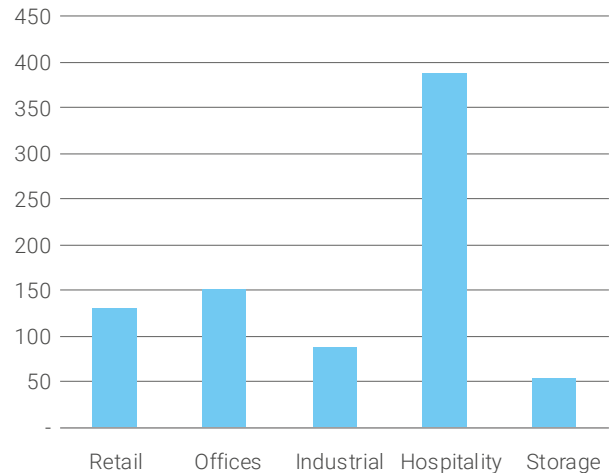


The need to reduce emissions, and occupiers selecting buildings based on their environmental credentials, will probably not be limited to offices but will likely span the breadth of asset types held within institutional real estate portfolios. Given the commitments now being made by many companies, and the focus being embedded into government policy, we see a particular focus on real-world energy performance.

% of non-domestic energy consumption



Energy intensity (kWh/m2)



Source: BEIS Building Energy Efficiency Survey, published 16-Nov-2016, covering 2014-15 data.

The charts above reflect non-domestic energy consumption. UK homes account for a full 14% of all UK carbon emissions.³ Reducing the energy consumption in homes has been identified as a key bottleneck in meeting the UK’s emission reduction ambitions - institutional investment into residential could prove a key ingredient in making progress. We believe that individuals will increasingly make decisions on where they live, work and play on how those environments contribute to meeting society’s wider environmental and social objectives.



3. <https://www.theccc.org.uk/2019/02/21/uk-homes-unfit-for-the-challenges-of-climate-change-ccc-says/>

The costs of moving to net zero

We are making the case that the users of real estate will increasingly select their spaces on the basis of the environmental outcomes they support. With levels of ambition moving fast, we see an opportunity to respond and capture this demand.

It is likely though that this green premium, which is already apparent in certain parts of the market such as London offices, will emerge more widely at different speeds according to property type and target market. For buildings targeting small and medium-sized enterprises (SMEs) for instance, which are less likely to have explicit ESG commitments, it is more challenging to pinpoint a rental premium for providing a best-in-class building versus the current market standard.

Which takes us to cost. While some energy reduction initiatives can be achieved at minimal cost, specifying new buildings or refitting existing buildings to net zero standards comes with an upfront capital cost. There is likely to be a lag between capital expenditure and seeing the benefit to asset valuations, which may create a short-term drag on investment performance.

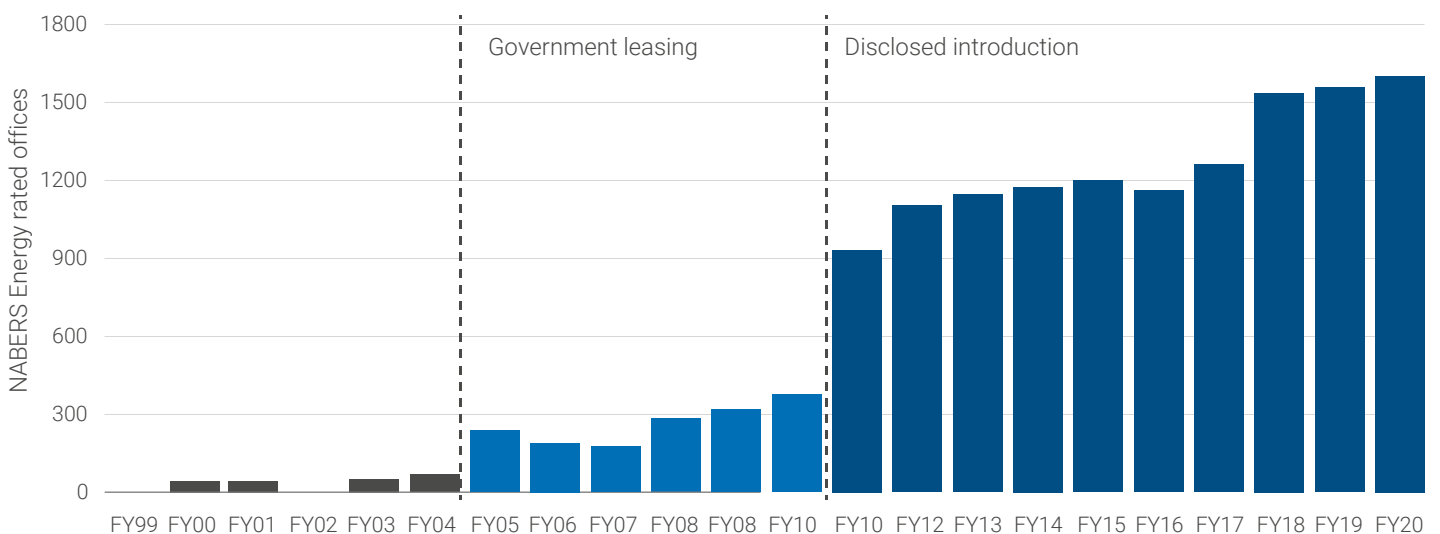
Set against this though, we believe, are the benefits in reducing risk. Many property investors are used to the idea of managing ESG risk in terms of physical factors; in the UK this often focuses on flooding. But transition risk, the potential for consumer preferences and regulation in particular to shift and negatively impact asset values, is equally, if not more, important.



Preparing for policy and regulatory responses to net zero carbon

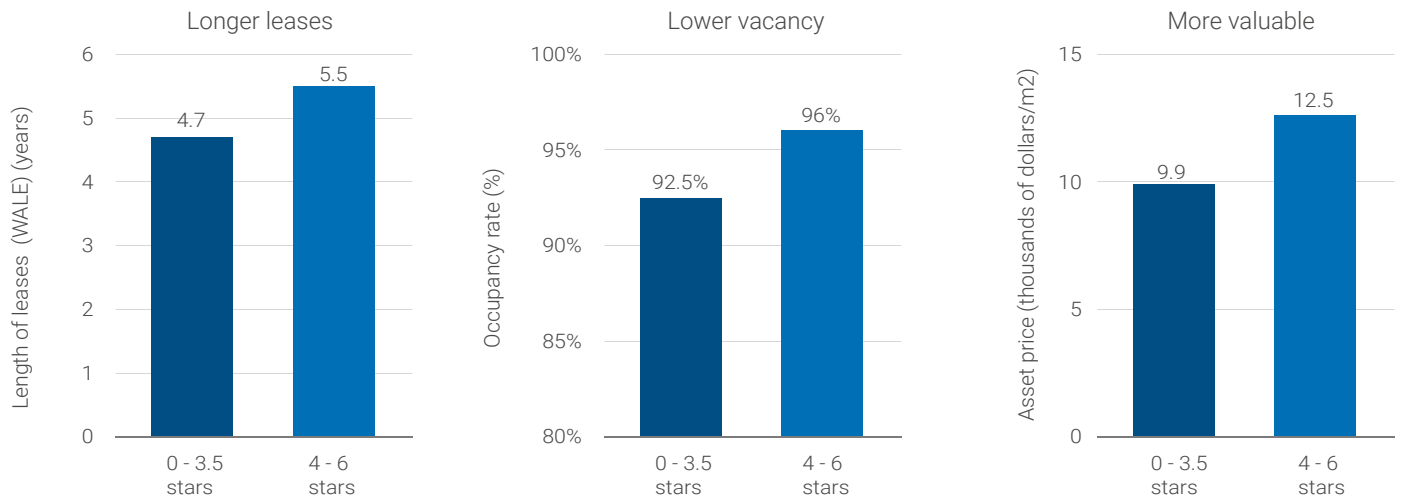
Regulation is likely to play an increasingly active part here. Minimum energy efficiency standards (MEES) will likely tighten significantly over the next 10 years, as the government mandates changes to take the market closer to net zero standards. The government is also setting out plans for the new Future Buildings Standard, which aims to deliver highly efficient non-domestic buildings that use low-carbon heat, and to ensure they are better for the environment and fit for the future. These regulations are expected to take place from 2025. But alongside minimum standard setting, there is likely to be a drive towards greater levels of transparency. The UK government has consulted on introducing a version of the NABERS scheme pioneered in Australia. That has brought the energy performance of individual buildings into the public domain and played a major part in driving a divergence in financial performance between stronger and weaker buildings.

Australian government policies made building energy efficiency visible



Source: NABERS UK launch slides as at November 2020.

Good for business, good for the planet



Source: Real Investment Analytics, Australian Green Office Property Indicators as at Q2 2020. Figure represent the 5-year average.

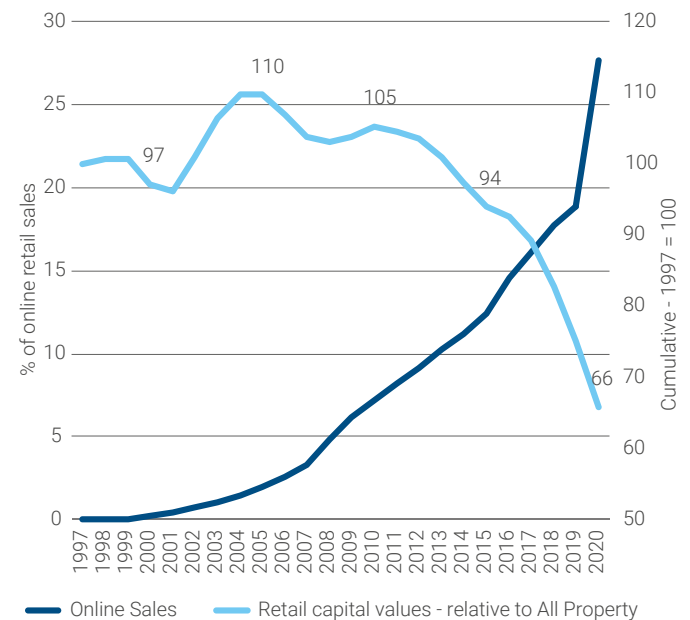
We should also recognise the possibility of more direct policy interventions. One of the most obvious is carbon pricing⁴, which is a policy tool to give an economic incentive to reduce emissions or increase the capture of greenhouse gases. Many experts argue that the transition towards a lower carbon economy will require government to tax high-carbon products and services much more aggressively. This would likely fall particularly heavily on fossil fuels but could also apply to energy more generally. That could materially shift the economics in favour occupying and owning low energy buildings, making them potentially much cheaper to occupy in the short run. Conversely, buildings which still rely on gas and are generally energy intensive would likely suffer a material change to achievable rents and therefore investment value.

As the energy transition gathers momentum, the potential for steps such as this is expected to increase. We see the rotation of portfolios to much higher energy standards as being concerned as much with risk management as about promoting positive ESG outcomes. We believe this will drive material risk-adjusted outperformance over the medium to long term.

There is a parallel to the structural changes seen for retail over the past 20 years. While there have been a number of factors, the emergence of online has been a key element in rewriting the economics of physical retail. By the end of 2020, retail property capital values had underperformed the market as a whole by a cumulative 34%.

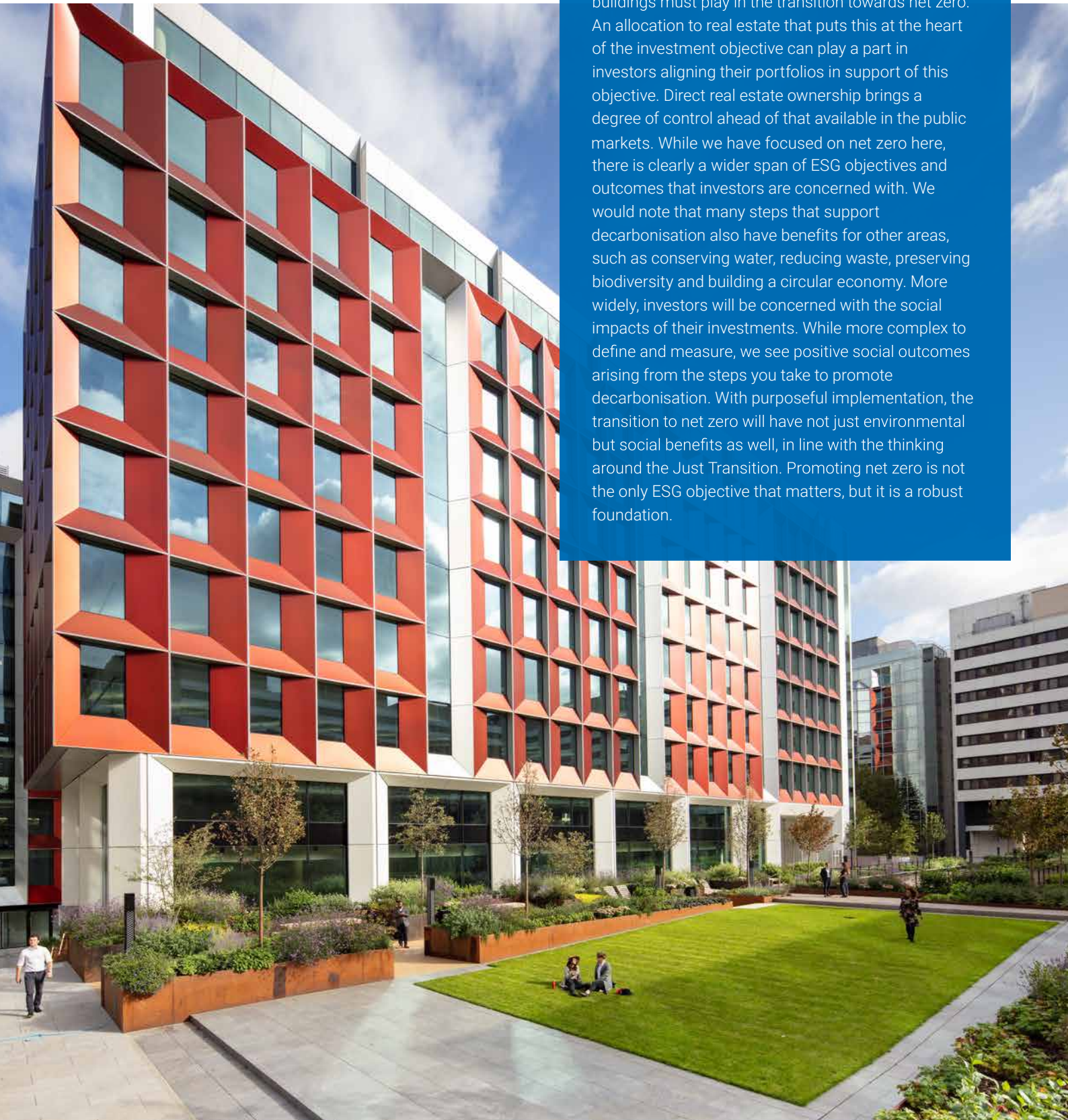
Investors who strategically repositioned away from retail, recognising the underlying fundamental pressures on the sector, have typically reaped huge rewards. We believe we are on the cusp of another long-term shift with similar implications for investment performance.

Online sales vs retail capital values



Source: MSCI / UK National Statistics as at 31 December 2020

4. There are primarily two methods of carbon pricing: a direct carbon tax on emissions generated or a system of allowances or permits to pollute, tradeable on a secondary market, referred to as an 'emissions trading scheme' (ETS) or 'cap-and-trade' system. The UK announced that it would proceed with a UK ETS from 1 January 2021.



Conclusion

We have reflected on the role that decarbonisation of buildings must play in the transition towards net zero. An allocation to real estate that puts this at the heart of the investment objective can play a part in investors aligning their portfolios in support of this objective. Direct real estate ownership brings a degree of control ahead of that available in the public markets. While we have focused on net zero here, there is clearly a wider span of ESG objectives and outcomes that investors are concerned with. We would note that many steps that support decarbonisation also have benefits for other areas, such as conserving water, reducing waste, preserving biodiversity and building a circular economy. More widely, investors will be concerned with the social impacts of their investments. While more complex to define and measure, we see positive social outcomes arising from the steps you take to promote decarbonisation. With purposeful implementation, the transition to net zero will have not just environmental but social benefits as well, in line with the thinking around the Just Transition. Promoting net zero is not the only ESG objective that matters, but it is a robust foundation.

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