

The *impact* of
sustainability
on value

Developing the business case for net
zero carbon buildings in central London



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Introduction

Do sustainable buildings offer financial benefits?

This is just one of the questions that we set out to answer in this report. Sustainability is becoming a mainstream issue within the real estate sector and will become ever more fundamental in the process of delivering office space as it moves up the occupier agenda.

We set out to understand the approaches that corporates currently have to sustainability and have undertaken a number of interviews to ascertain the importance to companies today and in the future. This report aims to quantify the demand for more sustainable office buildings in central London over the next few years.

To understand the value proposition, we have examined leasing activity across central London and the relationship between rental values and BREEAM and EPC certified buildings. But, more importantly, we look to the future and explore how developers and landlords need to focus their portfolio strategy in a world that will increasingly revolve around stricter energy performance targets, the rise of net zero carbon and the circular economy.

Executive summary

This report examines trends in the performance of sustainable office buildings in central London, in terms of rental values and leasing velocity. It focuses on space that has a BREEAM rating or EPC certificate and sets out to quantify to what extent demand for sustainable offices is increasing.

The research reveals that sustainable buildings in central London have a rental premium in range of 6% and 11%; and that at both 12 months and 24 months after completion, vacancy was lower in buildings with an Outstanding/Excellent BREEAM rating compared to those that were rated Very Good.

Our analysis shows that demand for sustainable office space is rapidly increasing and this growth has happened over a relatively short time-period. The number of companies signing up to science-based targets, with a central London presence, has doubled since December 2018 and now totals 126 firms. These companies occupy around 12 million sq ft of space in the capital and nearly 4 million sq ft will be subject to a lease event in the next five years.

Pressure on the real estate industry to act is being driven by action from organisations on their own sustainability journeys. We interviewed a number of corporate occupiers which shows that they are becoming more demanding and are ready and waiting for the delivery of net zero carbon buildings in central London to meet their own science-based target commitments.

With more occupiers focusing on environmental targets, the onus to engage with the supply chain to reduce direct emissions will intensify, and this means an increased pressure on real estate and landlords too. Investors are now at a pivotal moment in defining their sustainable investment strategies. Sustainability and climate change are deemed to have the greatest impact on real estate performance according to JLL's latest investor survey, with two thirds stating that they would be increasing their allocation to more sustainable property.

Occupiers, developers and investors now have a clear opportunity to showcase their sustainability credentials via their real estate footprint, but the research identifies a clear gap between demand and supply of sustainable office space. There are no available net zero carbon buildings today in central London, but this will start to change.

The report concludes that there will be a rental premium for net zero carbon buildings in central London for those that can deliver effectively and fast. Even with a potential increase in construction costs, we estimate that the rental premium and yield compression could take a typical scheme from 15% profit on cost to over 20% profit on cost.

The real estate industry takes action

The property industry is now at the heart of the UK's drive to reduce carbon emissions to net zero by 2050 - some of this action has come from the government's commitment to net zero and the rest has come from within, as the industry recognises that it has no excuse not to act now.

Since 2019 there has been real momentum in the industry, and we are increasingly seeing business leadership and collective action on sustainability. This includes the landmark climate change commitment signed by 26 leading commercial property owners, representing £300bn AUM and 11,000+ commercial properties globally.

With notable figures such as Mark Carney and Larry Fink expressing the risk to future investments, there is no doubt that we are at a pivotal moment of defining sustainable investment strategies. This was borne out by JLL's 2020 investor survey. In January 2019, just 7% of respondents selected environmental changes in their top three long-term trends impacting real estate, the lowest of any option. Fast forward 12 months and more than two thirds selected sustainability and climate change – comfortably the number one choice.

What are the long-term trends that will have the greatest impact on UK real estate?

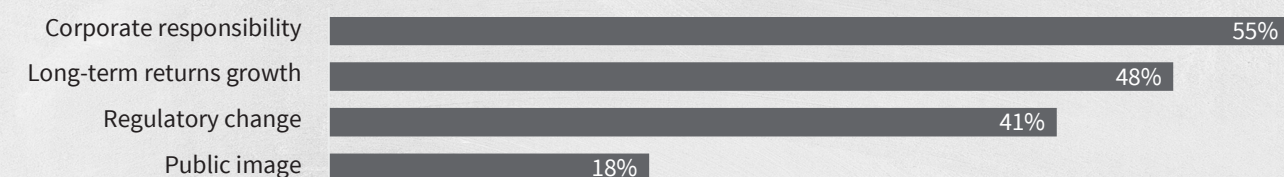


Source: JLL

The growth in sustainable buildings, at least in the short term, will come from clear financial benefits to the owner and user of the space. Our

investor survey shows that the key motivations for investing in a more sustainable way were corporate responsibility and long-term returns.

What are your key motivations for investing in a more sustainable way?



Source: JLL

“

Investors work in a very linear system: the value of their investment is based almost entirely on rental income. No value is attributed to other aspects such as zero waste, efficiency in use, embodied carbon, aesthetics, quality of wellbeing and ease of repurposing/disassembly.

”

Guy Grainger, EMEA CEO
JLL¹



Green premium or brown discount?

Despite it being argued that sustainable buildings are associated with higher rents, lower tenant incentives and re-leasing costs over time, there is no getting away from the fact that some within the industry remain sceptical. Two-thirds of respondents to our investor survey said that they would increase their allocations towards more sustainable real estate either across their whole portfolio or in certain sectors over the next 12 months, but a third stated that they would not change their allocations.

In part this is due to the difficulty in showing hard evidence of increased value associated with sustainable buildings. At present, environmental rating schemes and other certification schemes are entered into voluntarily but these schemes also serve as a good benchmark to understand whether they have any impact on office performance.

To assist the conversation, JLL has looked at leasing activity of new and refurbished Grade A space since 2008 to start to build up a picture of how buildings with either an EPC certificate or BREEAM rating have performed over time.²

EPC certificates were introduced back in 2007 and, from April 2018, minimum energy efficiency standards were introduced. In effect, it is unlawful for a landlord to let or renew a commercial property with an F or G EPC rating, unless there is a valid exemption. From 2023, all existing leased buildings must also comply with this, so the onus is on landlords to start to improve their existing properties over the next 24 months.

BREEAM is a world-renowned sustainability rating scheme, to assist the real estate industry to deliver sustainable buildings and was introduced into the UK back in 1990. Buildings are essentially rated Outstanding, Excellent, Very Good, Good, Pass or Passable. It is not mandatory but increasing number of planning authorities are now demanding a BREEAM (or equivalent) rating as a requirement for development, while landlords are using certification as a means to illustrate the “green credentials” of their buildings.

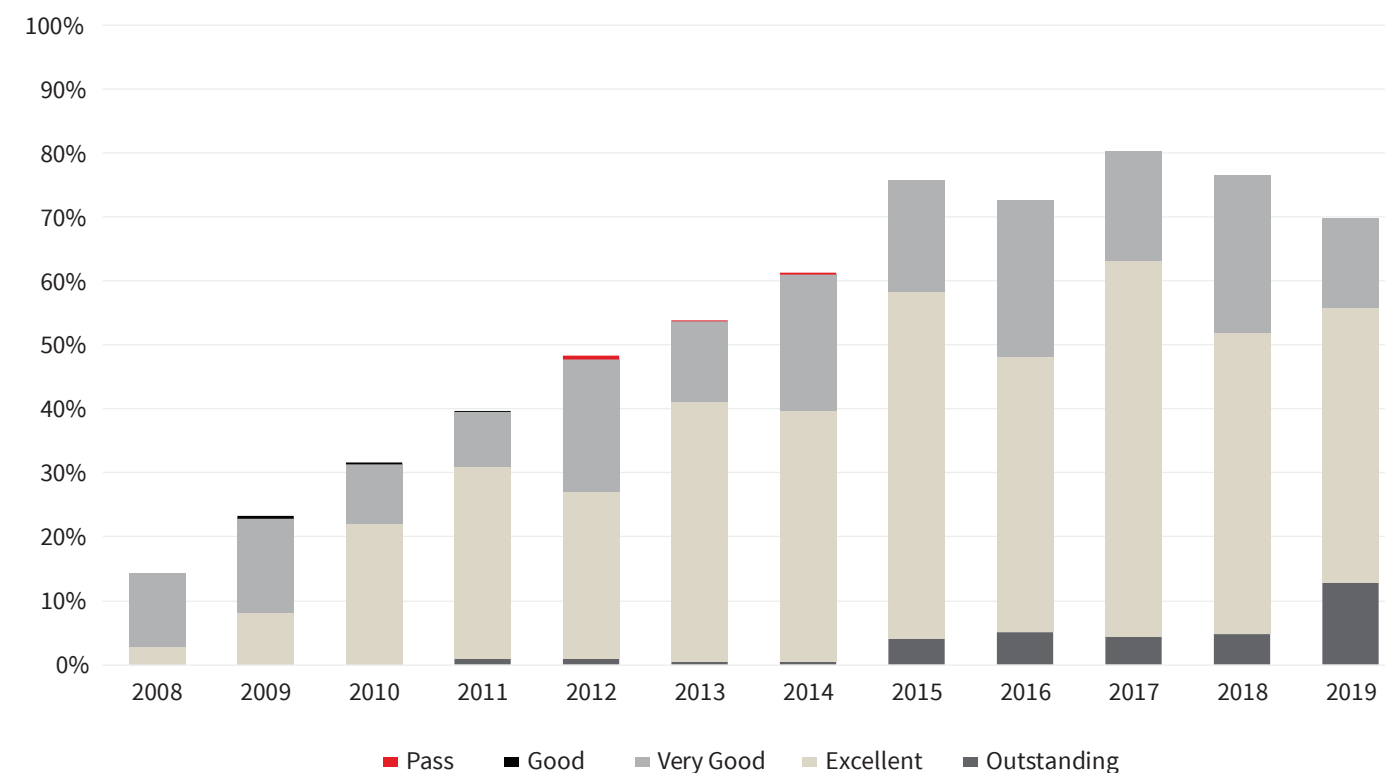
6.5% of central London stock have a BREEAM rating
(Number of buildings)

Within JLL’s central London boundary, we estimate that there are approximately 370 BREEAM rated buildings, of which 13 are classified as Outstanding³. It is only since 2012/13 that the number of buildings which achieved a certification was evident in any great number. Between 2008-2012 transactions in a BREEAM rated building accounted for 20% by number but over the last five years (2015-2019) transactions in BREEAM rated buildings represented over 60% of deals completed.

A greater shifting pattern in the demand for sustainable buildings is evident when you consider the volume of deals - between 2008-2012 BREEAM rated buildings accounted for a third of Grade A floorspace but in the last five years this rose to more than 70% per annum.

Few buildings are now completed without a BREEAM rating; thus, occupiers are more likely to have a more sustainable building within their shortlist, regardless of whether sustainability is a key decision criteria.

New Grade A leasing transactions by BREEAM rating as a % of all new Grade A lettings



Source: JLL

Includes new build and major refurbishments.

BREEAM performance

If we consider the rental values achieved in BREEAM rated buildings, it is clear that the buildings with a better BREEAM rating tend to perform better, and generally all buildings with a BREEAM rating of Very Good or higher achieve

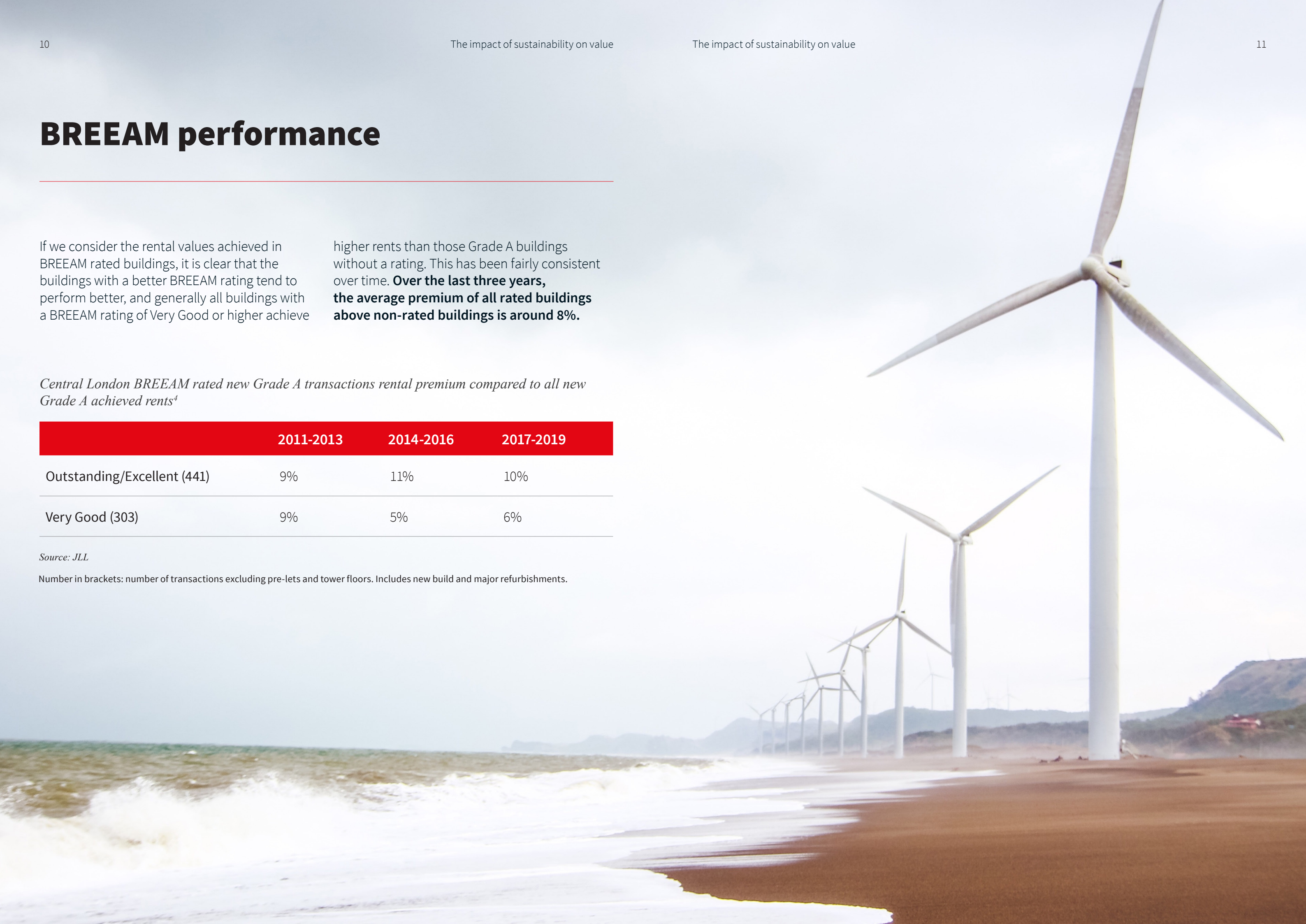
higher rents than those Grade A buildings without a rating. This has been fairly consistent over time. **Over the last three years, the average premium of all rated buildings above non-rated buildings is around 8%.**

Central London BREEAM rated new Grade A transactions rental premium compared to all new Grade A achieved rents⁴

	2011-2013	2014-2016	2017-2019
Outstanding/Excellent (441)	9%	11%	10%
Very Good (303)	9%	5%	6%

Source: JLL

Number in brackets: number of transactions excluding pre-lets and tower floors. Includes new build and major refurbishments.



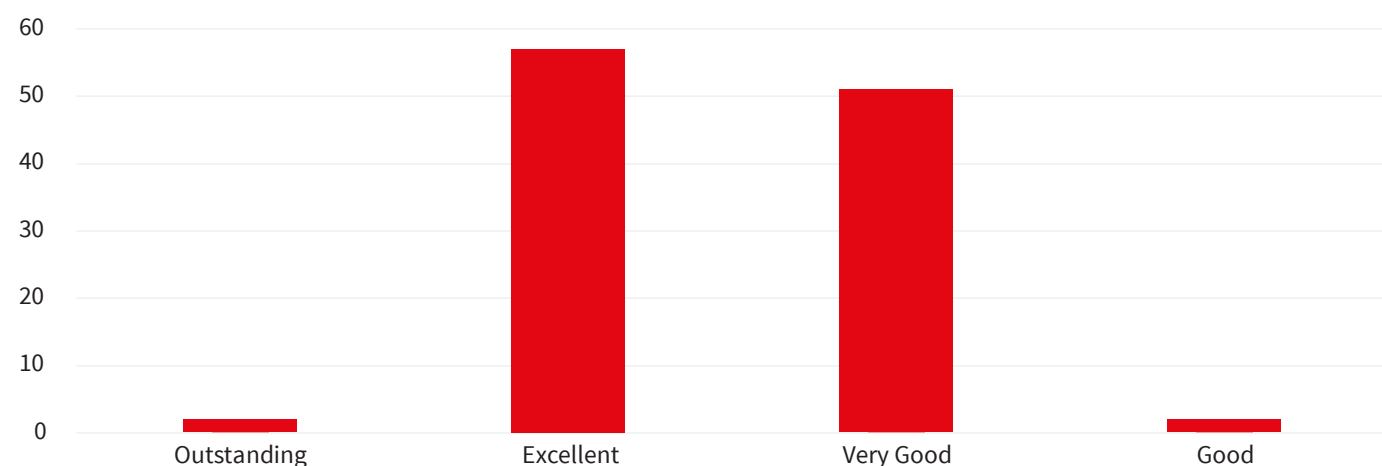
Spotlight on the city

This pattern of rental performance is generally observed across the different London submarkets, but in some areas where the sample sizes are small or where markets are less mature, the patterns are less distinct. In the city where the sample size is largest, with over 650 transactions in BREEAM rated buildings, the pattern of discount for non-rated buildings has averaged -3.0% over the nine-year period analysed, with little deviation. A similar pattern

has been observed for space rated Very Good, with a premium of 5% to average recorded over the long term.

What is clear though is that premium paid for Outstanding/Excellent buildings has been increasing over time, as sustainability credentials have come to the fore. Outstanding/Excellent rated buildings have typically achieved 14% higher rents than the average achieved Grade A rent in the three years to 2019.

Buildings with BREEAM ratings in the city



Source: JLL

There are few examples of Outstanding rated buildings in the city - Bloomberg's new headquarters is the highest scoring BREEAM

building in the UK and 21 Moorfields is targeting Outstanding - with most developers pursuing Excellent or Very Good ratings.

BREEAM rated new Grade A transactions rental premium compared to market new Grade A achieved rents (city)

	2011-2013	2014-2016	2017-2019
Outstanding/Excellent (441)	7%	13%	14%
Very Good (303)	5%	5%	5%

Source: JLL

Number in brackets: number of transactions excluding pre-lets and tower floors. Includes new build and major refurbishments.

Excludes pre-lets and tower floors. Includes new build and major refurbishments.

New Grade A transactions average achieved rent (city)

	2011-2013	2014-2016	2017-2019
Outstanding/Excellent (441)	£50	£58	£64
Very Good (303)	£48	£54	£60
Other (691)	£38	£45	£51

Source: JLL

Rents have been rounded

Number in brackets: number of transactions excluding pre-lets and tower floors. Includes new build and major refurbishments.

Excludes pre-lets and tower floors. Includes new build and major refurbishments.

Variation between different BREEAM rated achieved rents

	2011-2013	2014-2016	2017-2019
Variation between Outstanding/Excellent versus Very Good	4.1%	7.4%	6.7%

Source: JLL

Excludes pre-lets and tower floors. Includes new build and major refurbishments.

Leasing velocity

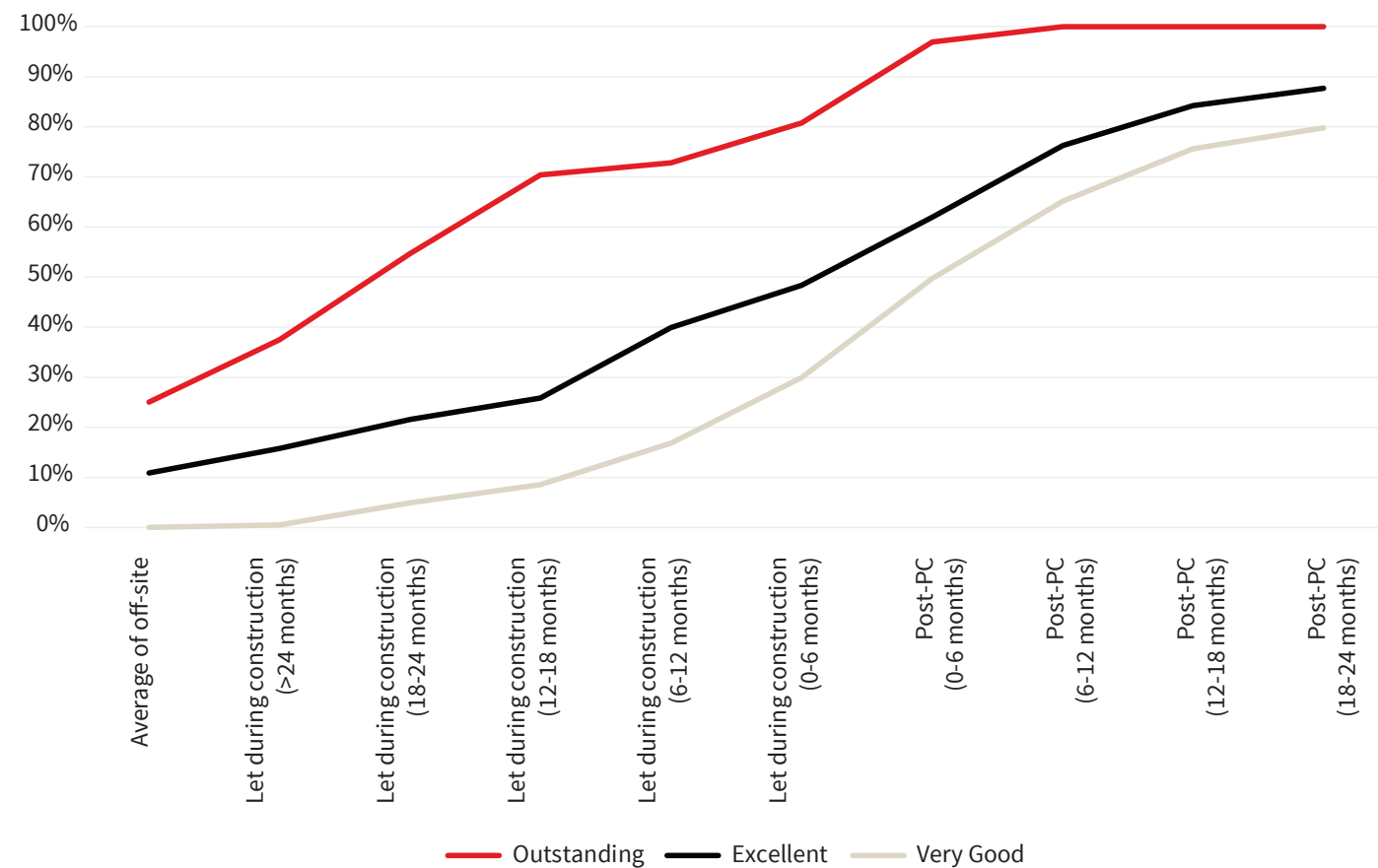
Performance is also about reducing void periods on initial letting. Our analysis suggests that the payback for investors who target higher ratings is through shorter void periods through the cycle.

Analysis of leasing velocity of 120 schemes completed between 2013-2017 shows that the schemes that have a higher BREEAM rating tend to show a higher pace of leasing and have lower void rates at 12 months and 24 months after completion.⁵

The relatively few BREEAM Outstanding offices are more likely to be pre-let than buildings with lower ratings and have all been almost fully let on completion compared to circa 50% of lower rated buildings.

In most cases the BREEAM Outstanding rated buildings are located away from the core - for example the White Collar Factory in Shoreditch, the buildings in Pancras Square, King's Cross and 2 Redman Place, Stratford. These buildings do not have any comparables as they set a new benchmark in terms of the quality and specification within these maturing markets.

Leasing velocity - schemes completed 2013-2017



Source: JLL

Includes new build and major refurbishments.



Case study

80 Charlotte Street, London

is one of three offices under construction which Derwent has committed to being net zero carbon. This is part of the company's commitment to bring forward its target for running a net zero carbon portfolio from 2050 to 2030.

Plan which is the responsibility of the building managers during the operation of the building.

Key attributes

- 30% of original structure retained to reduce waste and carbon emissions
- Solar thermal panels installed to heat domestic water
- Swapped gas for electricity - will get less carbon intensive as UK energy becomes greener
- Heated using heat pumps
- Use of responsible sourced materials and regional materials

Developer: Derwent London

Size: 321,000 sq ft

Completion: 2020

BREEAM rating: targeting 2014 Excellent

Targeting: LEED 2009 Gold

Tenants: 100% pre-let to Arup and BCG

Derwent undertook a study to understand the embodied carbon footprint before commencing on the project, which was tracked throughout, while the building has a Building Sustainability

Energy carbon footprint

90% lower than comparable office building

Average void rate in new Grade A offices completed 2013-2017

24 months after completion	
Outstanding/Excellent	7%
Very Good	20%

Source: JLL

Includes new build and major refurbishments.

Overview on costs

Delivering a more sustainable building will, in most cases, cost more to build than a less sustainable office. However, if this results in higher demand from occupiers in the guise of higher achieved rents, lower void rates and savings in operational costs then this should mitigate the initial higher capital costs.

Estimates for additional capital expenditure vary, and are dependent upon building type, design and efficiency of delivery, but have been estimated to be in the order of 5-10% depending upon the level of environmental credentials of the space.

However costs are reducing as technology and construction techniques evolve and, as more sustainable buildings become cheaper to deliver, we may actually see a reduction in capital costs as new construction methods are adopted. Cross-laminated timber (CLT) buildings, for example, are quicker to deliver - but this is not generally being passed on in terms of costs savings. Suppliers are still pricing in risk, but as it becomes more mainstream we expect costs to be reduced.

Increase in capital costs for different building types and certification levels

Rating	Office
Very Good	0.2%
Excellent	0.8%
Outstanding	9.8%

Source: BRE/Sweett Group 2016

But it's not just about the cost to physically build an office that should be considered, there is increasing evidence of more preferential interest rates being offered to finance sustainable buildings. Derwent agreed a revolving credit facility, which included a green tranche to fund activities that meet their sustainability objectives, including the development of commercial space that receive a minimum green building certification. GPE recently announced a revolving credit facility, which incorporates three ESG linked KPIs and the headline margin will be increased/decreased by 2.5 basis points depending upon performance.

Despite the uplift in capital expenditure, the associated rental premiums, reduction in yield and lower interest expenses should result in a more positive cash flow and an overall increase in returns for greener buildings.

“
Absolutely we are spending more to deliver a more sustainable building, but we expect, and in fact we are seeing, occupiers pay more to lease our greener buildings. We have made the commitment to sustainability and we will not compromise on pricing.
”

Central London developer



Case study

2 Redman Place (Building S9), London

at IQL has been awarded the Outstanding rating from BREEAM with a score of 94% - making it the second highest scoring commercial building after Bloomberg's new headquarters.

contractor, the company ensured that the design principles were implemented through the whole build process.

Developer: Lendlease

Size: 275,200 sq ft

Completion: 2019 Q3

BREEAM rating: 2014 Outstanding

Targeting: WELL building certification and achieved EPC A

Total proportion let 6 months after completion: 82%

Tenants: British Council, FNZ and Cancer Research UK

Lendlease do not develop any space below a BREEAM Excellent standard (or equivalent) and they aimed for an Outstanding building from project conception. As a developer and

Key attributes

- 100% fresh air
- Excellent roof to area ratio which made rain water harvesting possible
- Using a district heating CHP – significantly less emissions than standard building regulations
- Good block depths for natural light
- Great air quality due to location of vent away from a main road and off the park which has no emissions.

Estimated cost uplift from BREEAM Excellent to BREEAM Outstanding



less than **£1** per sq ft

EPC performance

In addition to BREEAM, we have also looked at whether energy efficient assets perform better in the market - as it's often an important criteria for occupiers. To understand this, we have used EPCs as a proxy for operating efficiency, albeit recognising that they are more indicative of how energy efficient the assets design is rather than its operational efficiency.⁶

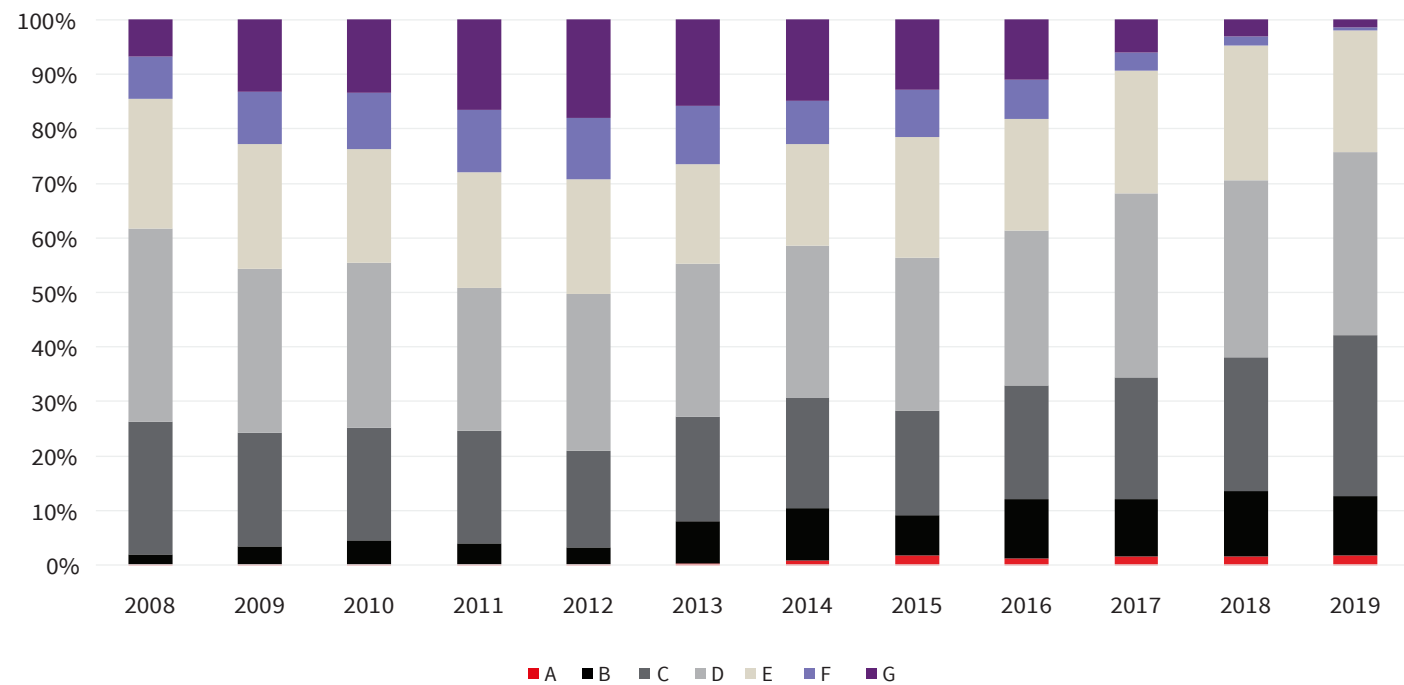
Between 2008-2011, while numbers were increasing year-on-year, there were fewer than 100 transactions with an EPC rating and, as with BREEAM ratings, we have concentrated analysis on deals from 2012.



An A+ rating

can be seen in a handful of examples of offices around the country, demonstrating the low base that the industry is starting from to achieve its bold ambitions. In fact, EPC A+ reportedly make up less than 0.1% of the entire built stock within England and Wales, and there are none located in central London.

Overview of EPC ratings certified by year in central London



Source: Ministry of Housing, Communities & Local Government

Rental performance by EPC rating

EPC rating	New Grade A rental premium with EPC compared to all Grade A achieved rents	Rental premium/discount with EPC compared to average achieved rents
A/B	11%	17%
C	4%	11%
D/E	NA	-1%
F/G	NA	-6%

Source: JLL

Our analysis of new Grade A lettings compared to market shows that higher EPCs have achieved higher rents than average achieved Grade A rents and a similar pattern is evident when looking at

all grades of space. However, the “premium” is only significant with buildings that have achieved an A or B rating.

Rental performance by EPC rating and year of transaction

EPC rating	2011-2013	2014-2016	2017-2019
A/B	18%	10%	10%
C	4%	6%	3%

Source: JLL

10%

The average premium of EPC A/B rated buildings compared to average Grade A rents.

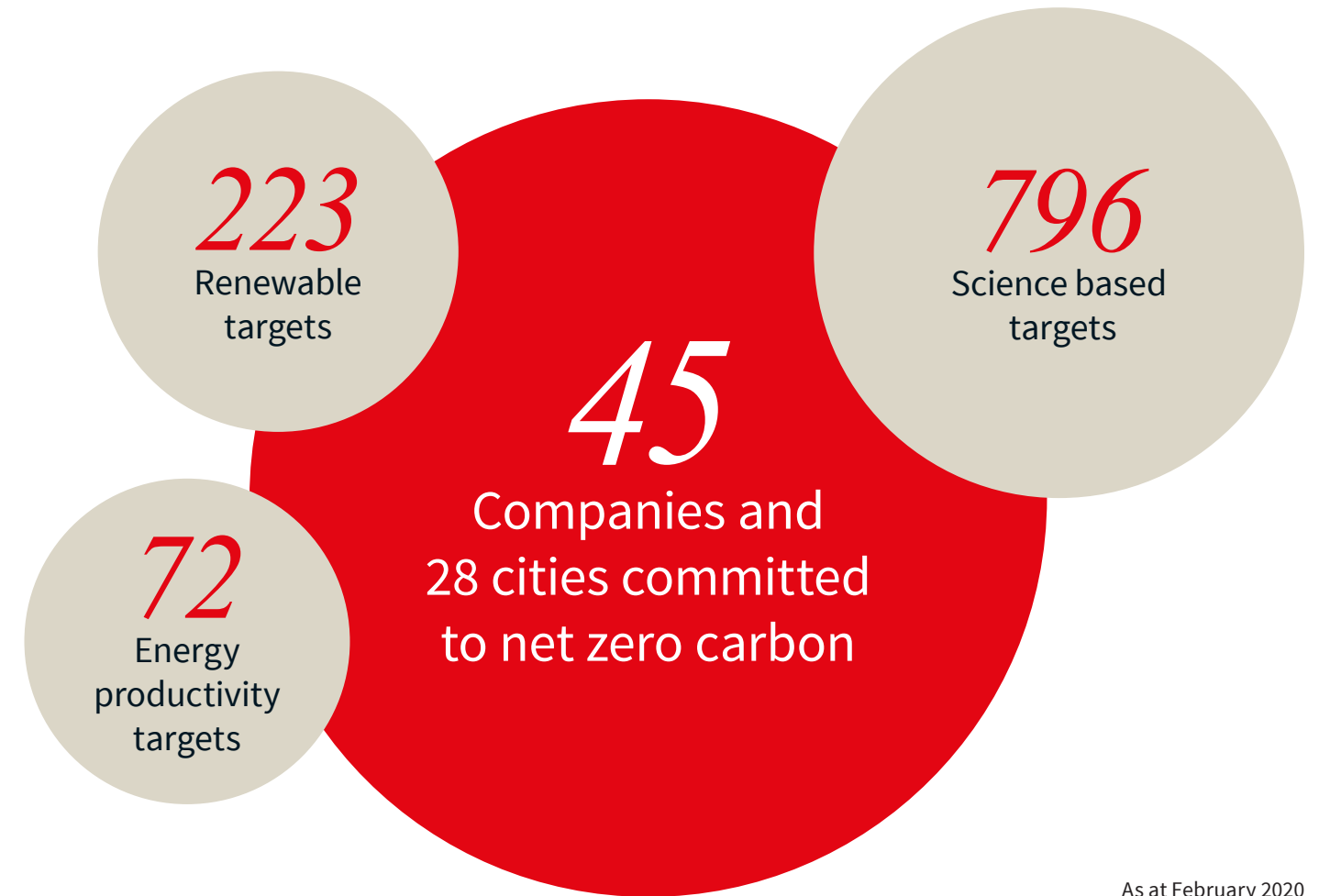
Sustainable corporates

There has been a shift in momentum from companies around sustainability, with an acceleration in the number of leading organisations publicly stating their sustainability targets. While most have signed up to Science Based Target initiatives (SBTs), others have gone further in declaring net zero carbon targets or beyond, such as Microsoft and AstraZeneca declaring ambitious plans to be carbon negative by 2030. Microsoft has gone further and pledged that by 2050 it will have removed all the carbon from the environment that they have emitted since the company was founded in 1975.

Latest data shows that globally nearly 800 companies have signed up to the science based targets in line with the Paris Agreement to limit global warming by 1.5%, but that just 45, including JLL UK, have declared an ambition to be net zero carbon via the World Green Building Council. As companies come under siege from their employees, customers, shareholders and the population at large, participation in these schemes provides a positive message around a firm's corporate governance and social responsibility, and numbers will only increase.



Number of global corporates signing up to ambitious carbon standards



As at February 2020

“What has happened is that the occupier, consumer and staff working in these companies are beginning to say, “if you are willing to locate in that building with its poor sustainability positioning, then I am not going to come and work for you.” ...What this means is that the buildings that we own or develop need to be of a higher quality.”

Central London developer

What does that mean for London real estate?

Eighteen of the companies signing up to net zero carbon have a presence in central London, up from 10 just six-months ago. Their occupation totals just over 1.5 million sq ft. If we add Microsoft into the mix as well, then this would equate to almost 1.75 million sq ft of demand for net zero carbon buildings. While still only a small proportion of the central London market, it is only the start and, even at this early stage, this still equates to an initial need to build space equivalent to another 22 Bishopsgate.

Companies signing up to SBTs based in central London number 126 - which is double the number at the end of 2018 and occupy just under 12 million sq ft. We estimate that circa 8 million sq ft of this space is subject to a lease event before 2030. This equates to only one building life cycle and these corporates will need to consider how real estate can help them achieve their commitments.

Almost three-quarters of these lease events will occur in office space that does not currently have an environmental rating. There is a real risk to this 5.7 million sq ft of space, as these companies consider whether their real estate marries up with their environmental commitments. Even those that are in a BREEAM rated building are in space that achieved a rating under older qualifications, that may not stand up to future scrutiny.

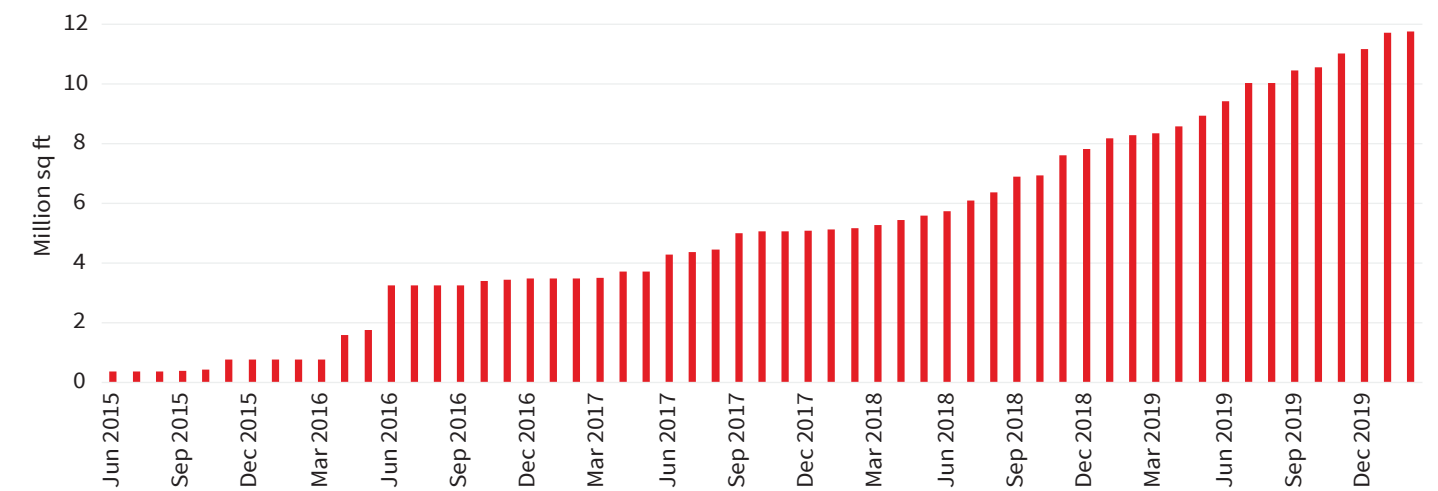
Nearly 4 million sq ft will be subject to a lease event in the next five years.

The property teams in these companies are actively thinking about the implications of their companies sustainable ambitions on CRE decisions that need to be taken in the near term. They are having to rapidly put together a plan for their estates and for the additional investment needed to deliver on this.

“Clearly the urgency to build these offices in central London is only speeding up and the first developers to undertake the task will reap the rewards of high levels of demand and the intrinsic higher performance of their product.”

Neil Prime, Head of Central London Markets and UK Agency JLL⁷

Growth in central London SBT committed companies by occupied floorspace



Source: JLL



The occupier perspective

As part of the research for this report, we have undertaken a number of interviews with corporates to start to understand how these bold declarations are filtering through to the UK real estate market.

The firms we spoke to were able to identify several drivers for the desire to become more sustainable. First, there is a recognition among companies that efforts to enhance sustainability can confer considerable competitive advantage.

Second, firms are facing growing pressures from their investors to embed sustainability at the core of their business strategies. With a number of large investment groups publicly pivoting towards sustainability, corporates are under intense pressure from their investors to demonstrate the positive environmental impact they make in the communities in which they operate.

“In the last 12 months our biggest institutional investors have really started scrutinising our sustainability and corporate social responsibility programmes.”

Third, there is a clear sense among the firms we spoke to that showcasing their sustainability credentials is an important part of how they attract and retain their talent, particularly among younger generations.

“Our new generation of talent are very focused on sustainability and expect us to be a leader in this space.”

Under these pressures, most large corporates have targeted reducing carbon emissions from their property as a top priority. In practical terms, this means that many large organisations have already integrated sustainability into their selection criteria for new locations.

“We have formalised our requirements in terms of BREEAM, so we always target the highest possible BREEAM rating in the market.”

“We used to assess offices purely on the basis of financial metrics. The conversation has moved on and now the metrics on sustainability and human experience are becoming equally important.”

“We’ll also push the landlord to go for a higher rating where possible – so if they’re targeting Excellent, we’ll bring ideas to the table that will make the building Outstanding.”

Once in occupation, firms are taking a more proactive role to ensuring their spaces operate to the highest possible standards. These include programmes to reduce energy consumption, eliminate waste to landfill or phase out single-use plastics, as well as messaging to employees to ensure they’re aware of how sustainability is impacting the operations of property.

All of these initiatives however, rely on close collaboration across the supply chain of corporate real estate with landlords, agents and other service providers. Here, many occupiers have recently put in place mechanisms for more structured cooperation. One global services firm we spoke to for instance, developed their own memorandum of understanding for landlords, which outlines specific mechanisms for sharing data on energy usage, maintenance programmes and overall building performance.

“The idea of the memorandum is that it lays out how us and the landlord can collectively work together to measure the performance of the building as effectively as we can.”

Many property teams were caught off-guard by the speed at which environmental issues have advanced up the corporate agenda.

“Our chief executive recently announced that all our new buildings will be carbon neutral, so this instantly changed our plans for moving our central London headquarters. We very rapidly had to put together a plan and carbon assessment to identify the additional investment we needed to make this work.”

Now, property teams are determined to get ahead of the curve:

“We’re confident that there will be an announcement in the near future that the company will target becoming net zero in the next decade. In the property leadership team, we’re thinking about the implications of this now, so we hit the ground running.”

Given the increasing focus on sustainability within all layers of business, the urgency around sustainability within corporate real estate will only grow.



Towards a net zero carbon world

The next wave of sustainable buildings are going beyond BREEAM and are targeting net zero. Currently there are no net zero carbon office buildings available in central London. It is only a matter of time before central London buildings are targeting and achieving this, if landlords and developers are serious about their commitments to more sustainable real estate in the capital.

The great unknown is how much does it cost to deliver. A survey by Ramboll⁸ illustrated that there is a general perception within the real estate sector that sustainability measures are expensive to implement, with two-thirds believing that it is more expensive to build a sustainable building.

Evidence from overseas typically shows that increased capital expenditure is associated with highly sustainable building, but this can be justified by the higher long-term performance. A 2019 report from the Canadian Green Building Council⁹ demonstrates that on average a net zero carbon building requires an 8% capital cost

premium but that mid- and low-rise offices offer the highest positive returns of 3% over a 25-year life cycle, compared to an average of 1%. This uplift in capital expenditure is supported by research from the Centre for Sustainable Energy¹⁰ which suggests the additional capital cost to achieve net zero carbon is between 5-7% for non-domestic buildings.

It has been estimated that, the real estate industry consumes 50% of all materials used globally¹¹ and this is something that the sector is starting to address in future builds. The circular economy (or cradle to cradle principles), while uptake is not yet widespread, is increasingly being applied to the real estate sector. The Netherlands are ahead of the game, having set itself a target of having a 50% circular economy by 2030 and to be fully circular by 2050. Reuse and recycling of materials used for construction and fit-out make sense and ultimately should help a building retain its value, via the value of the raw materials and improve the environmental credentials of the

space. Developers will seriously need to consider whether to refurbish or redevelop the offices of the future.

New energy performance targets from the UK Green Building Council (UKGBC) have been drawn up to be integrated into the net zero carbon buildings framework, which will represent more stretching requirements for commercial offices claiming net zero in operation and set out a trajectory of tightening energy performance requirements over the next 15 years. By 2030, the UKGBC are advocating that all buildings (new and existing) must meet a minimum Display Energy Certificates B rating for energy use amongst other factors to meet climate change and net zero carbon targets.

Ultimately to achieve operational net zero carbon in a building, there needs to be a partnership between the landlord and tenant in how the building is occupied and run. There is significant scope for landlords and developers to collaborate more closely with

occupiers on sustainability, particularly in multi-tenanted buildings and to be more proactive to help support occupiers with their sustainability programme.

“We’ve had the best success when we’re the only tenant and we’re involved from the design stage. Most of our locations, however, are in multi-tenanted buildings we have much less control – so we expect the landlord to do more.”

Furthermore, with the trend towards shorter lease lengths several firms talked about the difficulty of making sustainability-focused capital outlays viable without the support of the landlord.

“Certain sustainability upgrades, like investments in HVAC systems or chillers require a reasonably lengthy payback period, so it’s difficult to make them work for us. In these situations, we’re asking landlords to take on more of the responsibility or provide incentives to make our spaces more sustainable.”



Case study

1 Triton Square, London

British Land have recently embraced the circular economy in their refurbishment of 1 Triton Square.

Developer: British Land

Size: 310,000 sq ft

Completion: 2020

BREEAM rating: Outstanding

Tenants: 100% pre-let to Dentsu Aegis

In reusing existing materials and components, British Land minimised embodied and operational carbon, reduced the cost of construction and sped up the development process.

Key attributes

- Doubled the building footprint with no additional plant
- Maximised the retention of existing structure and building fabric
- 56% embodied carbon savings vs typical new build
- 43% operational saving vs typical commercial building
- 66% cost saving on circular façade v new equivalent

0.3%

additional capital expenditure to take building from equivalent of BREEAM Excellent to BREEAM Outstanding



Case study

Park 2020, Hoofddorp, Amsterdam

Designed using the unique cradle-to-cradle[®] principles, which aims to increase material quality, eliminate waste and create closed-loop cycles for materials, waste, water and energy based on classification of biological or technical nutrient potential.

Developer: Delta Development Group, Volker Wessels, ReggeborghGroup

Size: 88,000 sq m offices

Completion: phased completion from 2013 onwards

Tenants: multi-tenant including FIFPro, Plantronics, Bluewater Energy Services

Key attributes

- Re-usable structural frame - the building is designed entirely for disassembly
- Onsite water treatment and renewable energy generation
- Designed to enhance the health and wellbeing of occupiers – high levels of natural light, connections with nature, active design, and fresh air
- Diversity is promoted by integrating greenery, bees, butterflies, fresh fruit and vegetables

The construction costs were reduced by **18%** and rents are on average **29%** higher than nearby conventional offices, **23%** return on the sale of the first phase of the development.



Conclusion

Our analysis of the existing environmental ratings shows that overall, sustainable buildings perform better if you consider the combination of void rates, leasing velocity and achieved rents. This is the base case to start to formulate an understanding of how the next generation of sustainable offices may perform.

It is worth noting that a BREEAM rating is not the sole factor for low vacancy or increased rents, more so a contributing factor among other market fundamentals. Tenants consider a range of factors when seeking new office space, some of which are location, access to transport and amenities, cost, and floor plate size. Furthermore, local supply and demand factors affect leasing outcomes, particularly between markets. However, given the increasing prevalence of corporate mandates toward sustainability, BREEAM is becoming a more prominent deciding factor and for some tenants, a prerequisite for their new location.

As more occupiers commit to environmental targets, the pressure to engage with the supply chain to reduce direct emissions will intensify which means pressure on real estate and landlords. A move to occupy an environmentally efficient or even net zero carbon building can help support this message to company stakeholders and employees.

The urgency to build what occupiers are increasingly demanding will only speed up. The first developers to deliver more sustainable buildings should see heightened demand for their space and higher building performance.

But, for efforts from the landlord to construct more sustainable offices and from tenants who want to occupy sustainable building to be successful, there has to be greater collaboration and partnership between both sides throughout the life-cycle of the building. Landlords need

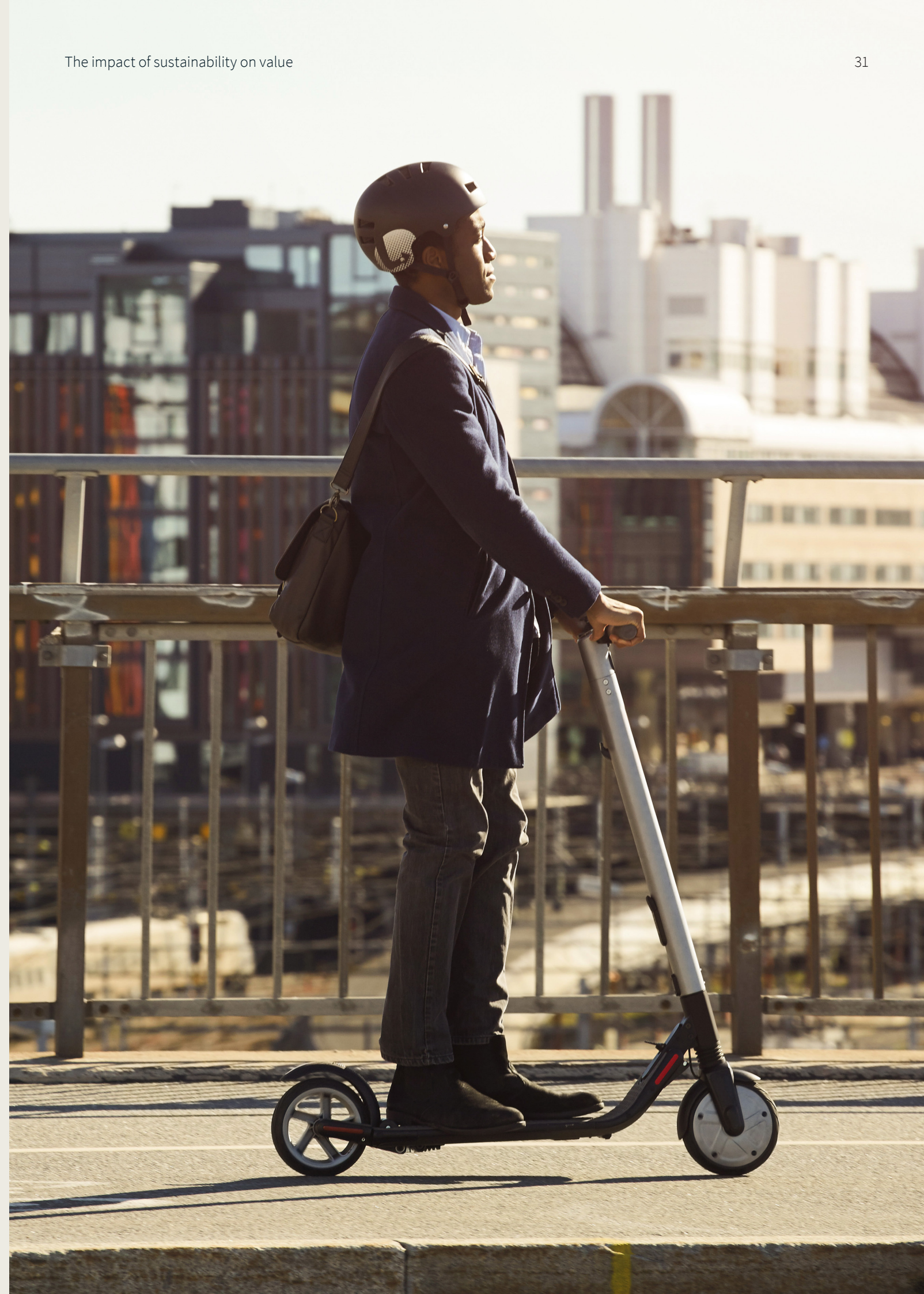
to be explicit with occupiers as to how the building is designed to be operated and reassess performance regularly, while occupiers need to understand their role in operating the office space in an energy efficient and sustainable way.

The market is also moving towards a more operational rating for buildings, the link to value will become much clearer. Users of space will be more able to make a distinction of how their asset is performing operationally, and more importantly how it compares to other spaces.

The stimulus for a developer to invest in a higher rated building is to increase value and to promote their brand. It is only a matter of time before building regulations become tougher, to drive a reduction in energy consumption and carbon emissions.

As sustainability performance becomes clearer and more defined, it is likely that premiums will disappear and that those buildings that don't comply will underperform. Buildings that are not designed to be net zero carbon will require costly retrofits in the future, which are likely to result in the displacement of tenants and lost rent.

JLL expect that net zero carbon office buildings in central London will drive an enhance premium value for the next 5-10 years. Even with a potential increase in construction costs, we estimate that the rental premium and yield compression would result in an overall increase in returns. An example we have looked at which assumes a 5% increase in build costs, shows that even an increase of just 5% on the rent could increase scheme profit on cost by 2.9%. If we then factor in a 10bps yield shift, this could increase profit on cost by 5.7% taking a typical scheme from 15% profit on cost to over 20% profit on cost.



Glossary - What does it all mean?

Company carbon declarations

Carbon neutral offsetting emissions with payments either to avoid a reduction in emissions or remove carbon from the atmosphere

Net zero carbon means that a company removes as much carbon as it emits

Carbon negative means that a company is removing more carbon than it emits each year

Science based targets are targets adopted by companies to reduce greenhouse gas (GHG) emissions. They are considered “science-based” if they are in-line with what the latest climate science says is necessary to meet the goals of the Paris Agreement - to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

Circular economy means everything has value, and nothing is wasted. In simple terms, it can be explained as ‘make, use, remake’ as opposed to ‘make, use, dispose’.

Net zero carbon building - the World GBC definition of a net zero carbon building is a building that is highly energy efficient and fully powered from on-site and/or off-site renewable energy sources.

Net zero carbon in construction when the amount of carbon emissions associated with a building’s product and construction stages up to practical completion is zero or negative, through the use of offsets or the net export of on-site renewable energy.

Net zero carbon in operation when the amount of carbon emissions associated with the building’s operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.

References and methodology

1. Property Week, February 2020.
2. Achieved rents in these buildings have been compared to achieved rents in the wider submarket at that time, to control for variations in submarket rental tone and performance over the years. To understand the performance of the built product, we have focused on BREEAM rated buildings and analysis on new Grade A transactions, including new build and major refurbishments.
3. These BREEAM rated buildings represent c1,500 leasing transactions since 2007.
4. Due to the limited number of Outstanding transactions any analysis of the Outstanding sub-group must be taken with caution. Outstanding and Excellent buildings have been consolidated to ensure greater depth of data and analysis. We also controlled for tower-floors from this analysis, as they tend to command a premium rent and distort the overall figures.
5. We have focused our analysis on the five-year period 2013-2017 to eliminate the post crisis years, when the leasing market slowed down, and vacancy rates were above average and to allow for two years post completion analysis.
6. Our sample covered 40 million sq ft of transactions with an EPC rating, in 2,200 deals.
7. Property Week, February 2020.
8. Sustainable buildings Market Study 2019 (Ramboll).
9. Making the case for building to net zero carbon 2019.
10. Cost of carbon reduction in new buildings Dec 2018- for regulated emissions.
11. Drees & Sommer.

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