



Banks offer 'green' money to fund projects to meet energy performance and other sustainability targets

# BUILDING A GREENER FUTURE

The people have spoken. Now it's up to governments and industry to target net zero

Words: Sophie Chick, Head of Department, Savills World Research

For a topic with so much scientific evidence, the progress and consequences of climate change remain controversial. Instead, action has been left to the people. There's been a social tipping point as schoolchildren and environmental groups have led protests worldwide. Now, those people – and the scientists – are looking to government and industry to be bolder with the measures they are implementing.

With real estate responsible for almost 40% of energy and process-related emissions, a focus on the building and construction sector is inevitable. Tackling climate change should be at the top of every property owner's and occupier's agenda.

Evidence suggests the industry has a way to go. The Global Status Report for Buildings and Construction noted that final energy demand in buildings actually rose 1% from 2017 to 2018 and sector emissions increased by 2% globally.

There has been global action with 187 countries ratifying the commitments of the 2015 Paris Agreement to combat climate change. However, famed climate change-sceptic President Trump will potentially withdraw the USA from the agreement this year, despite the country being one of the highest contributors globally on a per capita basis (see panel, right).

For the Paris Agreement to succeed, the contribution from the real estate industry is crucial. Global building stock is set to double by 2050, according to the OECD, and more people across the globe are forecast to be living in cities. Urgent action by policymakers and investors is required to decarbonise and enhance energy efficiency in buildings. Increasing emissions and energy use are due to the expansion in floor space and rising demand for electricity, which is still primarily fossil fuel-generated, although this varies from country to country.

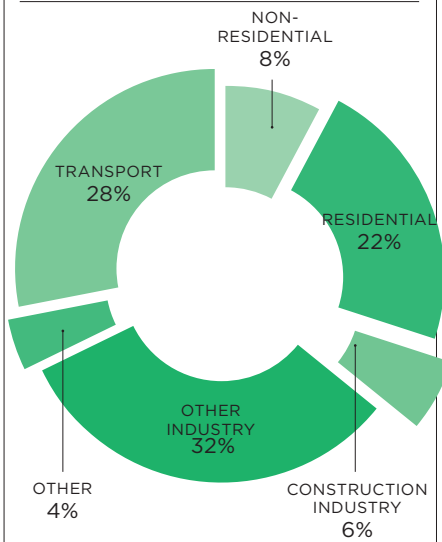
Forward-thinking developers and investors have been proactive in embracing key UN Sustainable Development Goals, creating portfolio-wide targets to become net zero and using design and technological advances in materials and monitoring systems to improve energy performance. Some have been led by market differentiation, remaining competitive and aligning with changing consumer and employee demands. However, all are also acutely aware that increasing regulation will come in this area.

## REGULATIONS TO INFLUENCE CHANGE

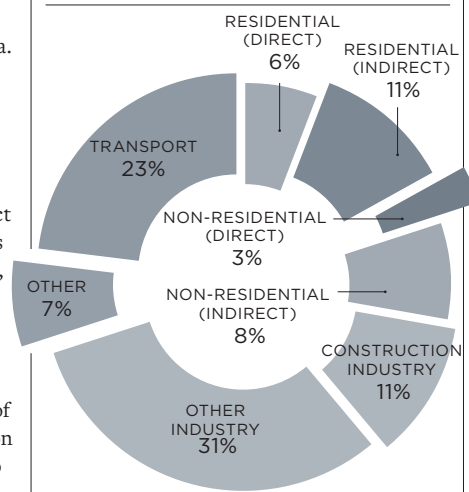
Policies regulating energy performance of new buildings are a powerful means to address future emissions growth. More countries are turning to regulation to effect change. India has introduced the country's first energy conservation code for housing, while Rwanda is addressing its residential sector through a new Green Building Minimum Compliance System.

In addition, mayors of the world's leading cities have emerged as champions of climate change through city-level regulation and proactive global networks, such as C40 Cities. For example, Paris has a net zero carbon goal for 2050 and Amsterdam plans to be fully electric by 2050. Other countries are looking at how they can influence change within the construction process. The National Australian Built Environment Rating System (NABERS), widely regarded

## GLOBAL SHARE OF BUILDINGS AND CONSTRUCTION ENERGY



## GLOBAL SHARE OF BUILDINGS AND CONSTRUCTION EMISSIONS



**Notes** Construction Industry is the portion (estimated) of overall industry devoted to manufacturing building construction materials such as steel, cement, and glass. Indirect emissions are emissions from power generation for electricity and commercial heat.  
**Source** Savills Research using the 2019 Global Status Report for Buildings and Construction

as world leading, has been compulsory since 2010 and created a marked change within real estate development. Japan and Canada want to use new policies to achieve net zero and net-zero-ready standards for buildings.

The network of World Building Councils has been promoting the development of new frameworks through its Net Zero Carbon Buildings Commitment. Technical innovation through modern methods of construction, such as modular building, can also save energy and costs through standardisation and use of materials (see page 36). However, it is unlikely to just be regulation that drives change, as the largest players in real estate make it a cornerstone of future strategy.

Larry Fink, founder and CEO of BlackRock, told shareholders that climate risk is investment risk in his influential annual letter. How companies respond to climate change will be a defining factor in their long-term prospects, he added.

At the World Economic Forum, UBS released a framework intended to help close the 'climate finance gap' to meet the goals of the Paris Climate Agreement. Banks are beginning to offer 'green' money to fund projects to meet energy performance and other sustainability targets.

## CLIMATE-RELATED FINANCIAL RISK

For the largest investors in real estate, the impact of climate change is now also about the resilience of the location of assets, due to the physical risk of environmental incidents, as well as the buildings themselves. For example, PGGM Private Real Estate, which has €14 billion in assets under management, is working with insurance firm Munich Re to map the precise location and the exact climate risk metrics for these locations.

"We are increasingly taking climate-related financial risk into account for our existing assets and future investments," says Maarten Jennen, Strategist for Private Real Estate at PGGM. "Climate change-related factors could cause obsolescence

## HOW PEOPLE AROUND THE WORLD VIEW CLIMATE CHANGE

President Trump leads a nation where fewer than 60% of people think global climate change is a major threat to their country and just 39% think human activity is mainly responsible. If the federal government is slow to take action, it has left states such as California in a leadership position with its target to be carbon neutral by 2045.

The USA is not the only place where attitudes to climate change differ.

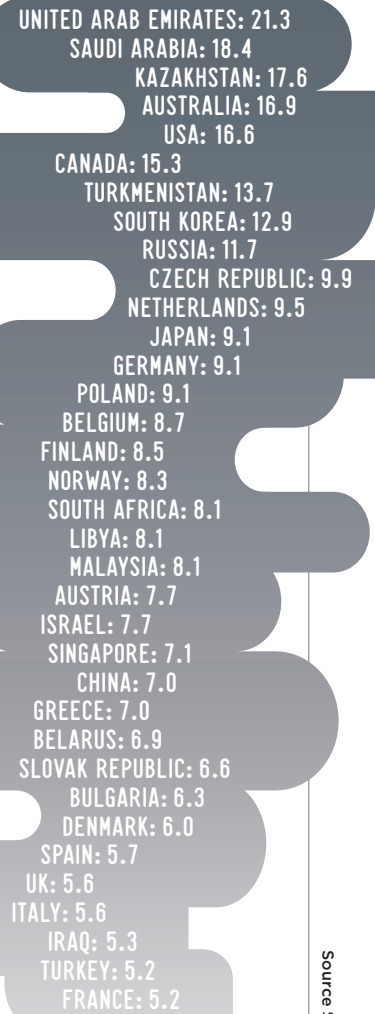
The two countries with a population over five million and the highest carbon emissions per capita are the United Arab Emirates (UAE) and Saudi Arabia. Just half of those living in UAE think the climate is changing and human activity is mainly responsible, and that number falls to 35% for Saudi Arabia. On the other hand, awareness is high in

many countries. In Greece, South Korea, France, Spain and Mexico, 80% or more of the population agree that climate change is a major threat to their country. This sentiment will encourage more change from both government and industry.

China, often viewed as one of the world's major polluters, does produce the most CO<sub>2</sub> globally. However, on a per capita basis, with more than 1.4 billion people, it is 24th of all countries with a population over five million.

in two ways: lack of adherence to location regulation, which forbids landlords to lease space, or absence of tenant demand for a location because of the physical risks."

As the industry faces these challenges, the forces for change will be varied. Investors will demand more action and consumer/tenant pressure is likely to increase. For building owners, looking at opportunities to mitigate climate risks through the lifecycle of their buildings will be a good starting point.



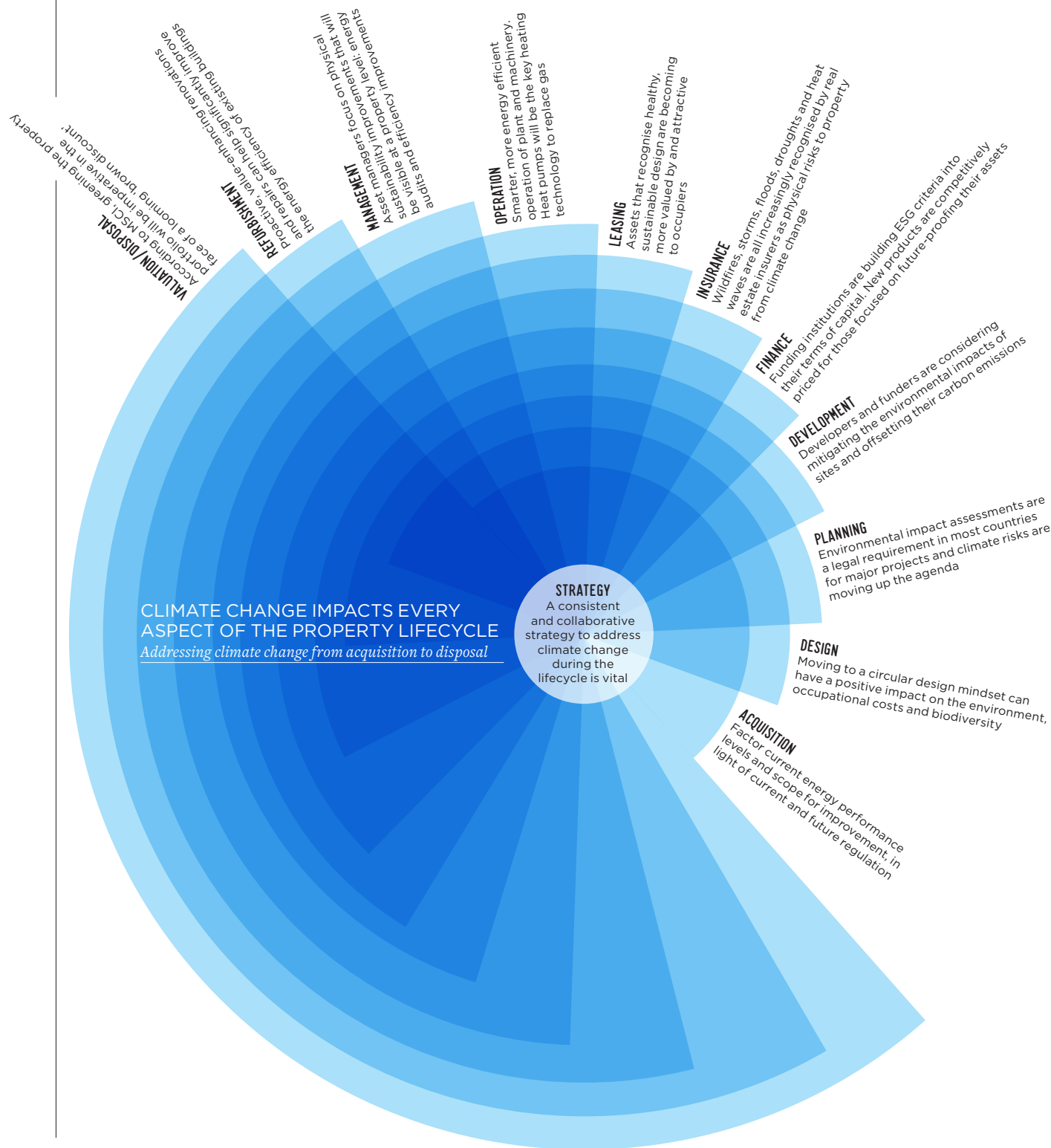
CO<sub>2</sub> EMISSIONS PER CAPITA 2018 (FOR POPULATIONS OVER 5M)

Source: Savills Research using Global Carbon Atlas

## PERCENTAGE AGREEING THAT CLIMATE CHANGE IS A MAJOR THREAT TO THEIR COUNTRY



“DEVELOPERS ARE USING DESIGN AND ADVANCES IN MONITORING AND MATERIALS TO IMPROVE PERFORMANCE”



## ADVANCING NET ZERO



Alan Somerville, Executive Director, Head of Building Performance Group at BRE

“The real estate industry is at a crossroads with climate change and the global drive towards a zero carbon future. We’re acutely aware of the issues that face us and now we need to move forward with a consensus on action. There is substantial pressure on owners, occupiers and funders of real estate to perform in a way that makes the lowest impact on our planet.

That’s already affecting the sources of equity, with investor pressure driving investment managers to set and reach targets on energy performance of buildings, but it will also start to affect sources of debt.

Financial institutions, such as the Bank of England and the European Central Bank, are increasing the requirements of financial organisations to properly price climate risk, whether it is debt or bonds. Sustainable investing and the rise of green finance will be common threads across all our markets.

There is pressure from lenders to real estate to better understand the financial risk around carbon and the climate risks of buildings, and factor that into decisions about who they lend to. It’s not just going to be about penalising borrowers and assets that have poor performance: it’s also about rewarding good performance. There will be cheaper debt and better terms for properties with less climate risk, and for those that are considered more sustainable.

For the industry, the starting point is to work hard to transform buildings to be net zero, with the total amount of energy they use being roughly equal to the amount of renewable energy created on site or nearby.

The most important aspect for this is having robust data, and making sure that data is available to everyone. Owners and managers need to be able to respond to the fiduciary responsibilities through consistent and comparable statistics.

They need to be able to make smart decisions, set accurate targets and monitor the operational performance of buildings. The right information will help us put in place a series of actions that we are confident will have delivered the impact we

need in 10 or 20 years’ time. We have seen great success with some of the existing measurements, such as the Global Real Estate Sustainability Benchmark (GRESB), which is the principal way of benchmarking fund-level environment, social and governance (ESG) and BREEAM, a global standard for asset level performance. However, if you look at the percentage of the overall market that is covered by some form of assurance-type validation or disclosures, it is pretty small. There’s a huge part of the market to play for.

One of the other main issues will be new buildings versus old. A lot of emphasis for change goes into new buildings, but the reality is that the built environment of 2050 already exists. The majority of buildings that will be around in 30 years’ time have already been constructed.

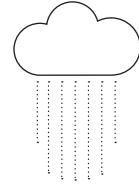
Focusing on new buildings is positive but, to make an impact, the mitigation has to be in refurbishing and retrofitting older buildings. It is more challenging for investors, owners and occupiers, but that’s where data comes in again.

You need to understand how a building is actually performing to make informed decisions. An old building doesn’t necessarily perform badly. Or, if you want to make a building that has a 70-year lifespan rather than 40, then there are significant upsides from a carbon perspective. But designing for that longevity will have cost implications.

Landlords’ relationships with their tenants are also evolving as the move towards flexible space means they’re in more of a partnership. The roles and responsibilities of both sides are blurring, but occupiers place greater expectations on landlords, and that will extend to being proactive about carbon and mitigating climate risks.

“FOR THE INDUSTRY, THE STARTING POINT IS TO WORK HARD TO TRANSFORM BUILDINGS TO BE NET ZERO”





Johnson Controls HQ reduces water use by 42% through recycling and recapture facilities

# Setting the new standards

The scale of the climate change challenge can be daunting, but organisations are tackling it building by building. Here are some inspiring examples of environmental leadership from projects in the UK, the Netherlands, the USA, China and Australia

The magnitude of the climate emergency can be overwhelming, but organisations around the world are demonstrating environmental leadership on a building-by-building basis. The climate and weather risks may differ in each region, but initiatives focus on technology, new materials and new construction methods to reduce energy consumption and move to net zero. Many projects have been supported by regional certification such as BREEAM, LEED and NABERS. These have guided best practice and increasingly enable ideas to be transferable around the world.

## UNITED KINGDOM

### One Angel Square, Manchester

As the 500,000 sq ft [46,452 sq m] headquarters of The Cooperative Bank, One Angel Square has future-proofed itself for temperature rises. It features a double-skin façade, which helps reduce heat during summer and insulates the building during winter. Overall, the building's design and sustainable features help it achieve an 80% reduction in carbon emissions and a 40-60% reduction in energy consumption. The building is fitted with heat recovery from the IT systems, low-energy lighting, and greywater and rainwater recycling. It has 300,000 sq ft [27,971 sq m] of exposed concrete, which acts as a thermal sponge, reducing the heat in the building and the amount of energy needed to cool it. It was the first building in the UK to achieve a BREEAM outstanding rating.

**Jonathan Jessop, Director, Property Management, Savills UK**

## THE NETHERLANDS

### Huidekoper, Amsterdam

The Huidekoper building is being developed to meet the all-electric sustainability plans of the municipality of Amsterdam by 2050. The 60,278 sq ft [5,600 sq m] development by Bridges Real Estate, which was bought in 2019 by the BlackRock Eurozone Core Property Fund, stripped the building back to its concrete frame while adding two floors, a new roof and new façade. Huidekoper has a heat pump installation, a roof full of photovoltaic cell panels and high insulation values, making it all-electric with low energy consumption. **Jordy Kleemans, Head of Research & Consultancy, Savills Netherlands**

## UNITED STATES

### The Bullitt Center, Seattle

The 49,998 sq ft [4,645 sq m] Bullitt Center is arguably the world's greenest building. It is net zero energy, carbon and water, as well as having other sustainable features including toxic-free materials and composting toilets. The office building is estimated to have cost around 23% more than a typical class-A office building in Seattle. The owner attributes this to soft costs such as time spent for regulatory permission to incorporate features for the first time, as opposed to hard construction costs which were comparable with other buildings. The Center is fully let and designed to last 250 years, providing a favourable fixed income for many decades.

**Eric Blohm, Senior Managing Director, Savills US**



Clockwise from left: One Angel Square, UK; Johnson Controls HQ, China; The roof of The Bullitt Center, USA



## CHINA

### Johnson Controls HQ, Shanghai

The Asia-Pacific headquarters for Johnson Controls is setting new standards for green and smart buildings. Its central plant, renewable energy and intelligent lighting, as well as the firm's Metasys Building Automation System, which connects the commercial HVAC, lighting, security and protection systems, is expected to help generate 44% savings in overall energy use compared to the local market standard. The building reduces water use by 42% through greywater recycling and storm water recapture facilities, and reduces embodied energy in materials by 21% through the use of Forest Stewardship Council certified wood-based building. Employees are also able to reduce their carbon footprint by using the hybrid and electric vehicle charging stations. **Betty Mao, Director, Property Services, Savills Shanghai**

## AUSTRALIA

### Workplace6, Sydney

The GPT Group, the Australian REIT, owns the first two buildings in the country to achieve carbon neutral status under NABERS and Climate Active, the country's carbon neutral standard. Workplace6 is the city's first 6-star Green Star rating after becoming 25% more energy efficient since 2009. This dovetails with its anchor tenant Google's ambitions of achieving zero carbon footprints. Along with a second asset in Melbourne, the unified certification approach will now be implemented across the remainder of the GPT Wholesale Office Fund to work towards its target of carbon neutrality by the end of 2020, and for the whole AUD\$12 billion group portfolio by 2030. **Paul Craig, CEO, Savills Australia and New Zealand**