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AVIVA INVESTORS CLIMATE CHANGE AND REAL ESTATE INVESTMENT 2016

– Paris lights the way

AVIVA INVESTORS

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INTRODUCTION:

As long-term real estate investors it is vital that we consider how occupier and investor behaviour is likely to change in future. By intelligently bearing risks around these anticipated changes, we aim to deliver superior real estate investment performance to our clients.

Climate change is arguably the most important long-term risk facing the planet. The consensus among climate scientists is that unless coordinated global action is taken to reduce carbon emissions, climate change threatens to devastate large parts of the planet and the lives of millions of people.

Buildings are a major source of greenhouse-gas emissions. Buildings are also considered one of the most cost-effective sectors for reducing greenhouse-gas emissions. As a consequence, we expect the responses of regulators, occupiers and investors will increasingly alter real estate markets around the world.

Against the backdrop of the recent historic Paris climate deal, this paper re-visits the topic of climate change and real estate. The paper examines:

- The Paris Agreement and the growing regulatory pressure for "green(er) buildings";
- Evidence of financial out-performance for green buildings;
- Research on the costs of green building;
- Market-led demand for climate-related initiatives and the real estate industry's response to this demand;

> *Climate-related issues are not just a risk, however, but also offer a potential means of out-performance.*

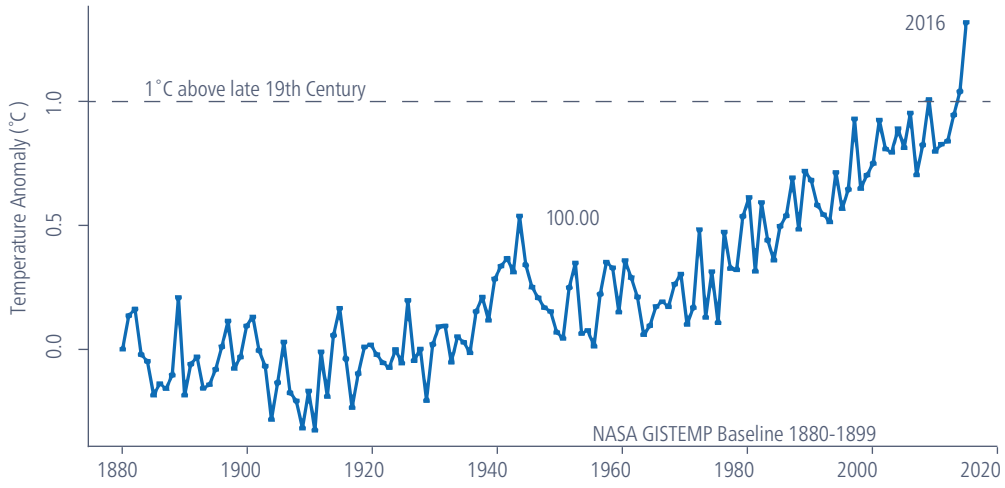
WE CONCLUDE THAT:

- As a result of the Paris Agreement there is likely to be an increase in climate-related regulation of buildings, even if the details of implementation remain largely absent at the moment.
- In order to "future-proof" their holdings against excessive depreciation or obsolescence, investors need to be aware of climate-related "regulatory risk" i.e. the risk that that changes in regulations might reduce the returns or increase the costs associated with holding an investment.
- There is growing academic evidence of a link between environmental characteristics of buildings and financial out-performance;
- The relative cost of green building appears to be declining and the cost premium for green building is less than many industry professionals believe. In many cases, both for new-builds and refurbishments, significant improvement in environmental performance can be achieved for relatively limited outlay;
- Reflecting the growing prominence of environmental, social and corporate governance (ESG) issues for investors, financial institutions and corporates generally, and over and above regulatory pressures, there is a growing demand for market-led initiatives that tackle climate change. This is important given uncertainty over how Paris will be implemented;
- The real estate industry already faces a large number of mandatory and voluntary initiatives which seek to respond to these market-led demands of investors and tenants. Initiatives that seek to provide more and better information on the environmental performance of buildings and portfolios are particularly prominent.

2016 SET TO BE THE WARMEST YEAR ON RECORD

According to NASA scientists, each month in the first half of 2016 set a record as the warmest month globally since records began in 1880. The six month period was the warmest half-year on record, with an average temperature 1.3 degrees Celsius warmer than the late nineteenth century. Although the recent El Nino effect has influenced recent readings, the long-term trend is clear, being driven by rising concentrations of carbon dioxide and other greenhouse gasses in the atmosphere.

Global Mean Surface Temperature (January to June)



Source: NASA/Goddard Institute for Space Studies, 19 July 2016

1. PARIS AGREEMENT A HISTORIC MILESTONE ON ROAD OF INCREASED CLIMATE REGULATION:

In what was a monumental feat of international diplomacy, the Paris Agreement on climate change was agreed by 195 UN member states on December 12th 2015. The key elements of the agreement are that:

- **All countries** will aim to reduce carbon emissions in order to limit the increase in global temperatures;
- Specifically, the aim is to limit global warming to **less than 2 degrees Celsius** above pre-industrial levels;
- Each country will determine its own contribution towards this goal but the agreement requires that national contributions should be "ambitious" and that they should **"represent a progression over time".**

Paris was historic for the unprecedented number of countries willing to sign up to a climate-change agreement. It was also encouraging for the active participation of China and the US, by far the world's largest emitters of greenhouse gases representing almost 40% of all emissions between them.

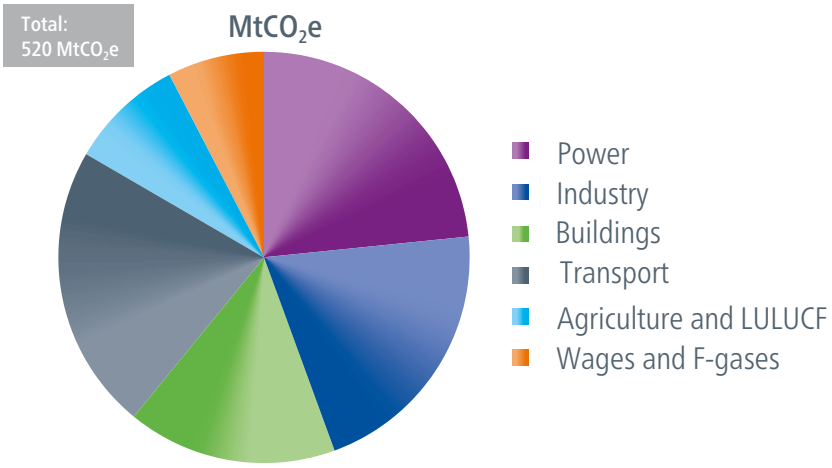
Nonetheless, there remains considerable uncertainty about how the Paris agreement will be implemented, what practical measures will countries take to meet the Paris targets and just how ambitious will those measures actually be? Uncertainty is particularly high for countries such as the US and China whose response to climate change so far has been relatively limited, where energy-use regulations are almost non-existent and where political support for major emissions curbs is unproven – witness for example Donald Trump's pledge to "cancel" the Paris Agreement if elected. Unsurprisingly, there is scepticism in some quarters over whether the measures enacted in some countries will actually live up to the Paris hype, especially should the global economic backdrop deteriorate.

By contrast, political support for climate regulation is well established in Europe and it is instructive to look at Europe's climate-change ambitions to get a sense of how things might progress globally if the political will can be maintained.

2. BUILDINGS HAVE A BIG ROLE TO PLAY IF PARIS TARGET IS TO BE MET:

Notable in Europe's climate response so far is the **EU's low carbon economy roadmap.** It aims to cut EU emissions by a massive 80% by 2050 compared to 1990's level with a 40% cut by 2030 and 60% by 2040. In order to achieve these goals, all sectors of the economy are required to make large emissions cuts – power generation, industry, transport, agriculture, construction and buildings[1].

Chart 1: Current UK emissions of greenhouse gases by origin (2014)



Source: Committee on Climate Change – The Fifth Carbon Budget, November 2015

The EU's explicit recognition that buildings have a role to play in climate change mitigation is unsurprising given how much emissions they generate. It is estimated that buildings account for c40% of the global consumption of raw materials and energy and that they account for at least 30% of world greenhouse gas emissions[2].

And, buildings are believed to offer a cost-effective means of reducing emissions. In fact, the Intergovernmental Panel on Climate Change believes that buildings offer the most significant opportunity for cost-effective emissions reductions[3].

As part of its low carbon roadmap therefore, the EU has set an extremely ambitious target of cutting emissions from houses and commercial premises by 90% by 2050[4]. In the UK the main direct source of emissions from buildings is fossil fuel based heating systems, particularly natural gas boilers. The biggest areas of focus for emissions reductions will include moving towards low emissions heating sources as well as improving the management and efficiency of building heating systems, insulation, glazing and lighting.

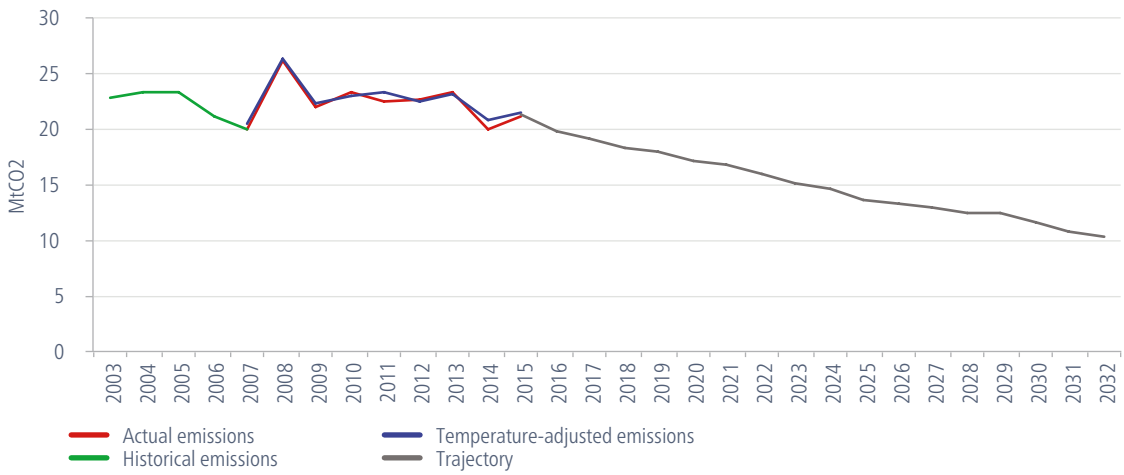
This paper is concerned primarily with commercial real estate although it should be noted that the majority of direct emissions come from homes rather than business premises. For example, residential buildings accounted for 74% of direct carbon emissions from UK buildings in 2014, compared with 16% for commercial and 10% for the public sector[5]. Anticipated emissions reductions are expected to be roughly evenly shared between residential and non-residential buildings.

[1] http://ec.europa.eu/clima/policies/strategies/2050/index_en.htm
[2] Green Value: Green Buildings, growing assets. RICS 2005.
[3] http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter6.pdf
[4] http://ec.europa.eu/clima/policies/strategies/2050/index_en.htm
[5] Committee on Carbon Change, Sectoral scenarios for the Fifth Carbon Budget, November 2015.

In order to progress towards these targets, the EU has already introduced a number of sustainability directives which target buildings. These include[6]:

- **Energy Performance of Buildings Directive:** Requires energy performance certificates (EPCs) to be exchanged when buildings are sold or leased;
- **Nearly Zero Energy Buildings:** Requires that all new buildings should be nearly zero-energy buildings by December 2020 or by December 2018 for buildings occupied and owned by public authorities - will have a big impact on building regulations in the EU's member states;
- **Energy Efficiency Directive:** Requires that 3% of the national public building stock should be renovated every year to accelerate the renovation of the existing building stock. The 2012 Directive establishes a set of binding measures to help the EU reach its 20% energy efficiency target by 2020.

Chart 2: UK non-residential buildings direct emissions - indicator tradjectory to 2032



Source: NAEI (2016), DECC (2016) Energy Trends, March 2016, DECC (2015) DUKES; CCC calculations.

WHAT IS A 'NEARLY ZERO-ENERGY BUILDING'?

The EU Energy Performance of Buildings Directive sets out the definition of a Nearly Zero-Energy Building as:

'a building that has a very high energy performance.... The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby'.

[6] Protecting Value in Real Estate. Institutional Investors Group on Climate Change, March 2013.

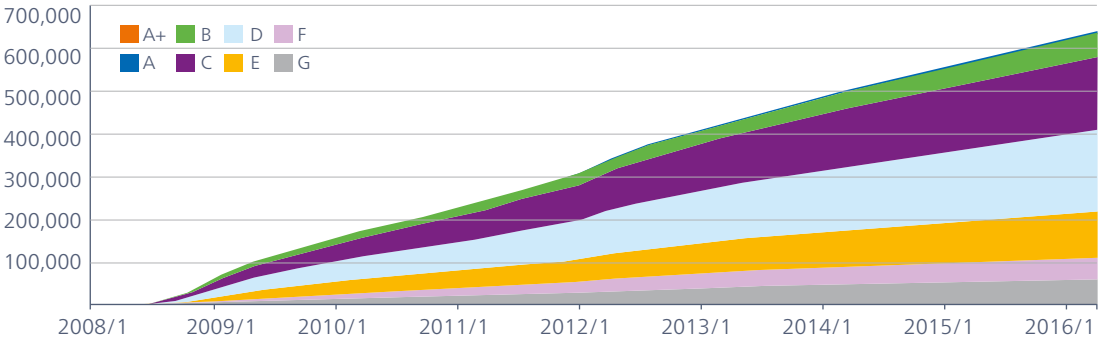
3. CLIMATE-RELATED "REGULATORY RISK" A GROWING ISSUE:

Measures such as these mean that the EU is among the leaders in terms of climate-related building regulations. And they show that "regulatory risk" is already an important issue in European real estate markets i.e. that changes in regulations have the potential to reduce the returns or increase the costs associated with holding an investment. Examples of how climate regulations might do this include:

- Changes to national building codes to require better environmental performance;
- The potential for banning inefficient buildings - this is already a live issue in the UK with the forthcoming Minimum Energy Efficiency Standards (MEES) regulations forbidding the letting of low-graded buildings;
- Mandatory disclosure of environmental impacts.

Clearly then investors in European real estate need to be aware of the changing regulatory backdrop in order to "future-proof" their holdings against excessive depreciation or obsolescence. And with the Paris Agreement likely to lead to increased building regulation in other countries, this looks set to be a growing issue in other markets too.

Chart 3: Cumulative Number of Non-Domestic EPCs lodged since 2008 in England and Wales by Rating



Source: ONS, June 2016

4. GROWING EVIDENCE THAT GREEN BUILDINGS CAN OUT-PERFORM:

While it may be tempting to see climate-related issues just as risks or costs, there is in fact growing evidence that more sustainable ("green") buildings tend to out-perform conventional properties. This may appear counter-intuitive at first so it is worth examining the mechanisms through which environmental attributes might generate financial out-performance. An influential academic paper suggests four means by which investment in green buildings could lead to financial benefits[7]:

a. **Lower operating costs** through lower use of current resources in terms of energy, water and waste disposal;

b. **Higher employee productivity** due to an improved work environment;

c. **Improved corporate reputation** for tenants which may generate benefits such as the ability to charge premium prices, attract a better workforce and attract investment;

d. Sustainable buildings might have a **longer economic life, lower volatility due to environmental risk and better marketability** - this should mean lower risk premiums and higher valuations.

While these individual drivers are difficult to isolate, if they do exist then they should show up in a number of ways that can be measured, notably:

- Higher rents, values and sales prices;
- Better tenant satisfaction, higher occupancy rates, higher tenant retention.

And there is a growing body of evidence that is indeed finding these results. The UN Principles for Responsible Investment association, for instance, has produced a review of the literature that argues strongly in favour of financial benefits for green buildings[8]. It reviewed 22 different academic studies from across the world and found that 16 showed a positive link between the environmental ratings of buildings and their financial performance through higher rents, values or sales prices[9].

In addition, a recent academic paper, published too late to be included in the PRI review, adds significantly to this body of evidence[10]. As well as finding that green-certified buildings out-performed conventional buildings both in terms of rents and occupancy, it also found significantly higher levels of tenant satisfaction in the green buildings as well as increased probability of rent renewals and lower tenant rent concessions.

While it is important to acknowledge that there are potentially some shortcomings in the research to date, this body of research is nonetheless a noteworthy recent development as it suggests that environmental developments are not just a cost or a risk but also offer a potential means of out-performance.

[7] Doing Well by Doing Good? Green Office Buildings. Eichholtz, Kok and Quigley, American Economic Review December 2010.
[8] The Environmental and Financial Performance of Buildings – A Review of the Literature. Principles for Responsible Investment Association, September 2012.
[9] Of the remaining 6, 4 were neutral and 2 found a negative relationship.
[10] Green Certification and Building Performance: Implications for Tangibles and Intangibles. Devine and Kok, Journal of Portfolio Management, 2015.

5. AND GREEN BUILDING MAY NOT BE AS EXPENSIVE AS MANY THINK:

Of course, environmental features in buildings come with increased up-front costs compared to conventional buildings and this needs to be factored in when looking at their potential out-performance. There is however evidence that the cost of green building is not as great as many industry practitioners believe.

> *"Many buildings could be improved by an extra grade at relatively little cost, less than 1% extra in most cases."*

For instance, the World Green Building Council reviewed the literature on actual design and construction costs for green buildings compared to conventional buildings[11]. Across the studies reviewed, it found:

- The reported actual cost premium for green building ranged from -0.4% to +12.5%;
- In general, the premium was proportional to the increased level of environmental certification achieved - the 12.5% premium related to a zero-carbon building project for instance;
- Over time, there has been a trend towards a reduction in the premium for green building, in part due to improved efficiency in green building but also due to increasingly strict building codes i.e. the cost of "conventional" building is rising.

Industry practitioners tend to believe, however, that the premium for green building is considerably more than this. One study found that most industry professionals believe the extra cost of green building is of the order of 10%-20%[12]. Interestingly, the more familiar the professionals are with green building, the lower their estimates. The World Green Building Council cites a study that showed that professionals with experience of green building estimated the premium at 13% on average while those with little experience in the area estimated it at 18%.

The above relate actual and perceived costs for new buildings. In the UK, the Investment Property Forum has also studied the cost of making energy efficiency improvements in existing buildings[13].
The IPF found that:

- As expected, buildings have become more energy efficient over time;
- However, most still have considerable room for improvement - a market standard refurbishment can improve the EPC rating by at least one grade for most buildings;

In some respects, these findings echo the research on new builds. In both cases, the cost premium rises with the level of certification. And both suggest that some improvements can be made at relatively low cost.

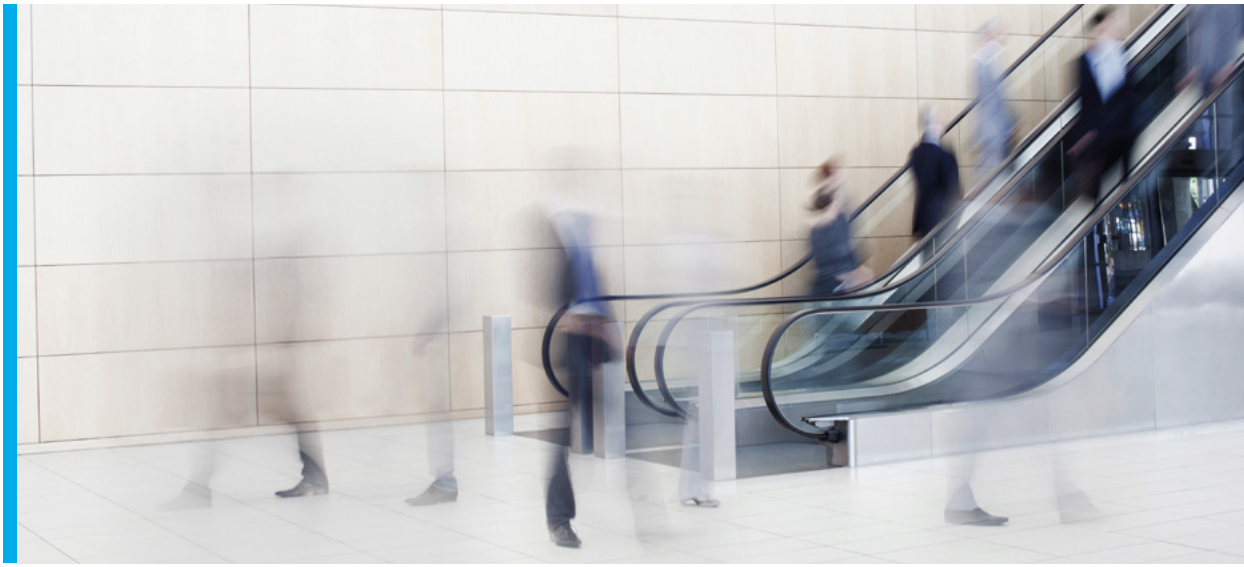
WHAT IS A 'GREEN BUILDING'?

There is no universally agreed definition of a 'green' building, largely because the concept covers very wide range of environmental and social considerations. Arguably the most important in the context of climate change is energy efficiency. In simplistic terms, an energy efficient building can be thought of as one that minimises the energy consumed in its fabric, construction, operation and use. The main influences on this will be the location, design, and choice of materials, components and management.

[11] The Business Case for Green Building. World Green Building Council, 2013.
[12] Ibid.
[13] Costing Energy Efficiency Improvements in Existing Buildings. IPF, October 2012.

6. MARKET FORCES ALSO A GROWING DRIVER OF CLIMATE-RELATED CHANGE ACROSS ASSET CLASSES:

While the Paris Agreement puts the spotlight on climate-related regulation as a driver of real estate markets, it is important to note that market forces too are driving an increased focus on the environmental performance of real estate. This is especially relevant given the uncertainty over the extent to which the Paris Agreement will be implemented in some countries as it suggests that climate change will continue to grow in importance, regardless of political will.



The increase in market-led initiatives on climate change comes as part of a growing emphasis on environmental, social and corporate governance (ESG) considerations on the part of investors, other financial institutions and corporates generally. It affects all asset classes. Examples of private-sector initiatives on climate change that demonstrate the growing market demand for environmental solutions include[14]:

- Pension fund allocation to low carbon and energy-efficient assets
- And a corresponding avoidance of high-emission sectors on the part of some investors;
- Financing of renewable-energy projects;
- Growing green bond market;
- Growth in measurement and reporting of carbon and climate change risk.

[14] Financial Institutions Taking Action on Climate Change. United Nations Environment Programme, 2014.

7. INCLUDING REAL ESTATE:

In a real estate context, investors and tenants are the major market actors that might demand an increased emphasis on environmental issues. The most environmentally-aware **investors** are increasingly seeking to[15]:

- Integrate environmental factors into asset allocation and stock selection decisions;
- Use environmental criteria to set minimum standards for fund or asset allocation;
- Integrate environmental factors into the management of portfolios and assets.

Tenants too are increasingly looking to manage the environmental impact of the properties they occupy to meet their corporate sustainability commitments and to retain and attract the best staff. There is growing momentum behind the notion of green buildings, health and wellbeing being linked to improved productivity. It is important that real estate investors and managers understand these trends as changing tenant preferences offer opportunities for out-performance as well as increased risk of obsolescence for some properties. **Green leases** are one way in which some landlords and tenants are coordinating their efforts to reduce the environmental impact of buildings. These are standard leases with environmental clauses added and can range from "light green" to "dark green" depending on the degree to which they require specific environmental standards to be met[16].

The initiatives of investors and tenants, as well as regulators, all share a need for information and transparency in measuring the environmental performance of buildings and portfolios. And a large number of industry initiatives are already well advanced which aim to provide the transparency that investors and tenants increasingly seek when making their real estate investment and leasing decisions.

These include:

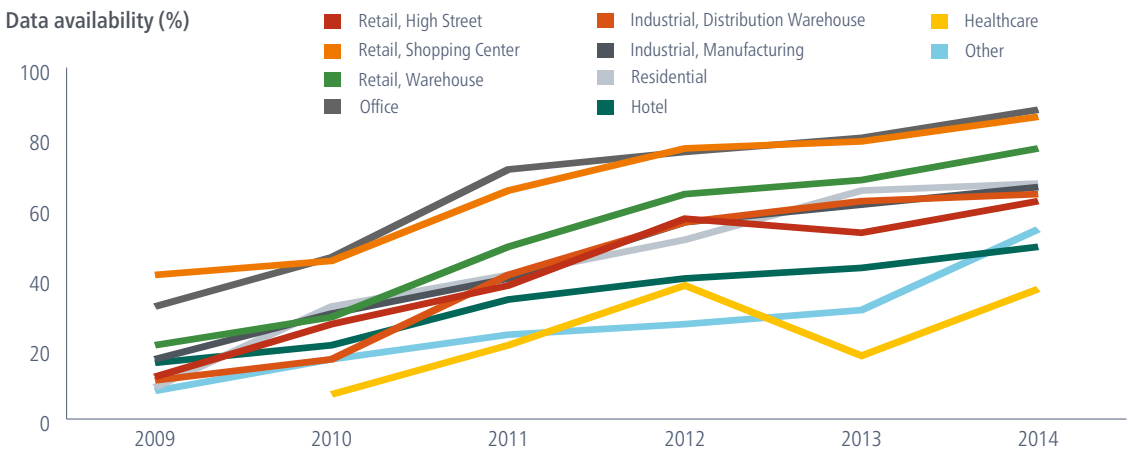
- **Green Building Certification and Benchmarking schemes, including:**
  - Global Real Estate Sustainability Benchmark (GRESB) – aims to assess and benchmark the sustainability of real estate portfolios to allow managers and investors to gauge the environmental impact of their investments;
  - LEED - Voluntary international certification scheme popular in the United States. Increasingly becoming a minimum standard in US state and local level regulation;
  - BREEAM - Voluntary international certification scheme popular in the United Kingdom;
  - Others include: BOMA, GreenStar, DGNB, HQE, NABERS, WELL Building Standard, Minergie.
- **Industry 'tool kits', including:**
  - Green Rating Alliance Green Rating Tool – provides a sustainability assessment of a property based on key performance indicators with the data gathered used to develop a benchmark on buildings' environmental performance;
  - Better Buildings Partnerships Toolkits – a UK initiative to provide practical toolkits to enable the uptake of sustainability in the built environment.

[15] Responsible Property Investment – What the leaders are doing, 2nd edition. UN Environment Programme Finance Initiative, 2012.
[16] Ibid.

- **Industry standards and reporting initiatives, including:**
  - Global Reporting Initiative Construction & Real Estate Sector Supplement (GRI CRESS); provides a global set of standardised indicators and reporting methodologies.

The chart below from GRESB shows how the scope and frequency of energy data monitoring is increasing across the global real estate sector. Over the past six years, data availability has increased across all sectors. The 2015 survey showed that, on average, 72% of GRESB participants are now able to report some energy data.

Chart 4: GRESB participants reporting energy data



Source: GRESB, 2015

8. AS REAL ESTATE INVESTORS/MANAGERS, WHAT SHOULD WE DO MORE OF?

As real estate investors and managers then, we need to be increasingly aware of the risks and opportunities associated with climate change as these have the potential to damage or enhance the long-term performance of real estate assets. There are practical measures that can be taken at all stages of the property investment process;

Asset allocation and stock selection:

- Aim to tilt portfolios towards greener buildings by perhaps;
  - Setting minimum environmental standards for fund or asset allocation;
  - Setting minimum environmental standards for investment in individual assets;
- In acquisitions and disposals, using green features of buildings as a value metric.

Portfolio and asset management:

- Assess existing portfolios to understand current performance and identify priorities;
- Identify environmental efficiencies that can drive operational cost savings such as low-cost energy saving measures;
- Integrate environmental standards within development and refurbishment projects to future-proof the assets;
- Seek to engage with tenants, architects, suppliers and contractors on green issues.

Tenant relationships:

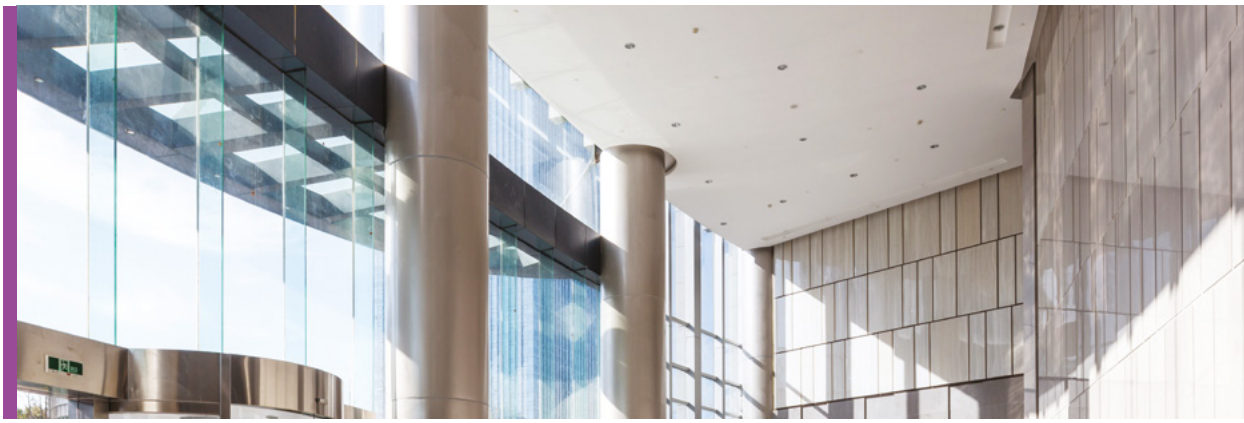
- Understand the environmental objectives of tenants;
- Highlight to tenants the ability of efficient buildings to lower occupancy costs and reduce environmental impacts;
- Improve tenant retention by providing more efficient space and facilitating positive relationships.

Client relationships and service delivery:

- Highlight green credentials to existing and prospective clients;
- Foster better collaboration and alignment of interests;
- Build upon the main industry initiatives already under way to provide more and better information on the environmental performance of buildings and portfolios;
- Understand better the role that technology can play in driving environmental improvements.

> *"Climate-related issues need to be at the forefront at all stages of the property investment process."*

9. CONCLUSIONS:



- The Paris Agreement is likely to lead to increased climate-related regulation of buildings, even if the details of how Paris will be implemented remain largely absent at the moment.
- In order to "future-proof" their holdings against excessive depreciation or obsolescence, investors need to be aware of climate-related "regulatory risk" i.e. the risk that that changes in regulations might reduce the returns or increase the costs associated with holding an investment.
- Climate-related issues are not just a risk, however, but also offer a potential means of out-performance. There is growing academic evidence of a link between environmental characteristics of buildings and financial out-performance.
- The relative cost of green building appears to be declining and the cost premium for green building is less than many industry professionals believe. In many cases, both for new-builds and refurbishments, significant improvement in environmental performance can be achieved for relatively limited outlay.
- Reflecting the growing prominence of environmental, social and corporate governance (ESG) issues for investors, financial institutions and corporates generally, and over and above regulatory pressures, there is a growing demand for market-led initiatives that tackle climate change. This is important given uncertainty over how Paris will be implemented.
- The real estate industry already has a large number of initiatives which seek to respond to these market-led demands of investors and tenants. Initiatives that seek to provide more and better information on the environmental performance of buildings and portfolios are particularly prominent.
- As real estate investors and managers we need to be increasingly aware of the risks and opportunities associated with climate change as these have the potential to damage or enhance the long-term performance of real estate assets. There are practical measures that can be taken at all stages of the property investment process.

WHAT AVIVA INVESTORS REAL ESTATE IS DOING

We regard the consideration of environmental, social and governance (ESG) issues and their impact on real estate investment as an essential part of our fiduciary duty to our clients.

We also believe that good ESG practices will deliver enhanced future returns with a lower risk profile for our clients. That's why we embed ESG best practice in all areas of our investment process from new acquisitions and held assets through to indirect investments and partnerships.

In 2015, no less than ten of our funds were awarded 'Green Stars' by the Global Real Estate Sustainability Benchmark (GRESB) survey

New investments

For new investments we commission detailed environmental surveys as part of our due diligence process. Our approach to new investments helps us to mitigate any unnecessary or unexpected capital costs that would otherwise reduce returns. We look for Environmental and Social Governance (ESG) risks by assembling reports on issues such as food risk, environmental sensitivity and contamination.

If we identify an environmental risk, we will conduct further due diligence. At this stage, we still have the opportunity to withdraw from an investment and will do so if our concerns cannot be addressed. Our investment transaction process also gives consideration to a building's Energy Performance Certificate(s) rating, any sustainability ratings such as BREEAM, as well as the investment's compatibility with our Responsible Property Investment Policy. We also carry out governance and financial crime checks.

Existing investments

We take a proactive approach to improving the environmental performance of existing buildings we manage. Aviva Investors has operated an Environmental Management System (EMS) across the UK and Continental Europe since 2010 and 2011 respectively. An EMS is a framework for monitoring and managing an organisation's environmental impacts. The EMS is run with support from Aviva Investors Managing Agents and sustainability consultant. A Sustainability Charter requires our Managing Agents to manage their properties in a sustainable way and promotes the roll-out of sustainability initiatives at individual buildings and across portfolios.

Case study: One Southampton Street

Aviva Investors recently undertook a major refurbishment of One Southampton Street, an eight-storey office building in London's Covent Garden. The project was awarded, what was at the time, the highest ever BREEAM (Building Research Establishment Environmental Assessment Method) rating for an office refurbishment.

The building was reaching the end of its economic life and a comprehensive refurbishment was required. Meanwhile, there was a commercial opportunity to take advantage of Covent Garden's increasing attractiveness as an office location, especially to Mayfair occupants attracted by more affordable rents and the more cosmopolitan location.

While the Strand Conservation Area regulations restricted us from creating any additional floors, we were able to convert the building's light well to floor space, thereby maximising the lettable floor area while retaining its existing frame and façade. The sustainable aspects to this refurbishment included the following:

- The replacement of windows, lifts and the air conditioning system, that brought the building up to the Energy Performance Certificate 'B' standard
- Incorporating sector controlled air conditioning, movement-sensitive lighting, bike racks, showers and electricity sub-meters on each floor to enable more detailed monitoring of energy consumption
- Smaller initiatives including low use taps, daylight dimming sensors and a 'green' rooftop featuring wild flowers and bees
- Good planning and execution through committing to the Considerate Contractor Scheme, adopting an active site waste management policy where 97 per cent of waste was diverted from landfill and creating a building user guide for new tenants

Targeting BREEAM 'Excellent' gave us a building that helps occupiers meet their sustainability requirements and reduces occupational costs. From an investment perspective, it also bolstered marketability and reduced obsolescence risk. At launch, we were able to advertise the letting at £65 per square foot – an improvement of some 20 per cent on our expectations when we first undertook the project.

NOTES

AVIVA INVESTORS

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