Investor Expectations for listed Real Estate Companies:

Background on real estate sector developments

This document provides technical background information to accompany the *Investor Expectations Guide for listed Real Estate Companies*, which can be found on www.iigcc.org/resources

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Contents

1. Executive Summary

This document is a background paper on real estate sector developments, complementing the shorter *Investor Expectations for Listed Real Estate Companies* which aims to underpin investor engagement and voting with the boards and management of real estate companies.

Overview:

- The real estate sector is responsible for more than a third of total global greenhouse gas (GHG) emissions. The sector has therefore been an increasingly important focus of climate-related regulation. It is also acutely exposed to both the physical and transitional risks of climate change.

Climate change pathways:

- Predictions of significant increases in both densification and total floor area of real estate over the coming decades requires the industry to decouple growth with GHG emissions. The use of data with targeted actions, should be integral for real estate companies to demonstrate to their investors that they are reducing emissions and climate risks.
- For instance, the CRREM[1] initiative concluded that the EU real estate sector will need to decarbonize by 91% by 2050 in order to align with the 1.5-degree Scenario. Pathways will be developed by February 2020.

Policy landscape and disclosures:

- An increasing number and strength of regulations, policies and market led initiatives aim to accelerate decarbonisation by property companies. This materializes into a transition risk and obsolescence risks for property owners. Would this be desirable for investors? What is the evaluation/ is it efficient or not what are the new trends in terms of content?
- Green building certification schemes are used by real estate companies to demonstrate the green credentials of assets in their portfolio. But with over 200 different rating schemes it has become difficult to arrive at aggregated comparable figures. However, less than 20% of global institutional real estate (by floor space) is certified. The largest certification schemes in the market can play a role in helping the market to combat climate change provided that investors share their expectations with companies. The number of reporting standards is limited. GRESB is most commonly used reporting standard in the listed real estate industry.

Physical risk assessment, management and disclosure:

- Physical climate impacts are already impacting real estate assets. A growing but still small number of real estate companies and investors are using a variety of tools and GRESB's Resilience Module to start assessing and disclosing their risks and management efforts. All companies will likely face stronger investor expectations and disclosure regulations such as adopting insurance sector type metrics of 1 in 100 year value at risk from physical impacts.

Key recommendations:

- Building on the TCFD, we recommend a set expectations and questions for investors to use within their engagement meetings with real estate company board members and sustainability experts.

[1] CRREM 2019 https://www.crrem.eu/stranding-risk-carbon/

2. Glossary

BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Method
CapEx	Capital expenditure
CO2	Carbon dioxide
COP21	21st Conference of the Parties, where the Paris Agreement was achieved
EBRD	European Bank for Reconstruction and Development
EPRA	European Public Real Estate Association
ESG	Environmental, social and governance
EU	European Union
GCA	Global Commission on Adaptation
GHG	Greenhouse gas
GRESB	Non-profit initiative assessing and benchmarking ESG performance of real estate assets, providing standardized and validated data to capital markets
GRI	Membership organisation for real estate and infrastructure companies
GtCO2e	Gigatons of equivalent carbon dioxide
IEA	International Energy Agency
IIRC	International Integrated Reporting Council
LEED	Leadership in Energy and Environmental Design, a green building rating program
NDC	Nationally Determined Contribution, a domestic climate change mitigation and adaptation plan pledged to the Paris Agreement by a national Government
PRI	Principles for Responsible Investment
REIT	Real estate investment trust
Scope 1/2/3 emissions	Scope 1: direct emissions from an organisation's activities, or under their control. Scope 2: indirect emissions from electricity purchased and used by the organisation. Scope 3: all other indirect emissions from activities of the organisation, occurring from sources that they do not own or control.
TCFD	Taskforce on Climate-related Financial Disclosures
UN	United Nations
UNEP	UN Environment Programme
WBCSD	World Business Council For Sustainable Development
WGBC	World Green Building Council

3. Introduction

The historic achievement of the Paris Agreement in 2015 was strongly welcomed by institutional investors, in recognition of the significant impact that climate change will have on holdings, portfolios and asset values in the short, medium and long term. The national commitments which underpin the Paris Agreement, as well as its over-arching goal to limit global temperature rises to well below 2°C, imply a need for a low-carbon and climate-resilient transition across all sectors. Investors are acutely aware of the need to understand and manage these transition and physical risks, as well as look to exploit the many opportunities presented by new climate-friendly technologies, business models and markets.

The real estate sector is of particular concern, given its significant contribution to global emissions as well as it representing trillions of dollars of market capitalisation. In parallel, investors also recognise the role of real estate from a social and economic viewpoint, and the unique challenges facing the sector in terms of both mitigating and adapting to climate change. Given that business and capital allocation decisions being made now will determine the future sustainability and profitability of the sector, investors will look to the Boards and management of major real estate companies to ensure that these decisions are in the long-term interests of their investors.

This first Investor Expectations Guide for Listed Real Estate Companies therefore aims to underpin investor engagement and voting with the Boards and management of real estate companies. It seeks to set out the background information and key questions to allow for constructive engagement, in order for investors to fully understand how companies in this sector are governing and managing the risks and opportunities associated with a 1.5°C trajectory. This guide sets out investor expectations for company climate strategies, drawing from and building on the recommendations of the Financial Stability Board's Taskforce on Climate-Related Financial Disclosures (TCFD)[2].

This is one of a number guides produced by IIGCC members to support productive engagement with investee companies across sectors including oil and gas, automotive, electric utilities, mining, steel, construction materials and investor expectations on corporate lobbying[3].

[2] TCFD (2017), Recommendations of the Task Force on Climate related Financial Disclosure, https://www.fsb-tcfd.org/publications/final-recommendations-report/

[3] IIGCC (2019), Resources, https://www.iigcc.org/resources/

4. The property sector – an overview

The world is now urbanized and the growth of city dwelling is a trend that is set to continue. The UN estimates that half the world's population currently lives within urban areas and this will reach two thirds of the global population by 2050; an increase of 2.5 billion people. Close to 90% of the increase will take place in Asia and Africa, however it is notable that European urbanisation is expected to rise from 80% to 87% by 2050, representing an additional 35 million city dwellers (Europe's largest city, London, has a population of approximately 8 million).

The growth will create demand for real estate within cities with a predicted 66% increase in floor space by 2050; a welcome marker to some investors in an increasingly uncertain global economy. However, as cities account for 60-80%[4] of global energy consumption, growth cannot continue unabated if the mandatory energy efficiency and carbon reduction targets, existing at both national and local level in some jurisdictions are to be met.

a. Greenhouse gas emissions trends

Despite commitment to tackle climate change at COP21, global greenhouse gas (GHG) emissions continue on an upward trend, jumping to an all-time high in 2018[5].

Good practice, however, has been seen in some regions[6]. For example, in Europe, GHG emissions were down 22% in 2017 from 1990 levels and by 13% in the US from a peak in 2005. However, the reverse has been seen in the emerging economies of Asia and Africa. The real estate sector accounts for more than a third of global final energy use and nearly 40% of GHG emissions[7]. The EU funded CRREM[8] initiative concluded that the EU real estate sector will need to decarbonize by 91% by 2050 in order to align with the 1.5-degree Scenario. Carbon reduction requirements for developing economies may differ.

Not only is real estate a significant contributor to climate change, it is also a sector that is highly exposed to the risks of climate change; both physical and transitional. One estimate is that 35% of REIT properties globally are geographically exposed to climate hazards, including inland flooding (17%), typhoons or hurricanes (12%), and coastal flooding and sea-level rise (6%)[9].

A key challenge for energy efficiency investments in commercial buildings is that investment decisions are often based on short-term time horizons and there can be a split incentive between the owner and the occupier – meaning the occupant, not the owner, usually pays the energy bills, reducing the direct financial incentive for building owners to undertake renovation works. However, as carbon and energy efficiency regulations tighten, there is also an opportunity for building owners to act to demonstrate that their assets are on course for a 1.5^{O}C compliant pathway.

[4] European Commission ( ) https://ec.europa.eu/clima/policies/international/paris_protocol/cities_en
[5] Global Carbon Project (2019) https://www.globalcarbonproject.org/carbonbudget/
[6] IEA (2019) https://www.iea.org/statistics/co2emissions/
[7] IEA (2018)Global Alliance for Buildings and Construction Status Report
[8] CRREM 2019 https://www.crrem.eu/stranding-risk-carbon/
[9] Four Twenty Seven and GeoPhy October (2018), http://427mt.com/wp-content/uploads/2018/10/ClimateRiskRealEstateBottomLine_427GeoPhy_Oct2018-4.pdf

b. Smart meter technologies and monitoring

A fundamental requirement for meeting a 1.5^{O}C compliant pathway is the need for real estate companies to understand current levels of building performance, from an energy and carbon perspective, and to then set, implement and monitor long term-carbon reduction strategies for their assets. Data is central to success.

The appetite, availability and, crucially, affordability of data is greater than ever. Where applied correctly, data plays a pivotal role in delivering benefits such as:

- Reduced costs and improved energy efficiency
- Demonstrable improvement in carbon emissions
- Improved resilience of building services
- Compliance with current and future legislation
- Improved productivity and health and wellbeing of building occupiers
- Improved marketability of the property

Energy meters are in place, at some level, for most buildings; however, the infrastructure to easily extract data for building analytics and performance improvement is fragmented and missing in many markets.

To this end, the European Commission set up the Smart Grids Taskforce[10] in 2009 to help drive forward a goal to replace 80% of electricity meters (both household and commercial) with smart meters by 2020; current progress forecasts coverage of 72% for electricity and 40% for gas meter by 2020[11]. In addition to policy drivers, market responses for improved metering infrastructure have also been seen through initiatives such as GRESB, BREEAM and LEED providing higher performance scores to assets and portfolios with increased coverage of smart meters.

c. Buildings data to enhance climate change mitigation and energy efficiency

The value of building data is only beginning to be realised, and utilised, by the industry. Innovation is helping to slice through the complexity of data analytics and the trend is moving from a position of retrospective descriptions (what did happen), towards diagnostics (why it happened), predictive (what will happen) and ultimately prescriptive (what should happen).

The use of algorithms and machine learning to optimise performance will undoubtedly increase, and there are a number of exciting examples of PropTech[12] property technologies. While leading edge innovation is necessary, it is also important to state that getting the basics right should not be forgotten; significant savings can often be achieved, at no additional cost, through aligning building operation with occupant needs and following good practice guidance.

Investors should expect increasingly stringent requirements to disclose climate change mitigation strategies, risks, opportunities and impacts through frameworks including TCFD, GRESB and EU

[10] European Commission (September 2014), https://ec.europa.eu/energy/en/topics/market-and-consumers/smart-grids-and-meters/smart-grids-task-force

[11] https://ec.europa.eu/energy/en/topics/market-and-consumers/smart-grids-and-meters

[12] European Commission (July 2014), Part of a wider digital transformation in the property industry, PropTech considers the technological and mentality change of the real estate sector to attitudes, movements and transactions involving both buildings and cities

disclosure rules for asset managers[13]. Leaders in this field are expected to benefit from first mover advantage, whereas others may see costs increase by 0.25%-2% depending on their ESG capabilities, with margins likely to come under pressure[14].

The logical next step from smart meters and sensors is the creation of smart buildings, where data is used to deliver optimal performance – ideally via autonomous processes. However, this evolution requires the industry to think about the solution as a whole, and will require buildings to draw on a mix of solutions including on-site renewables, energy storage, demand and frequency response technologies.

[13] European Commission (March 2019), http://europa.eu/rapid/press-release_IP-19-1571_en.htm
[14] IPE (March 2019), https://www.ipe.com/news/asset-managers/moodys-eu-disclosure-rules-could-benefit-asset-manager-esg-leaders/

5. Climate change pathways in the property sector

a. A well below 2°C scenario for the property sector

The greenhouse gas (GHG) emissions from the real estate sector account for more than a third of total global final energy use – growing by 5% since 2010 as growth in floor area and population has exceeded an 11% improvement in energy efficiency – and nearly 40% of GHG emissions[15]. With the International Energy Agency (IEA) predicting a further 60% growth in floor area by 2040, this trend is likely to continue[16]. While annual greenhouse gas emissions have stabilised at around 9.5 GtCO2e[17], following a 2-degree compliant pathway would require greenhouse gas reductions of 35-80% by 2050[18] - or some 3.3 to 7.6 GtCO2e.

GHG emissions in the real estate sector come from two sources: direct energy consumption (scope 1 and 2) and emissions embodied in building materials and relating to tenant-procured energy (scope 3). Globally it is estimated that 72% of building sector emissions are the result of energy use and 28% are from materials[19]. As a result, most measures aiming at reducing GHG emissions are based on the reduction of energy consumption given the control that the sector actors have on demand.

The CRREM[20] initiative concluded that the EU real estate sector will need to decarbonize by 91% by 2050 in order to align with the 1.5°C scenario (significantly more effort than the IPCC's estimation of a 35-80% emissions reduction to achieve the 2°C scenario). CRREM has since expanded into an international initiative developing pathways for use by all institutional real estate markets globally, including residential assets.

The substantial reduction required to achieve a 2-degree pathway has different implications for developed and emerging economies. The real estate sector in developed markets consists mostly of existing buildings, while the focus in developing economies is on new building construction.

In developed economies, the emissions resulting from the construction are already present as much of the building stock already exists. For example, the UK Green Building Council estimates that 80% of the buildings in use in 2050 have already been constructed[21]. In this situation the opportunity for greenhouse gas reduction is through improving buildings' operational performance and retrofitting the existing building stock to be more energy efficient through increased insulation, energy-efficient appliances, increased reliance on renewable energy, and improved energy management practices. However given the costs involved in retrofitting, the ease with which costs can be passed on to consumers will be crucial in determining the pace at which this trend can proceed.

In emerging and developing markets, the building stock is rapidly expanding. This presents two opportunities to reduce emissions. First, emissions from future energy consumption can be minimised by energy efficient design and construction, as well as by electrification of buildings. This can partially be achieved through improving and enforcing efficiency standards at the regulatory

[15] International Energy Agency (2018), Global Alliance for Buildings and Construction *Global Status Report*
[16] International Energy Agency, Feb 2019 "Energy Efficiency: Buildings" www.iea.org/topics/energyefficiency/buildings/
[17] International Energy Agency (2018), Global Alliance for Buildings and Construction *Global Status Report*
[18] IPCC "Summary for Policymakers" *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2014)
[19] Architecture2030 "Why the Building Sector?" https://architecture2030.org/buildings_problem_why/ (accessed Feb 2019)
[20] CRREM (2019) https://www.crrem.eu/stranding-risk-carbon/
[21] UK GBC (Feb 2019), "Climate Change" https://www.ukgbc.org/climate-change/

level. For instance, India has formally adopted International energy codes, but enforcement is weak[22].

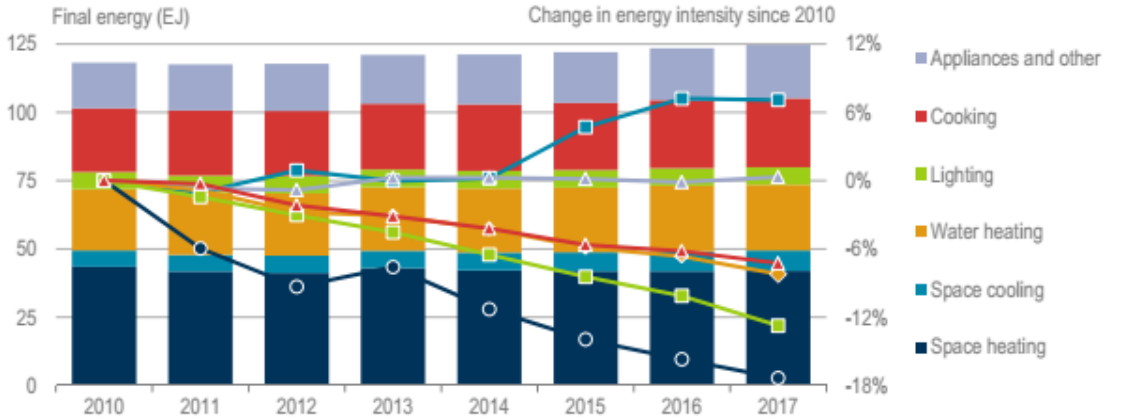
Second, the embedded carbon can be minimised by the smart use of materials, selection of low carbon building materials, reuse of buildings rather than demolition and new construction, and improvements in carbon efficiency by component manufacturers.

b. Impact of enhanced building envelopes, materials and technology

These construction and retrofitting ambitions need to be balanced with the cost-effectiveness of sustainable materials, renewable energy and energy efficient appliances.

The falling costs of renewable energy promises to help drive a cost-efficient transition, but digitalisation in the energy market might prove to be even more of a disruptive factor via the use of smart meters, improved data collection and demand response. As grid efficiency increases, by regulating better both the demand and supply sides, the costs of energy will keep falling and possible economies of scales will increase. This is, however, conditional on certain dynamics in the power sector, and therefore, largely outside the control of actors in the property sector. Instead, the focus is on reducing the overall energy demand – which, in combination with GHG emissions reductions in energy production, will align to a below 2-degree scenario.

The energy demand in the property sector is divided into a handful of end-uses, many of which are closely related to each other. The regulation of space temperature, lighting, and appliances, constitute most of this end-use, and the technology needed to achieve the potential reduction is largely available already.



Notes: *Energy intensity* is final energy per unit floor area. *Appliances and other* includes household appliances (e.g. refrigerators, washers and televisions), smaller plug loads (e.g. laptops, phones and electronics) and other services equipment.

Figure 1: Global building final energy use and change in intensity, 2010-17[23]

Heating and cooling - More than half of a buildings' energy use is the result of demand for space and water heating and cooling. Renovating building envelope to decouple interior and exterior temperatures and lower demand for space conditioning will play a critical role in achieving GHG reductions.

[22] PNNL 2014 https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-23217.pdf
[23] International Energy Agency for the Global Alliance for Buildings and Construction *2018 Global Status Report* (2018)

Choice of heat source and corresponding technology developments can also help achieve energy efficiency improvements. In particular, the efficiency of space heating technology can vary greatly; for example, in the United States the minimum regulated efficiency for a natural gas furnace is 75% - though over a quarter of 2017 sales were ENERGY STAR compliant, meaning they have an efficiency of at least 90%[24]. Divergence from fossil fuel derived energy sources, such as natural gas, in favour of electrified heating systems also enables building operators to purchase energy from renewable sources.

Energy demand from space cooling will become even more relevant over the next decades as the building stock in emerging economies keep expanding. In the period between 2010 and 2017, the energy use for space cooling increased by 71% in China and by 42% in India, as living standards and temperatures keep climbing. Improved energy efficiency globally, along with a stable cooling energy consumption in developed markets, would offset the increasing demand in emerging markets.

Lighting - Lighting energy is an important end use of energy in real estate, particularly in commercial buildings. It is also an example of where technological development can yield the most drastic changes in energy consumption patterns. For example LED lighting, whose energy consumption is significantly lower than traditional incandescent lighting, accounted for more than 33% of global residential lighting sales in 2017.

Appliances - A considerable opportunity for energy savings also lies with appliances. For instance, the IEA estimates that $20 billion could have been saved if everyone had purchased the top 10% most efficient refrigerators[25]. However this end-use relies particularly on investments by the consumer, rather than by sector actors.

From an investor's perspective, it is sensible to focus on the renovation of envelopes to increase thermal efficiency and decrease demand for space cooling and heating as there is growing empirical evidence that energy efficiency building and retrofitting prove to be profitable in the long term through the addition of a premium to rents and asset prices[26]. While requiring larger up-front investments than updating appliances or lighting, this investment will have long-lasting consequences for a building's energy performance and drive the emissions reductions required to meet a 2-degree climate scenario.

[24] Energy Star (2018), *ENERGY STAR Unit Shipment and Market Penetration Report 2017 Summary*
[25] International Energy Agency (2018), "Energy Efficiency 2018: Analysis and outlooks to 2040" https://www.iea.org/efficiency2018/
[26] Eichholtz, P., Kok, N. & Quigley, J.M. (2013). The economics of green building. *The review of Economics and Statistics*, *95*(1).; Deng, Y., & Wu, J. (2014). Economic returns to residential green building investment: The developers' perspective. *Regional Science and Urban Economics*, *47*.; Chegut, A., Eichholtz, P., & Kok, N. (2014). Supply, demand and the value of green buildings. *Urban Studies*, *51*(1), 22-43.

6. Transition risks: Regulations, stakeholder initiatives, investment requirements and split incentives

Low carbon transition risk for real estate assets include potential obsolescence and depreciation because of changing legal regulations and practice and preference from investors and occupiers. These changes are driven by an increasing volume of rules, standards and market led initiatives aimed to mitigate the energy and climate footprint of the sector. Transition risks have started to materialise since the property sector began adopting ambitious sustainability targets following the Paris Agreement. A large majority of the Nationally Determined Contributions (NDCs), or carbon reduction pledges, submitted by countries during the negotiation of the Paris Agreement include the building sector: out of 192 NDCs, 132 explicitly mention property[27].

According to the IEA the majority of the policy efforts across the world have concentrated on the buildings energy use. In 2017, 38% of building energy use was covered by some sort of policy or regulation, and that this was an increase from 28% in 2010[28].

Growing climate and energy regulatory pressure are changing the way the property sector operates. Regulation efforts have been deployed across different jurisdictions. In addition, market led initiatives are setting new standards to positively influence the sector's environmental footprint. For example, power purchase agreements: off-site renewable energy has traditionally been sourced via energy providers enabling corporate customers to sign up to green tariffs; however, there is often no guarantee of origin from the generator. Direct power purchase is an alternative and the agreement can provide assurance on the source of the energy while also providing security of demand for the supplier.

a. Regulations

In Europe, the European Commission introduced in 2010 the Energy Performance of Buildings Directive (EPBD[29]) to reduce the energy and carbon footprint of the sector. In July 2018, the revised EPDB entered into force. This directive supports cost-effective renovation aiming to decarbonise the building stock by 2050; it promotes the deployment of smart technologies to automate devices regulating temperature; and it contributes to the development of e-mobility by introducing the requirement to install charging stations for carparks of a certain size.

Some member states have put in place policy actions based on the data gathered through energy performance certificates. For example, in October 2019 the UK government published its future trajectory for Minimum Energy Efficient Standards (MEES) for non-domestic commercial buildings. The consultation follows earlier UK commitments to achieve net zero carbon emissions by 2050. Under the current consultation the government propose a new plan to raise the minimum EPC rating from 'E' to 'B' by 2030[30].

85% of existing commercial buildings in England and Wales would need improvements to achieve the EPC band B target, with investment costs up to £5 billion.

[27] International Energy Agency (2018), Global Alliance for Buildings and Construction *Global Status Report*
[28] IEA (2016), "Energy Efficiency Market Report" p.81
[29] https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings
[30] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/839362/future-trajectory-non-dom-prs-regulations-consultation.pdf

Offices in the Netherlands need to have a minimum energy label C by 2023 or they cannot be let[31]. Germany plans a national carbon emissions trading system covering the transport and buildings sector in 2021 with the allowance price increasing from €10/tonne in 2021 to €35/tonne in 2025[32].

Countries from outside the EU have been actively updating their building codes and energy certificates, as well as creating incentives. In 2016, China introduced the National Standard for the Energy Consumption of Buildings, requiring the monitoring of energy indicators for new and existing buildings. India updated its Energy Conservation Building Code, which encourages passive design strategies and the installation of clean energy systems, but enforcement is weak[33]. In the US, the key building energy efficiency policies are set at the state level. Most of the states with major real estate concentrations have adopted energy codes equal to or better than the relevant 2013 standard set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers[34].

Likewise, for retrofitting in the US the main driver is state energy efficiency resource standards, which show a similar pattern[35]. New York City passed a new law (Local Law 97) capping carbon emissions per square foot of building space by 2024 and 2030. Buildings whose carbon intensity is beyond the cap will have to pay a penalty (USD 268 per tCO2)[36]. In Canada, the Alberta government started charging carbon levy[37] on all carbon emissions, at a rate of $20/tonne in 2017 and $30/tonne in 2018, action that could have material impact on Canadian REITs operational income.

Australian government and industry established the National Carbon Offset Standard for Buildings (NCOS)[38]. This is a voluntary standard to manage greenhouse gas emissions and to achieve carbon neutrality. It provides best practice guidance on how to measure, reduce offset, report and audit emissions that occur as a result of the operations of a building. This must be certified by NABERS (National Australian Built Environment Rating System) system developed in 1998[39].

Australia has a similar program to the US PACE scheme that is widely known as Environmental Upgrade Finance (EUF). Three of Australia's eight states and territories have enacted EUF legislation covering over 60% of Australia's population, including its two largest cities Melbourne and Sydney. Singapore has an ambition to have 80 per cent of its buildings certified as sustainable under its Green Mark scheme by 2030. India also has introduced a net-zero building framework.

Tokyo also has the Carbon Reduction Reporting for Small and Medium Entities (CRR) that mandates the annual reporting of CO2 emissions for existing small and medium-sized facilities in the Tokyo metropolitan. These facilities comprise some 60% of total CO2 emissions in Tokyo's industrial and commercial sectors. In addition to the mandatory component, CRR has succeeded in attracting a

[31] RVO (March 2019). https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/gebouwen/wetten-en-regels-gebouwen/energielabel-c-kantoren
[32] Clean Energy Wire (September 2019), "Germany bets on slow-starting CO2 price, slew of incentives to reach 2030 climate goals"www.cleanenergywire.org/news/german-government-reaches-agreement-climate-strategy-co2-pricing
[33] PNNL (2014) https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-23217.pdf
[34] US Department of Energy (2019) https://www.energycodes.gov/status-state-energy-code-adoption
[35] ACEEE (2019) https://aceee.org/topics/energy-efficiency-resource-standard-eers
[36] Code Green Solutions (2019) https://www.codegreensolutions.com/nyc-carbon-emissions-bill-passed-into-law-local-law-97-what-it-means-for-commercial-building-owners/
[37] Alberta Carbon Pricing, https://www.alberta.ca/climate-carbon-pricing.aspx
[38] https://www.environment.gov.au/climate-change/government/carbon-neutral/ncos
[39] https://www.nabers.gov.au/

large number of voluntary submissions from facilities keen to monitor annual emissions and compare to industry benchmarks.[40]

b. Stakeholder initiatives

The private sector has actively called for action to transform the property sector. In 2017, the World Green Building Council (WGBC)[41] suggested that green buildings meet the goals of the Paris Agreement by requiring all new buildings to be net-zero carbon by 2030. In addition, it proposed all existing buildings be net-zero carbon by 2050. Currently, just 0.01% of the total building stock can be considered net-zero carbon[42].

Moreover, 26 cities and 6 states and regions, have committed to cut greenhouse gas emissions in new and existing buildings following the WorldGBC's net-zero Carbon Building Commitment. These cities have established a roadmap for action, including, developing incentives for energy retrofits, and measuring progress annually and reporting accordingly[43].

At the UN The "Three Percent Club"[44] – a coalition of countries, businesses, and institutions – commit to putting in place more ambitious energy efficiency policies and working to drive a 3 percent annual global increase in energy efficiency, a target necessary to meet global climate goals while enhancing economic prosperity in all countries.

TCFD and the property sector

In July 2017, the Financial Stability Board's Taskforce on Climate-related Financial Disclosures (TFCD) issued recommendations for the disclosure of climate-related risk by all companies. The TFCD issued supplementary guidelines for the property and other real asset sectors.

A group of twenty pension funds, insurers and asset managers working with UNEP FI on a pilot project for implementing the TCFD[1]. Each member of the Investor Pilot Group was able to analyse at least one portfolio and trial different scenarios—the results of which some investors explored in case studies, including for real estate physical and transition risks.

c. Investment requirements for the sector's low-carbon transition

The Carbon Risk Real Estate Monitor (CRREM) is developing a property type-specific model for global commercial and residential real estate decarbonisation. CRREM[45] concluded that the sector will need to decarbonize by 91% by 2050 in order to align with the 1.5-degree Scenario. Preliminary analysis of GRESB participants that disclose asset data found that by 2030, nearly 30% of office, retail, hotel and healthcare portfolios could be stranded, which could rise to 74% by 2050[46].

[40] Urban Efficiency II(C40 Cities) Japan Case Study https://www.c40.org/case_studies/urban-efficiency-2-carbon-reduction-reporting-program
[41] WorldGBC (2019), Net Zero Carbon Commitment, http://www.worldgbc.org/thecommitment
[42] WorldGBC (Sept 2019) https://www.worldgbc.org/advancing-net-zero
[43] https://www.worldgbc.org/thecommitment
[44] Global EE Alliance (Sept 2019) https://eeglobalalliance.org/news/new-global-effort-on-climate-change-targets-3-increase-in-energy-efficiency-per-year
[45] CRREM (2019) https://www.crrem.eu/stranding-risk-carbon/
[46] GRESB 2019 https://gresb.com/2019-real-estate-results/

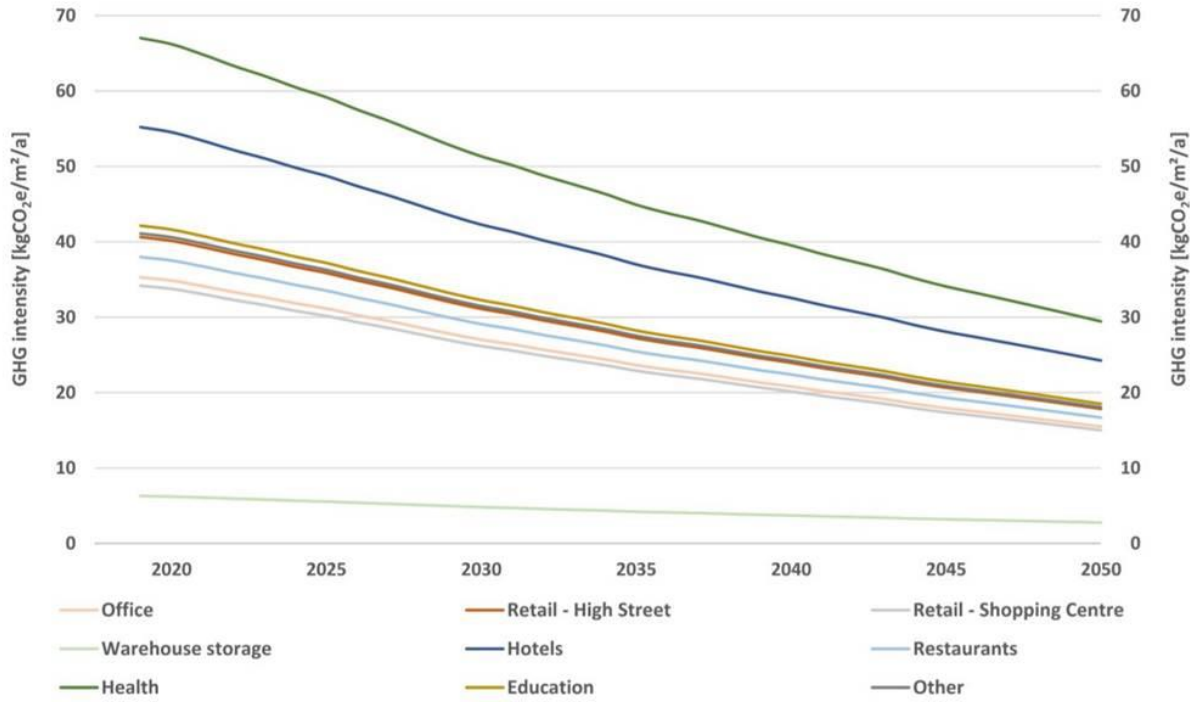


Figure 2: 2°C GHG intensity target pathways of Austrian commercial real estate subsectors[47]

CRREM's analysis demonstrates that significant investment is required to 'Paris proof' real estate portfolios: both to anticipate and comply with current and future public policies, and to provide an equitable contribution to global emission reduction efforts.

According to the IEA[48], spending on energy efficient technologies for buildings increased to US $140 billion in 2017, a 3% increase from the previous year. However, the growth rate of energy efficiency investment as a total proportion of total investment slowed from the 6-11% growth rates seen from 2014-16.

This may be an underestimate as real estate investors provide a large amount of 'invisible' energy efficiency investment in the building sector. This investment takes place during a fund's or real estate company's investment life cycle, new development, renovation, planned and preventive maintenance and active building management.

The IEA estimates that US$4 trillion is required over 2014-2035 to improve buildings' energy efficiency and meet the Paris Agreement goals[49]. Annual investment would need to increase to US$220 billion by 2025 and US$360 billion by 2040.

In order to roughly estimate the energy efficiency CapEx requirements for listed real estate companies, a comparison of the total property value of listed companies with the value of all

[47] Hirsch, Jens; Lafuente, Juan José; Recourt, Rik; Spanner, Maximilian; Geiger, Peter; Haran, Martin; McGreal, Stanley; Davis, Peadar; Taltavull, Paloma; Perez, Raul; Juárez, Francisco; Martinez, Ana Maria; Brounen, Dirk (2019): Stranding Risk & Carbon. Science-based decarbonising of the EU commercial real estate sector. CRREM report No.1, 2019, Wörgl, Austria
[48] IEA 2019 https://www.iea.org/topics/energyefficiency/
[49] IEA 2019 https://www.iea.org/wei2019/

buildings around the world is undertaken. UNEP[50] estimates that the total value of all owned property is US $95 trillion while the total value of listed real estate companies' buildings[51] is estimated at EUR 8tn, or 8.14% of all buildings.

A relatively simplistic estimate is therefore that 8% of IEA's projected total building related energy efficiency investment to 2035 is required by listed real estate companies: US $325 billion. This should be seen as a starting point for investment requirements as it may be easier for policy makers to encourage or require higher levels of energy efficiency by real estate investors than encouraging the billions of individual home-owners to sufficiently reduce the energy use and carbon emissions.

There are a variety of financial instruments that can be used by real estate investors to contribute to the goal of realising the financial benefits of energy efficiency projects. The EU Energy Efficiency Financial Institutions Group (EEFIG) report[52] reviewed the pros and cons of a number of major and emerging financial instruments. The appendix of the EEFIG contains a brief review the most relevant instruments for real estate investors including green bonds and on-bill finance mechanisms.

Real estate companies and investors have a role to encourage governments to implement policies and support the development of financial instruments which facilitate energy efficiency investment.

d. Addressing the split incentive, principal and agent problem in transition risk

A key challenge for energy efficiency investments in commercial buildings is that investment decisions are often based on short-term time horizons and there can be a split incentive between the owner and the occupier – meaning the occupant not the owner usually pays the energy bills, reducing the direct financial incentive to undertake renovation works (or energy is included in rent). Notwithstanding this, commercial buildings are often larger, more energy intensive, are often owned in portfolios, managed like financial assets and have their own facilities managers who can be a useful technical resource, when adequately incentivized.

There are two main mechanisms for addressing the split incentive in the real estate sector: green leases and some initiatives such as on-bill financing (which is explained in more depth further on).

Although green lease language may vary, the fundamental requirement is that the landlord can recover from tenants the cost of energy efficiency upgrades to the building. The benefit of green leases is that it overcomes the challenge of split incentives traditionally faced in commercial real estate. Although the landlord typically makes the capital investments in buildings to improve energy performance, the cost savings associated with the improvements inure to the tenant. A green lease aligns the incentives between landlord and tenant to make more efficiency projects financially feasible for both parties.

To help promote green leases in the US, IMT along with the Retail Industry Leaders Association the International Council of Shopping Centers and other landlords and tenants established the Landlord-Tenant Energy Partnership[53] to share experiences and catalyse greater use of green leases. For the

[50] UNEP 2018 https://unepinquiry.org/publication/the-value-of-everything/
[51] MSCI 2018 https://www.msci.com/documents/10199/6fdca931-3405-1073-e7fa-1672aa66f4c2
[52] EEFIG 2017 https://www.eefig.eu
[53] Landlord Tenant Energy Partnership (2019) http://www.landlordtenantenergypartnership.org/

past four years, an award from this Partnership, IMT and the US Department of Energy has recognised real estate owners and tenants green lease leadership[54].

Another important opportunity is the leverage of wider use of energy-use data collection to align the interests of landlords and tenants. Some data platforms allow both landlords and tenants to upload energy-use data in real time. With tenant permission, landlords can then design whole-building solutions to optimize energy-use – often with minimal capital outlays - in both common and tenant spaces, track progress and set energy-savings and GHG reduction targets.

[54] Green Lease Leaders (2019) https://www.greenleaseleaders.com/recipients/

7. Disclosing ESG and low-carbon transition risks

This chapter addresses trends for sustainable certification of assets and sustainability reporting by listed real estate companies.

a. Trends for sustainable certification of assets – existing buildings only

Certification schemes are designed to demonstrate the green credentials of a project – during its development, as well as for its operations. The BRE's Building Research Establishment Environmental Assessment Method (BREEAM[55]) is recognized as the first and oldest version of rating schemes currently available in the market, with a methodology developed in the early 1990s. Over the past 25 years a patchwork of various rating schemes has emerged, with GRESB recognizing about 200 different rating schemes for the real estate sector.

Rating schemes typically fall into two main categories: (a) holistic schemes, and (b) single issue schemes. The first determine an overall holistic score for a complete building. The latter focus on a specific topic e.g. energy (energy performance certificates), materials (e.g. Cradle-to-Cradle[56]), health and wellbeing (e.g. WELL[57], Fitwell[58]). Although the vast majority of schemes are voluntary, some have been developed and/or are endorsed by authorities, like the Energy Performance Certificate in Europe. In The Netherlands the voluntary BREEAM in Use scheme is recognised to demonstrate compliance with the EU Energy Efficiency Directive.

Given the large number of certification schemes active in the market, as well as varying levels of transparency and comparability, it is a challenge to determine the market share of the various schemes. Given the significant numbers of reporters to GRESB, the GRESB database was selected as a proxy for the market share of individual rating schemes for listed real estate. Judging by floor space, four rating schemes can be considered as the global leaders as shown in the graphs below. Overall, the GRESB database indicates that less than 20% of global institutional real estate (by floor space) is certified.

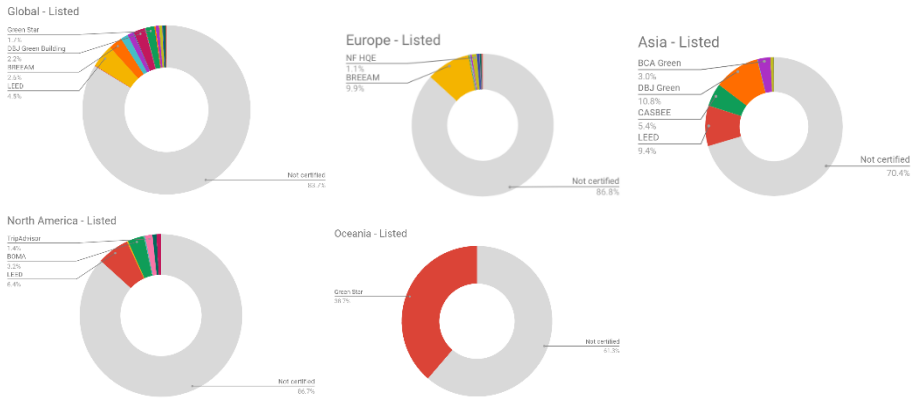


Figure 3: Share of certified assets owned by listed real estate companies per region (% by m2) – Source: GRESB

[55] BREEAM (2019) www.breeam.com
[56] https://www.c2ccertified.org/
[57] https://www.wellcertified.com/
[58] https://fitwell.org

Although these schemes are used to demonstrate the green credentials of an individual asset, it makes sense to question whether they can play a role in helping the market to combat climate change. Both LEED and BREEAM have received criticism in this regard (although there are ongoing improvements – for example BREEAM is now taking on board CRREM pathways). In late 2018, institutional investors were asked to endorse an open letter to the LEED Steering Committee, stating that LEED must be updated to address climate change[59]. It appears that LEED fails to incorporate deep CO_2 reductions as a requirement at different levels of LEED. But even the world's most sustainable office building, which received the highest BREEAM score, isn't enough to save the planet[60].

b. Trends on reporting from REITs

Over the past decade there has been a significant increase in reporting on sustainability by listed real estate companies, and a growing number of reporting standards have emerged to support this trend. This section covers global patterns in reporting by REITs and highlights the most important reporting standards, guidelines and frameworks available in the market, namely (a) GRESB, (b) GRI, (c) PRI and (d) EPRAs Sustainability Best Practices Recommendations Guidelines. The global value of REITs is estimated to be US $2 trillion, as opposed to US $8 trillion for the entire professionally managed property sector[61].

According to the GRESB Public Disclosure, GRESB is the most widely used real estate sustainability reporting framework across Europe, Asia-Pacific and North America, with 55% of developed listed property companies and REITs using GRESB for investor reporting. However, there are strong regional differences in the use of sustainability reporting standards in the real estate industry.

In Europe there is widespread adoption of the EPRA Sustainability Best Practices Recommendations (sBPR). The uptake of Sustainability Accounting Standards Board and TCFD reporting standards was still limited in 2018, and is therefore not included in the overview. From an investor point of view GRESB can be considered as the only standard which can provide institutional investors with required information to assess sustainability performance at a global scale through the investor portal. The disadvantage of the other standards is that these do not provide a consistent report to the investor and the information needs to be consolidated by the investors.

[59] https://leeduser.buildinggreen.com/blog/leed-must-be-updated-address-climate-change
[60] https://www.dezeen.com/2018/10/12/opinion-foster-partners-bloomberg-sustainability-climate-change-phineas-harper/
[61] MSCI (2018) Real Estate Market Size 2017 https://www.msci.com/documents/10199/6fdca931-3405-1073-e7fa-1672aa66f4c2

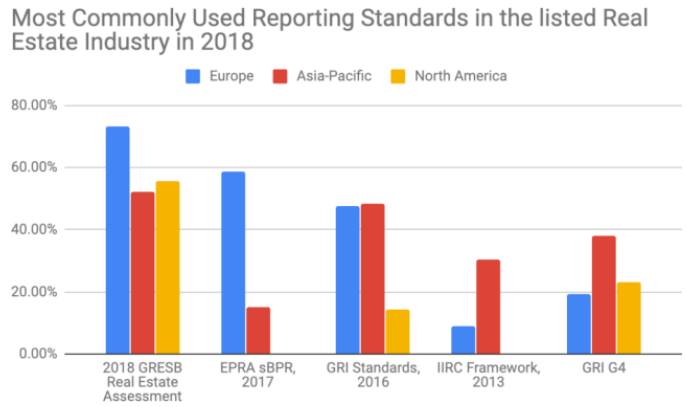


Figure 4: Most commonly used reporting standards in the listed real estate industry in 2018
Source: GRESB Public Disclosure, 2018

Today, more than 100 institutional investors, collectively representing over US $18 trillion in institutional capital, use GRESB data and analytical tools. In 2019, GRESB assessed 1,005 real estate funds and property companies, covering more than 100,000 assets, of which more than 66,000 reported at the asset level, across 64 countries and representing over US $4.1 trillion in gross asset value. The Assessment evaluates performance against seven sustainability aspects and is aligned with other international reporting standards such as GRI, PRI, and EPRA.

The listed real estate dataset of GRESB covers 240 entities, an additional 33 listed companies/REITS compared with 2018, representing 61.2% coverage of the major developed listed real estate indices. Where listed companies do not report directly to GRESB, GRESB calculates a Public Disclosure Level[62] using publicly available information. In this way GRESB is able to provide full coverage of the major developed listed real estate indices.

The overall GRESB benchmark, covering both listed and unlisted entities, has grown from less than 200 participants in 2010 to more than 1,005 in 2019. This growth in response rate is accompanied by an increase in ESG performance, shown by the year-on-year increase in GRESB scores.

The next chapter examines physical climate risks including GRESB's Resilience Module.

[62] GRESB (2019) https://gresb.com/real-estate-public-disclosure/

8. Physical climate risks for real estate companies

The World Economic Forum's 2018 Global Risk Report concludes that climate and disaster related risks account for three of the top five risks by likelihood and four by impact[63]. Global weather-related disasters cost a record US $344 billion in 2017, including US $212 billion in uninsured losses. Even if carbon emissions were to stop today, our planet is locked in to significant physical impacts[64]. This section therefore reviews recent efforts to assess and manage physical climate risks within the real estate sector.

a. Physical risk assessment in real estate

A number of methodologies for estimating physical risks of property portfolios but different models may have different strengths and weaknesses and levels of transparency (black box models). Before a market standard emerges, real estate investors should use a single assessment across their portfolio.

One report assessed exposure in the real estate investment market to physical climate impacts. The analysis of REITs' exposure to physical climate risk, covered over 73,500 properties owned by 321 REITs. It was found that 17% of properties were exposed to flood risk (as shown in the following figure), 6% to sea level rise and 12% to cyclones[65]. A key observation was that the most exposed REITs are primarily concentrated in Asia. In Japan, 27 percent of the REIT-owned real estate market is exposed to flood risk and 15 percent exposed to sea level rise by 2040. Thirty-seven Japanese REITs have their entire portfolio exposed to the highest risk for typhoon globally.

A separate analysis found that physical risk was leading to reduce real estate values. "*Properties exposed to sea level rise in some parts of the United States are selling at a 7% discount to those with less exposure, and the value of commercial real estate is expected to equally reflect these risks. Leveraging forward-looking data on risk exposure can allow REIT investors to anticipate changes in market valuations and react accordingly*."[66]

In July 2018 a group of 16 banks published a report on their efforts to begin evaluating physical climate risk on their agricultural, energy and commercial building and retail mortgage loan portfolios and to develop methodologies to evaluate impact on key credit risk metrics[67].

The real estate methodology assesses potential changes in retail mortgages and income producing real estate property values and loan to value ratios during extreme weather events. Evidence indicates that extreme events can reduce property values by between 5% and 20%.

Potential updates to flood risk maps / zones, or insurance price or availability could have additional influence on property factors but were excluded from the initial methodology. Property values are highly location-specific and are influenced by many factors, such as market conditions, location, property size and rental incomes. Banks and investors can refine the high-level estimates by

[63] WEF (2019) https://www.weforum.org/reports/the-global-risks-report-2019
[64] University of Princeton, (2013) https://phys.org/news/2013-11-emissions-carbon-dioxide-earth-centuries.html
[65] 42 and GeoPhy (Oct 2018), http://427mt.com/2018/10/11/climate-risk-real-estate-investment-trusts/
[66] A. Bernstein, M. Gustafson and R. Lewis (4 May 2018), "Disaster on the Horizon: The Price Effect of Sea Level Rise", Journal of Financial Economics
[67] UNEP FI (July 2018), http://www.unepfi.org/wordpress/wp-content/uploads/2018/07/NAVIGATING-A-NEW-CLIMATE.pdf

undertaking their own analysis of how past extreme events have affected property values in their portfolios.

Some asset managers have suggested that it is a myth that property/flood insurance will give sufficient protection; risk assessment is not a ranking of which coastal cities are most at risk of sea level rise; and maps of flood risk do not tell a full risk. A portfolio level assessment can also be a tool to help better inform insurance requirements and can help identify and prioritize properties for further investigation. At the property level, a climate risk and resilience assessment can provide capital and operational recommendations, allowing a manager to improve preparedness and develop a resiliency plan tailored to the building.

b. Disclosing physical climate risks and opportunities

In July 2019, the European Commission updated its guidance for Member States to implement the Non-Financial Disclosure Directive[68]. This Directive became EU law in 2014, requiring Member States to implement legislation that requires certain non-financial disclosures from around 6,000 companies with more than 500 employees. The updated guidance include for the first time, a focus on physical climate risks. The guidance recommends that companies use a physical climate risk key performance indicator of:

> "*Assets committed in regions likely to become more exposed to acute or chronic physical climate risks. i.e. 15% of book value of exposed real assets"*

We think that more companies disclosing this indicator is a good starting point, but, is not a sufficiently broad or deep indicator.

To advance the TCFD's framework regarding physical climate risks and opportunities, the European Bank for Reconstruction and Development (EBRD) and the Global Center on Adaptation (GCA) convened a group of financial institutions to recommend how corporations should disclose physical climate risks and business opportunities. A set of recommendations were published in May 2018[69].

One of the basic components of the recommended physical risk disclosure guidelines is for companies to work towards applying insurance sector metrics of annual 1 in 20 year; 1 in 100 year; and 1 in 200 year value at risk from extreme weather event disruption to operations, production, suppliers, customers and markets. The idea of applying insurance-related metrics to corporate physical climate risks stems from Willis Towers Watson's "1 in 100" Initiative[70]. It should be noted that insurance metrics are still short term with regards to real climate risk and forward-looking risk assessments.

We suggest that the further evolution of physical risk and opportunity disclosure from listed real estate companies, including within GRESB's Resilience Module, draw on the EBRD/GCA recommendations. We also suggest that green rating schemes will draw on work from e.g. CRREM, since building certifications can play a crucial role in this regard.

[68] European Commission (July 2019); https://ec.europa.eu/info/publications/non-financial-reporting-guidelines_en#climate
[69] EBRD and GCA (May 2018) https://www.physicalclimaterisk.com/
[70] UN Environment and UNEP DTU (2014) climateinitiativesplatform.org/index.php/The_1-in-100_Initiative

c. GRESB's Resilience Module

In 2018, GRESB's annual assessment report included for the first time an optional module on resilience. GRESB followed other expert organisations in defining resilience as the capacity of companies and investment funds to survive and thrive in the face of social and environmental shocks and stressors (including but not limited to climate change).

In the first year, 121 property companies, real estate funds and developers completed the GRESB real estate Resilience Module. In the second year, participation doubled. The Resilience Module is planned as a three year to increase awareness, motivate internal discussion and to provide basic transparency for investors. A summary of the 2018 findings, along with resilience best practices for real estate companies, can be found in the GRESB Resilience and Real Assets Special Report[71]. Further analysis of the second year results will be published later in 2019.

While 25% of Resilience Module participants reported comprehensive programs with activities including governance, risk management, business strategy, and measurement. The remaining 75% of participants reported highly variable programs, often lacking any activity in one or more of the core categories recommended by the TCFD.

While the new Resilience Module data provides clear, comparable indicators for the existence and breadth of climate-risk and resilience activities. However, it is not yet possible to robustly evaluate the quality of risk management activities, such as the assessment of relevant risks and direct connections to asset-level mitigation measures. Further indicators will be developed for 2020.

[71] GRESB (2018) Resilience and Real Assets Special Report http://gresb-public.s3.amazonaws.com/2018/Documents/Resilience_Report.pdf

9. Investor expectations and questions for companies

In order to ensure robust, responsive and resilient business strategies, and encourage a smooth transition to lower carbon economy, the following are expectations and guiding questions for investors to raise in their discussions with the board and management of listed real estate companies.

a. Governance

Expectation:

> *Establish a strong and complete governance framework and process to support board's oversight and accountability of climate change strategy. The board should be in position to ensure that climate related risks (physical and transition) impacting property assets and portfolios are properly managed and that the strategy, and to monitor the implementation of effective planning so the company is transitioning to a low carbon economy.*

Questions for board members:

1. Does the company undertake analyses of its exposure to short, mid, and long term climate risk? If so, what are the outputs?
2. How is the Board involved in the overseeing of the company's climate risk policy? Has the Board nominated a member or committee with explicit responsibility for oversight of the climate change and/or ESG strategy?
3. How is the Remuneration Committee ensuring that incentives are aligned with the company's climate risk strategy?

Questions for sustainability professionals:

4. What knowledge, experience and expertise do board members have to oversee the climate and sustainability strategy of the company?
5. How would climate targets deploy across the company, specially targeting portfolio and property managers?
6. To what extent is climate change incorporated into your in-house and external training and education programmes?

b. Strategy and scenario planning

Expectation:

> *Take action to reduce greenhouse gas emissions and make business operations consistent with the Paris agreement targets – notably via a net-zero emissions commitment – and to undertake physical risk assessments. Companies are expected to implement their strategic decisions based on scientific climate scenarios.*

Questions for board members:

1. Did you conduct a climate scenario analysis, describing the implications for the business of various scenarios?
2. According to your climate scenario, how will transition and physical risks impact your business strategy and the resilience of your property assets?

Questions for sustainability professionals:

3. How do the carbon intensity trends from your climate scenario differ from other climate scenarios (e.g. International Energy Agency)?
4. What are the key assumptions in your climate scenario with respect to:
    - Policy changes (regional, national and local level)
    - Energy and carbon prices
    - Tenant retention and occupancy rates
    - Technology changes
    - Physical risks
5. Do you have Asset-level Sustainability Action Plans in place to integrate ESG ambitions and concrete actions in the portfolio?
6. When modelling your strategy with regard to climate-related risks and opportunities, how do the outcomes of climate scenarios translate into business decisions?
    - Research and development, operating and capital expenditure, mergers and acquisitions, debt?
    - Higher share of green buildings in the portfolio?
    - Energy efficiency improvements?
    - Due diligence on acquisition and procurement decisions for new assets?
    - Active asset management strategy to sell or upgrade high energy consuming assets?
    - How is ESG integrated into long-term maintenance plans per asset?

c. <u>Risk management</u>

Expectation:

> *Integrate climate related risks (including physical, regulatory/technology and changes in market preferences/behaviour) into overall risk management, aiming to monitor and control how these risks affect the company operations and the value of its property portfolios.*

Questions for board members:

1. Does the company have a policy or process to identify and assess climate-related risks and opportunities? Both at portfolio and asset level, using scenarios and forward projections.
2. Does the company integrate climate-related risks in the overall risk management function?

Questions for sustainability professionals:

3. How energy efficiency standards and regulation for property assets could impact the value of your company's property assets?

4. Depending on the property asset types (office/retail, logistics…), and geographic location would there be different climate change risk factors?
5. Do you integrate climate risk assessments and short/medium term targets in individual asset business plans to ensure that budget is available to achieve net-zero carbon targets?

d. Metrics and targets

Expectation:

> *Develop a framework to track and reduce material emissions (scope 1, 2, 3) and energy use of the whole building. Determine and disclose the property portfolio's opportunities and risks from stronger building energy efficiency policies, technology changes and shifts in tenant preferences for green buildings (climate transition risks). Start to assess, develop, manage and disclose physical climate risk metrics and targets, drawing upon recent guidance that suggests using Value at Risk from future extreme weather events*[72].

Questions for board members:

1. Has the company set long-term relative or absolute targets for reducing its greenhouse gas emissions? From owner-operated assets? From tenant-operated assets? From development projects? From embodied carbon in materials used in new buildings and project retrofits? Are the targets in line with 1.5 and or 2 degree scenarios, and what methodology at asset level has been used?
2. Can you describe the investment decisions to ensure that direct, indirect and tenants' emissions (i.e. scope 1, 2 and 3) are reduced?
3. How are you reflecting the risks of climate change (both physical and transition) in your financial statements, including your balance sheet? Do you have adequate comfort that the auditor of your financial statements is incorporating these climate risk factors into its own methodologies?

Questions for sustainability professionals:

4. Describe the action to ensure that energy intensity, energy use and carbon emission targets and disclosures cover 100% of assets, including landlord and tenants' spaces.
5. Can you describe your approach to measuring, incentivizing, and improving sustainability impacts of tenants?
6. Do you have a net-zero carbon target for new developments as well as for existing buildings?
7. How is your company conducting assessments relating to flood risk, windstorms, overheating and wildfires? Is your company disclosing what share of investment value and share of rental income is allocated to areas with High / Medium / Low risk?
8. What share of assets under management is certified and can you disclose information by rating level (% by value)?

[72] EBRD and GCA, May 2018. "Advancing TCFD Guidance on Physical Climate Risks and Opportunities" https://www.physicalclimaterisk.com/advancing-tcfd-guidance-physical-climate-risk

e. Public policy

Expectation:

> *The company's public policy and lobbying positions and that of their trade associations should be aligned with the company's own commitments and implementation of the Paris agreement goals and should have some alignment with IIGCC's views[73] on policies to support energy efficiency.*

Questions for board members:

1. What are your policy and lobbying positions in relation to climate and energy policy and to what extent do these relate to the company's strategy?
2. To what extent are you or have you been engaging with regulators, NGOs, public policy makers and others on climate change and renewable energy issues (including the energy performance of buildings, energy efficiency policies and smart urban development policies)?

Questions for sustainability professionals:

3. What is your position on specific policy areas relating to improving the energy performance of buildings, including (but not limited to):
   - Adoption and enforcement of advanced building codes for new public and commercial construction;
   - Zero energy standards for new public and commercial buildings;
   - Retrofitting existing public and private buildings (such as policies prohibiting the sale/lease of inefficient buildings beyond a certain date)?;
   - Utility, ratepayer, or public support for energy-efficiency upgrades; and
   - Energy retrofit loan repayment programmes through utility bills or property taxes.

Contact us

For further information about IIGCC's corporate programme, please contact Lewis Ashworth at lashworth@iigcc.org or +44 (0) 7767 348 441

[73] IIGCC March 2016. "Transforming the sustainability of Europe's building stock" http://www.iigcc.org/publications/publication/transforming-the-sustainability-of-europes-building-stock