

GREENING REAL ESTATE
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WHERE ARE WE NOW?

INTRODUCTION

In 2016, the Paris Climate Agreement came into force and set the ambitious goals of reducing emissions by 45 percent by 2030 and reach carbon neutrality (net-0) by 2050 in order to keep global warming to no more 1.5 degrees celsius^[1]. As approximately 40 percent of all global emissions are contributed by buildings and construction, the importance of how real estate (both construction of new developments and, perhaps more critically, existing buildings) can be greened is key to meeting these goals.

Since 2016, companies are also more keenly aware of the impact of climate change with 80 percent of the world's largest companies reporting exposure to climate change related physical or market transition risks^[2]. There is a clear drive by corporations to move forward on their environmental, social and governance (ESG) or sustainability agendas. Coupled with the current global energy crisis, greening real estate and renewable energy options have never been more relevant.

As we enter 2023, ESG is one of the most pressing topics in the real estate sector that is here to stay. This article will look at where the market is in relation to the push for greener real estate and what opportunities or risks are likely to arise. Over the next few articles, we will share our insights about M&A in the green space; green financing and green retrofits in key jurisdictions such as the United Kingdom and Asia with a particular focus on green energy and energy efficiency solutions.

PUSH BY GOVERNMENT

In line with the Paris Climate Agreement, the UK government plans to reduce business and industrial energy consumption by at least 20 percent by 2030 and has targeted net-0 emissions by 2050^[3]. Under the Minimum Energy Efficiency Standards legislation, all rental properties in England and Wales require an Energy Performance Certificate (EPC) - this is also relevant where a new property is being built or significant alteration works are being carried out. The EPC is a rating system from A to G (A being the most efficient) which measures the energy efficiency of a property. Simply put, being energy efficient means

using less energy to perform the same task thereby reducing energy wastage.

The UK government appears to be keen to put further pressure on owners of real estate as additional EPC rating goals of C by 1 April 2027 and A or B by 1 April 2030 for commercial properties are anticipated. This is a significant increase from the current minimum F or G EPC ratings required by 1 April 2023. Without the requisite minimum EPC rating, it will be unlawful for commercial property owners to let their property out and owners face potential fines of up to £150,000.



CURRENT MARKET

Markets are seeing increasing demand for green buildings driven by both occupiers and investors. Occupiers want the buildings they occupy to be in alignment with their ESG policies whilst reaping the energy cost savings of green buildings. Investors want certainty that their assets are able to comply with the minimum energy standards to ensure that they are not "stranded" with 63 percent of leading investors strongly agreeing that green strategies can drive higher occupancy, higher rents, higher tenant retention and overall higher value^[4].

RICS Sustainability report confirmed that 50 percent of their respondents found that green

leases (i.e. leases which include obligations on both landlord and tenant to undertake specific obligations in relation to the sustainable operation and occupation of leased premises^[5]) command premium rents, and 30 percent stated that brown buildings (those without sustainability features) offer reduced rents to compensate tenants (commonly referred to as the "brown discount")^[6]. This green lease premium can already be seen in the U.S. and U.K. U.S. office rents for LEED-certified office buildings are 5.6 percent higher than those for non-certified office buildings^[7] while prime central London office buildings with U.K. BREEAM Very Good, Excellent and Outstanding ratings have a rental premium of 3.7 percent to 12.3 percent^[8].



This upward demand for green buildings is also reflected in the expanding variety of green certifications available. Today, there is an estimated total of 600 green certifications worldwide. The three most well-known and internationally recognised certification systems which can be used for most types of building in many mature real estate markets are Leadership in Energy and Environmental Design (LEED), Building Research Establishment Global Environmental Assessment Method (BREEAM) and WELL Building Standards. There are additional green certifications available in other jurisdictions, for example NABERS in Australia (which was recently launched in the UK in 2020) and Energy Star Building Certification in the U.S.

At an institutional level, the Global Real Estate Sustainability Benchmark (GRESB) enables real estate investors to gain insight into their ESG policies by measuring real estate and infrastructure sustainability measures. Despite the global pandemic, participation in GRESB assessments in 2021 grew by 26 percent to 2,227 real estate and infrastructure entities and covering US\$5.7 trillion worth of assets under management^[9].

It is our view that the market (i.e. landlords, tenants, real estate investors, developers etc.) is a key driver in the green revolution in real estate. This trend is here to stay and is likely to increase in the coming years.

IMPACT ON PROPERTY VALUES

The RICS Sustainability Report confirms that green leases benefit from a rent premium. Clearly, buildings which can attract higher rents have a higher value in the market. The link between sustainability and profit is increasingly clear as owners of green buildings enjoy a sales premium driven by rent and yield.

Research by Knight Frank has shown the following^[10]:

- in London (biggest pool of green buildings and longest history of green building ratings globally): prime central London office with a BREEAM Excellent rating and BREEAM Very Good rating enjoy a 10.5 percent and 10.1 percent sales premium respectively compared to equivalent unrated buildings.
- in Australia: prime office buildings in Melbourne and Sydney with a NABERS rating of 5+ and a NABERS rating lower than 5 enjoy a 17.9 percent and 8.3 percent sales premium respectively compared to the equivalent unrated buildings.

OPPORTUNITIES

Today, 97 percent of commercial buildings do not support the transition to net-0 by 2050^[11] and 80 percent of the buildings that will be standing in 2050 have already been built. McKinsey research estimates approximately U\$9.2 trillion in annual investment will be required globally to support the net-zero transition^[12]. This poses many opportunities as the 2050 net-0 and EPC deadlines loom over markets.

For example:

For Real Estate Investors (e.g. REITS, funds, family offices etc)

In the UK, Savills has estimated that (i) for residential, £330 billion is needed to implement all potential energy efficiency improvements required in order to meet 2035 targets and (ii) the UK retail sector has 1.4 billion sq ft (83 percent of stock) currently below an EPC B rating, theoretically making it unlettable by 2030^[13].

Inevitably, there will be buildings which are not green retrofitted in time and become stranded due to a variety of reasons. For example, the relevant owners may simply not have the finance needed to upgrade or inability to obtain requisite planning permissions. Investors with liquidity or access to external finance and green know-how can capitalise on such opportunities and enjoy brown discounts on such buildings.

For Renewable Energy Providers and Energy Efficiency Service Providers

Renewables are the fastest-growing energy source for buildings worldwide with the usage increasing by approximately 4 percent annually between 2009 and 2019^[14]. Integrating on-site renewable projects like solar photovoltaic panels or hydrogen fuel cells are another great way to reduce building emissions and operational costs.



In light of record energy prices and in order to achieve the 0-net goal, now appears to be the perfect time for renewable energy providers to help real estate investors identify assets with the best business cases by looking at each asset's building suitability, occupier interest, local policies and incentives and providing solutions accordingly. In the same vein, energy efficiency service providers are poised

to help real estate investors assess the energy efficiency of their assets in order to provide guidance as to the green retrofits and energy efficiency solutions needed to ensure that assets are up to government standards by the requisite deadlines.

For Property Technology ("PropTech") Firms

Data and information are crucial for companies to measure their ESG practices and buildings to accurately track carbon waste and energy usage. This is where new technologies for real estate or proptech comes into play – proptech strategies can help buildings be more cost and energy efficient and more responsive to tenants. The potential for growth in green technology and sustainability services is significant with its market size expected to grow from US\$13.76 billion in 2022 to US\$51.09 billion by 2029^[15].

Proptech firms could target owners looking to retrofit their brown buildings and demonstrate how their technologies reduce operating costs or increase rental returns. Real estate firms can consider win-win partnerships with proptech companies by allowing such companies to beta-test their proptech at buildings or providing capital and connecting such companies to the real estate industry.

TIME HORIZON

With the clock ticking towards EPC deadlines and the 2050 net-0 deadline, the push for green real estate is not going anywhere. More mature real estate markets like the UK and US are already experiencing green lease and sale premiums (albeit the US is still behind Europe generally in this regard). Buildings that are not able to measure up to either mandatory energy certifications or market demand will be subject to a brown discount likely due to lower occupancy rates, high operational costs and capital depreciation.

We predict that this green real estate wave will only gain more momentum in markets in



Asia as governments introduce legislation to tackle the effects of climate change and investors become more invested in their ESG practices. In Singapore, the Building and Construction Authority (BCA) and Singapore Green Building Council has set a “80-80-80” target for 2030: i) 80 percent of buildings by Gross Floor Area to be green by 2030, (ii) 80 percent of new developments to be Super Low Energy buildings from 2030, and (iii) 80 percent improvement in energy efficiency (compared to 2005 baseline levels) for best-in-class buildings by 2030. The adoption of green leases has become increasingly popular in Hong Kong (see here for more insights). Sustainability is a key global trend in all real estate asset classes^[16]. Where Asian governments have started the clock, it is only a matter of time before occupiers and investors take over the green agenda and push standards higher as per European markets.

CONCLUSION

Time is of the essence for building owners to examine and evaluate which of their assets are not up to par. With market demand from real estate investors and occupiers for more green spaces increasing and the lack of supply, there is a risk that brown buildings will become stranded earlier than government EPC deadlines or 2050. This provides a truly unique opportunity for traditional real estate and energy and infrastructure professionals to come together to find new and creative solutions. Property investors, proptech companies, financiers and energy efficiency service providers who are able to spot the gaps will find a host of opportunities in this current climate. Over the next few articles, we will examine more closely how such parties can capitalise on the green revolution sweeping through the real estate sector.

UNDERSTANDING THE GREEN PREMIUM IN CORPORATE REAL ESTATE M&A

THE GREEN PREMIUM

The green premium is described as the higher price that sustainability-focused companies pay when renting or buying buildings with certified sustainability credentials that align with their values.^[17] There are market research and academic studies that show the presence of the green premium in various real estate markets around the world. A snapshot of some of green premium reported are:

- Knight Frank has found that in prime central London, offices with a BREEAM Excellent rating and BREEAM Very Good rating enjoy 10.5% and 10.1% sales premium respectively compared to equivalent unrated buildings;^[18]
- JLL has reported rental premiums for green certified Grade A offices across 11 cities in Asia.^[19] By way of example, in Hong Kong, lease premium ranges from 7% to 28% (the bottom of the range being the base level certification and the top of the range being the highest level certification);
- in London, in respect of development schemes completed between 2013 and 2017, those that have a BREEAM Outstanding/Excellent rating tended to show a higher pace of leasing and have lower vacancy rates (of 7% compared to 20% for those rated very good) 24 months after completion;^[20]
- a higher level of certification generates a higher premium (but the relation is not linear);^[21] and
- a study reviewing empirical research carried out between 2013 and 2018 shows that buildings with green certification benefit from rental premium (up to 23%), increased occupancy (up to 17%) and sale price (up to 43%).^[22]

WHAT MAKES UP THE PREMIUM?

Statistical analysis showing the evidence of the green premium does not identify the source of the premium or to what extent energy efficiency is important relative to other

factors contributing to the premium. The studies compare the price of assets with certification standards rather than purely measuring the carbon dioxide emissions and what makes up the premium is complex and is likely to involve:

- energy cost savings (there is evidence that a 10% decrease in energy consumption leads to an increase in value of about 1% over and above the rent and value premium of a building);^[23]
- building quality (buildings with higher standards are generally more modern/better equipped and attract a premium beyond the strict environmental impact);
- the owner/tenant taking into account occupation of a building with better environmental performance; and



- carbon price/offset impact (offset costs whether actual expenses or used in internal decision making by the investors).^[24]

Better understanding of what makes up the green premium in the future would also allow investors to cater to their approach and strategies.

As ESG measures become standard practice for the best assets, investors are becoming more inclined to consider the “brown discount” non-ESG compliant assets suffer, rather than the ‘green premium’ for better assets.^[25]

BUYING GREEN OR TURNING GREEN

With apparent financial rewards presented by the green premium in addition to pursuing their own environmental and sustainability goals and net zero targets, investors will focus on acquiring assets/buildings that already have some form of high sustainability rating and improving the sustainability performance of buildings already owned. RICS sustainability report 2022 states that the demand for green buildings is rising globally and demand in Europe is outpacing the other regions.^[26] The demand is likely to be greater than the pace of supply and therefore there will be competition for sustainable assets/buildings.^[27]

Over the next decade, it will be harder for the developers to justify demolition and new construction both in terms of ESG commitments and through new planning policy in the near future.^[28] The debates on and public enquiry into Marks & Spencer's proposal to overhaul its flagship store in Marble Arch, London is a recent example illustrating the tensions between rebuilding and refurbishing. Creating more sustainable real estate through refurbishment and development will continue to be the higher risk and higher return area of the property market.^[29]

Examples of steps that can be taken to increase the energy efficiency of a building and improve its green credentials are use of renewable energy, metering, installing LED lighting, optimisation of building management systems (BMS), insulation to improve building thermodynamics, upgrades to heating and ventilation systems, window glazing and shading and reflective surfacing and measuring output in close collaboration between tenant, property manager, owner and investor.^[30]

Beyond such premiums and discounts, stricter regulation will adversely affect the older less energy efficient buildings. In the United Kingdom, by April 2023, every commercial property that is leased is required to have an EPC certificate of E or above and there are

plans to increase such minimum requirement to C by 2027 and B by 2030. Buildings that do not meet such minimum requirements will not



be lettable.

ON-SITE GENERATION

Sourcing energy from renewable sources works in tandem with minimising demand and increasing energy efficiency in a building, to reduce the carbon dioxide emissions of the building.^[31] In terms of renewable energy sources, on-site generation is considered as the greenest of the available options and on-site solar energy production is the most commonly reported on-site energy production for commercial real estate.^[32]

Three common models of on-site solar generation and their characteristics and benefits are set out in the table below:

	Direct ownership	Solar leasing	Rooftop leasing
Capital expenditure for installation	Upfront cost borne by the property owner	Nil (upfront cost borne by Solar/energy company)	Nil (upfront cost borne by Solar/energy company)
Use of electricity generated	The solar energy generated is for own consumption by the property owner	Property owner pays discounted rates for electricity produced Excess electricity is sold to the grid and the Solar/energy company takes the revenue	Property/property owner uses conventional electricity The electricity generated is sold to the grid and the Solar/energy company takes the revenue
Benefits for property owner	Reduces the overall cost of obtaining electricity from the grid	Discounted rates for purchasing electricity reduces the overall cost of obtaining electricity from the grid	Property owner receives revenue for leasing the rooftop

Direct ownership model requires upfront capital and we will further discuss the financing options in the financing part of this series. Solar leasing and rooftop leasing often involves collaborations between property owners and energy providers. In addition to collaboration on a site-by-site basis, there have also been recent strategic partnerships. For example:

- Engie and Logos have established a Regional Renewable Energy Platform to provide solar generation and renewable energy options for LOGOS' Asia Pacific portfolio. The first project under the partnership has been agreed with the global logistics leader, DHL, who has committed to a circa 5MW solar installation at its Singapore facility at LOGOS estate in Singapore; and
- SP Group is partnering AIMS APAC REIT (AA REIT) to install rooftop solar PV system across six of AA REIT's industrial, logistics and warehouse properties in Singapore by December 2023.

Traditional real estate companies may also establish or purchase energy companies to provide their own solutions for onsite solar.^[33] Even if solar panels are not being installed for immediate use, newer developments are being built solar-ready.

OPPORTUNITIES

We have set out below further insight into opportunities presented by the green premium and efforts to meet carbon targets in commercial real estate.

Less saturated markets

In comparison to the established markets, green certificates led to higher rental premium in emerging markets.^[34] Data by JLL also shows that the green premium is inversely correlated to the supply of green certified buildings. In Singapore, which has 90% of Grade A office stock green certified, provides a rental premium opportunity of 4% to 9%, whereas Seoul, which has 37% of stock is green certified, the rental premium is between 7% and 22%.^[35] Therefore opportunities to benefit from the green premium is greater in markets that have fewer certified buildings overall.

Early mover

There is an early mover advantage as evidence shows that those buildings who adopt the green standards later do not enjoy the same rental and price premium as early movers (evidence shows that when the number of certificated buildings increases, the effect of certification to non-green buildings in the same neighbourhood decreases).^[36]

Portfolio effect

The green premium also exists at the portfolio level, which means overall greenness of a

portfolio has added benefits. Based on studies conducted on US REITs in 2012, for an increase of 1% of the share of green properties within the portfolio of a REIT, the return on equity increases 7.39% to 7.92% for LEED-certified properties and by 0.66% for Energy Star-certified properties.^[37]

Futureproofing

Environmental and sustainability regulations are expected to tighten and what is considered as an advantage today may be the norm a few years down the line. Furthermore, the certifications themselves are also evolving.^[38] Accordingly, investors may look to futureproof their asset and portfolios and acquire buildings/portfolios with the highest possible certification.

Other certifications

The studies cited above focus on the building and energy efficiency certification, however additional certifications may also become important for the green premium in the future.

Following the Covid-19 pandemic, occupiers may focus on and demand health related attributes (including good air quality and ventilation, touch-free access, health amenities such as gyms and open spaces) and end-of-commute facilities such as bicycle parking and showers and there are additional certifications which buildings may opt for beyond energy and sustainability (e.g. certification by the International WELL Building Institute which certifies spaces that advance health and WiredScore which assesses digital connectivity).^[39]



Brown discount

For property companies that acquire older stock and carry out asset enhancement initiatives, improving sustainability of the buildings will be one of the key focus areas.

The brown discount will provide such companies with acquisition opportunities.

M&A in energy efficiency services

Energy services and property management companies are carrying out bolt-on acquisitions to increase their offering in energy efficiency services. eEnergy plc, a net zero energy services provider, listed on AIM of the London Stock Exchange in January 2020 and has acquired Beond Group Limited, a renewable energy consulting and procurement business in December 2020 and UK energy consultancy Utility Team Trading in October 2021. Johnson Controls has also carried out an array of acquisitions to enhance its net zero service offering.^[40]

Consolidation of companies reporting ESG data

Companies today publish reports under multiple reporting frameworks.^[41] Due to a lack of standardisation of ESG reporting in the US, the ESG data reporting by companies tend to be inconsistent and thus ESG data and rating providers have played an important role as standard-bearers.^[42] Financial rating companies have looked to increase their ESG data capabilities by M&A in recent years.^[43] Moody acquired Vigeo Eiris, Four Twenty Seven Inc. and a minority stake in SynTao Green Finance (all in 2019). In 2020, Morningstar acquired Sustainalytics, which itself has acquired two targets in 2015.^[44] Further consolidation and acquisition of companies that undertake ESG reporting is expected.

CONCLUSION

This article has looked at the green premium and provided a snapshot of some of the transactional opportunities and activities relating to sustainability in the commercial real estate sector. The underlying factors that have fuelled such activities will continue to exist and increase. This would therefore provide a host of M&A opportunities for actors across the real estate industry in the near future and beyond.

FROM BROWN TO GREEN – FINANCING REAL ESTATE DECARBONISATION

Approximately 80% of the buildings which will be standing in 2050 have already been built. With buildings responsible for around 33% of global greenhouse gas emissions and 40% of global energy consumption,^[45] it is critical that existing real estate stock is decarbonised in order to deliver on the ambition of the Paris Agreement and achieve “net-zero” by 2050.

As it stands, it is estimated that 97% of existing commercial property stock will not support the transition to net-zero.^[46] The industry warns that these brown assets will fall victim to the “brown discount” if left untouched – less energy efficient commercial real estate, coupled with rising energy prices, will become increasingly difficult to let and sell, leading to reduced rental income and asset value, and exposing asset managers and owners to the very real risk of stranded assets.

Across the real sector, the discussion has often focused on “green” development such as building carbon neutral real estate. Many traditional lenders have also focused their sustainability initiatives on financing renewable projects. Less attention has been given to develop specific energy efficiency solutions, activities which result in the “greening” of existing brown real estate assets.

However, the market is shifting and in this article we explore the landscape of the financing options available to asset owners and managers to fund these types of projects with examples drawn from the US, UK, Singapore and Hong Kong markets.



HOW TO “GREEN” BROWN REAL ESTATE STOCK?

A “green” building is defined by The World Green Building Counsel as one that, “in its

design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts on our climate and natural environment”.^[47]

There are various ways in which a building can be made green. One of the most obvious ways is to procure more green sources of energy or distributed green energy (eg. installing rooftop solar panels) through a power purchase agreement or leasing arrangement with energy producers. However, there are other ways to green a building such as refurbishment and retrofitting works (e.g. converting to LED lighting or installing a smart energy control system). Often, a combination of these approaches may be adopted and green projects can vary in scope. In any event, the upfront costs of these types of projects, as well as any costs associated with causing disruption to occupiers, can be significant. Consequently, for many asset managers and owners who do not wish to use equity or cash savings, greening their portfolios is conditional upon access to external financial support.

In the residential market there are numerous public and private financing options available to homeowners, local authorities and housing authorities, which are often driven by government policy to encourage retrofitting works that make homes warmer and cheaper to heat. In the commercial real estate sector, the sources of external funding fall into two broad camps- upfront funding for energy efficiency projects (through public policy initiatives, loans or the capital markets) or a zero-upfront funding arrangement in partnership with an energy efficiency service provider. These solutions should be seen along a spectrum, with financing often consisting of a combination of solutions.

PUBLIC POLICY LED INITIATIVES

The US is a trailblazer in developing financial products to fund energy efficiency. In 2006, the US launched PACE (property assessed clean energy), a form of property-linked finance (PLF).

In US states where PACE programmes are available, local government may choose to either:

- issue PACE bonds to investors, the proceeds of which, can be used to fund energy retrofits both in the commercial and residential sector; or
- in an open-market model, PACE financing is made available by private lenders to property owners through public-private partnerships.

PACE represents long-term funding which can be used to cover up to 100% of the up-front costs of green retrofitting. PACE loans are typically provided for a term of 20 years. Repayment is made over the term of the loan through a voluntary tax assessment, which is secured by the property by way of a tax lien and paid in addition to the owner's property tax bills. The assessment is property-linked as opposed to attached to the individual asset owner, which results in repayment obligations transferring to the new owner when a property is sold. This means whoever owns the property and is benefitting from the energy efficiency measures, is also responsible for paying for that benefit. Non-payment results in the same repercussions as failure to pay any other tax.

The huge benefit to this source of financing is that it taps into large sources of private capital and allows repayment to be spread across many years, without requiring any upfront payments. In light of the energy crisis in the UK, the Green Finance Institute is continuing to conduct research into PLF, which is not currently available in the UK.

In Asia, Singapore offers many attractive schemes to support energy efficiency projects. The Green Mark Incentive Scheme for Existing Buildings 2.0 (GMIS-EB 2.0) supports projects that pursue higher standards of energy efficiency and will be eligible for higher rates of funding, for example:

- under the scheme, buildings that achieve the highest Green Mark rating of zero energy after retrofitting will get \$45 for each tonne per carbon dioxide-equivalent (tCO₂e) reduced, capped at \$1.2 million; and
- those buildings that achieve the super low energy rating will receive \$35 per tCO₂e reduced, capped at \$900,000, while those that get a platinum rating will receive \$25 per tCO₂e reduced, capped at \$600,000.

The scheme is applicable to privately-owned existing buildings, with a gross floor area of at

least 5,000 sqm, and includes commercial and institutional buildings, light industrial buildings and residential buildings where retrofitting is to common areas. It is valid from 30 June 2022 until the available funds have been fully committed or by 31 March 2027 (whichever is earlier).



In 2017, Singapore's National Environment Agency (NEA) launched the Energy Efficiency Fund (E2F) to help industrial companies improve energy efficiency. The E2F supports a wide range of energy efficiency efforts, such as energy assessments, energy efficient design of new facilities and energy efficiency investments. Complementing this is the Building Retrofit Energy Efficiency Financing (BREEF) Scheme which is valid from 2011 until now. Facilitated by the Building and Construction Authority (BCA) and participating financial institutions, the BREEF Scheme offers financing to pay the upfront costs of energy retrofits of existing buildings. The BCA and the participating financial institutions share the risk of any loan default. To qualify for the scheme, an energy performance contract (discussed more below) must be in place, the retrofits must result in the building achieving the basic Green Mark Certified rating and the

building must maintain this rating for the period of the loan tenure.

GREEN AND SUSTAINABILITY LINKED LOANS

Historically, the strategy for identifying eligible sustainable projects taken by development lenders such as, the World Bank, International Finance Corporation (IFC) and Asian Development Bank (ADB), has been distinct from commercial lenders. A development lender's sustainability and environmental agenda has long informed its lending mandate. For example, many development banks require projects to adhere to the IFC's Performance Standards on Environmental and Social Sustainability (IFC Standards) – a set of standards which encourages environmental, social and governance (ESG) concerns to be risk assessed and managed throughout the lifecycle of a project.

Over more recent years however, sustainability is now firmly on commercial banks' agendas and ESG considerations of large scale construction and development projects. Not only because of changing customer demand, which is pushing for greener investment, but also because most financial institutions have their own targets and reporting mandates to demonstrate the ways in which they are successfully mitigating the risks of climate change and the transition to net-zero.



However, the more obvious way for lenders to show their commitment to sustainability is through financing new green projects or developments. For many lenders, financing energy efficiency initiatives may have less

immediate benefits. On the one hand margins might not be as high as funding new developments as the benefits are in savings instead of revenue and savings may be challenging to measure without certain agreed protocols. Also, there may be complicated interactions with existing leases and any existing financings in place. Further, funding energy efficiency solutions may not share the same optics as funding a brand new renewable producer. On the other hand, investing in these sorts of projects helps lenders align with their climate reporting obligations and energy efficiency can produce long-term stable cashflows which can back yield-based products.

There are a growing number of examples of banks providing green loans towards energy efficiency projects. In 2019, HSBC, Barclays and Natwest made a 5-year GBP 450 million revolving credit facility (RCF) available to Derwent London plc, one of the largest UK Real Estate Investment Trusts (REIT). It was the first RCF provided to a UK REIT which includes a green tranche which aligns with the Loan Market Association's (LMA) Green Loan Principles (GLP). The green tranche can only be used by Derwent London plc to fund projects that align with Derwent's "Green Finance Framework", which was externally reviewed to ensure compliance with the GLP. Activities that align with Derwent's Green Finance Framework include retrofitting and energy efficiency improvements across their portfolio.

The LMA subsequently published guidance on the application of its GLP in the context of retrofit projects^[48]. This guidance provides a further framework for assessing which retrofit projects may qualify as eligible green projects, noting that it is expected that any such retrofit project should result in a "material improvement in the energy efficiency of, and result in a material reduction in the carbon emissions associated with, the buildings being funded". The guidance also suggests some retrofit-specific standards and certifications to assist with determining the 'greenness' of retrofit projects, including the BREEAM Refurbishment and Fit-Out rating, RICS SKA (used for non-domestic fit-outs), PAS 2035 (used for domestic fit-outs) and TrustMark.

Another instrument is the sustainability-linked loans (SLL) based on the LMA's Sustainability Linked Loan Principles involving setting "sustainability performance targets" for the borrower to meet. Often, if a borrower does not meet these targets, then the interest rate is ratcheted up, though it is also possible for ratchet downs that provide a clear incentive to borrowers to pursue sustainability initiatives. OUE C-Reit in Singapore recently entered into an SSL with a syndicate of Asian and international lenders incorporating interest rate reductions linked to predetermined sustainability performance targets. These dovetail with the Reit's water and energy efficiency reduction targets. In the UK, investment manager Barings' sustainability-linked GBP 48.6 million loan to Phoenix Group to fund the acquisition of a retail and leisure park in Romford, UK will be used to retrofit the existing buildings to increase the EPC ratings, achieve BREEAM "Excellent" rating, and enhance the biodiversity net gain in the area.

GREEN BONDS

Asia's vibrant capital market scene has seen rising activity in the green bond space. Like green loans, issuers of bonds that raise cash for "green" projects should apply industry standards, such as principles on green debt from the International Capital Market Association. In Hong Kong, the Global Real Estate Sustainability Benchmark (GRESB) released Green Bond Guidelines for Real Estate, which provide clear sector-specific guidance on how to identify eligible green building projects, implement and manage investment proceeds, and communicate green bond outcomes to stakeholders. Proceeds must be used exclusively to finance or refinance projects that fall under one or more of the "Eligible Categories", which includes energy efficiency.

Singaporean real estate companies have been leaders in this area. In 2017, the first green bond by a listed company was issued by CDL to refinance an existing green loan on an asset that had undergone various energy and water efficiency upgrades, including the major retrofitting of chiller plants and installation of energy-efficient lightings with motion sensors. In 2022, CapitalLand Ascott Trust (CLAS) partnered with the International Finance Corporation (IFC) to launch IFC's first sustainability-linked bond in the hospitality sector globally. Proceeds of the loans will be used to refinance CLAS' existing borrowings



and to further decarbonise three of CLAS' serviced residences in Southeast Asia, including reducing electricity consumption. Like other capital market solutions, these green bonds are often used to primarily refinance existing debt.

ZERO UPFRONT FUNDING

Another alternative source of funding that involves no upfront capital outlay is in partnership with energy efficiency service providers (EESCOs). Some EESCOs are energy service companies (ESCOs) but not always. In all cases, the defining feature is that the EESCO enters into a form of performance contract with the asset owner, called an Energy Performance Contract (EPC). Historically, the majority of EPCs have been with the public sector (through public-private partnerships), and in more recent years, the private sector has adopted this arrangement.

The EESCO covers the upfront cost of designing, installing and maintaining the energy efficiency solutions required to upgrade the owner's current systems with a view to achieving guaranteed cost-savings for the system owner, for an agreed period of time. Even if the EESCO does not provide the required capital, it can work with lenders to obtain financing. The ongoing performance and cost-savings achieved by the system upgrades are monitored throughout the term of the contract. If the guaranteed annual cost reductions are not achieved, the EESCO covers the shortfall. If they are exceeded, savings are shared equally between the parties. Benefits include being able to finance retrofits, whilst freeing up capex to spend in other ways. If debt funding is in place, then the ESCO's savings guarantee is sized in order to meet debt service.

Beyond offering an EPC, as EESCO may also offer a contract for a wide range of energy efficiency as a service (EEaaS) such as

Singapore company BPP. Some companies are going further in their offering and branding themselves as net-zero as a service provider (eg Johnston Controls^[49]). EEaaS is a form of performance, off-balance sheet financing solution. The EESCO identifies and implements strategies to achieve pre-agreed savings targets over the term of the contract. The EESCO pays for the project development, construction and maintenance costs. The system owner outsources all risks for implementing these measures to the EESCO, who assumes full responsibility for the cost of implementing the contractually agreed savings targets. The owner pays the EESCO the savings and savings are measured against historical data. If the system upgrades do not meet the pre-agreed savings then the EESCO bears the cost, however, if they do, then the energy savings are shared between the parties.^[50]

Another route for lenders to support energy efficiency projects is to finance the EESCO's project through project financing or other forms of loans. Risks will need to be typically assessed as in other types of projects and the EPC or equivalent contract becomes key. As a first in Asia, UOB launched in 2021 their U-Energy platform, an integrated financing platform that allows customers to finance energy efficiency equipment through green loans or to provide loans to the EESCO.

CONCLUSION

Although, and as discussed in our last article, it may be still be a challenge to accurately quantify any "green premium" or "brown

discount" that can be associated with existing stock, it is widely understood that, in the long-term, the cost of inaction will far exceed any initial investment. Faced with the inevitability of brown discount, energy efficiency improvements present asset owners managers with a huge opportunity to retain and enhance the value of their portfolios to maximise returns for their investors.

In all cases, reporting requirements are key and the ability of owners or managers to capture data to evidence efficiency and real savings. To mitigate against claims of "greenwashing", it may be prudent for owners and managers to start now to gather data. To attract financing solutions, it will be critical to be able to measure efficiencies apart from complying with applicable regulations. In deciding which financing solution to adopt, owners and managers will also have to think about the interaction with any existing financings on their buildings, balance sheet treatment and impact on existing leases.

Asset managers have a tremendous incentive to tap into these financing options discussed above to unlock further value in their existing assets. Although energy efficiency may have received less press, the roadmap to net-zero requires real estate players to make significant investment in making their existing portfolios more energy efficient, not only to reduce their overhead costs and carbon emissions, but also to avoid the very real risk of stranding their assets. In our next article, we will explore how the construction industry plays a vital role in real estate decarbonisation.

GREEN RETROFITS – CONSIDERATIONS FOR “GREENING” AN ASSET

INTRODUCTION

In our preceding articles for the Energy Efficiency series, our team examined the opportunities and risks in the context of greening existing real estate. This was linked to:

The broader backdrop of the Paris Climate Agreement, in terms of reducing greenhouse gas emissions by 45 percent by 2030 and achieving carbon neutrality by 2050;

Further to those goals, the increased focus and scrutiny on ESG risks by governments and corporations;

Potentially leading to developments in the real estate sector relating to, among others:

- a. Certification standards – currency and future-proofing;
- b. Green premiums – an increased demand for green buildings driven by both occupiers and investors;
- c. Energy generation – renewable sources, on-site generation and energy efficiency services providers;
- d. Financing and funding to aid the green transition.

For this article, we will discuss the “physical greening” of the assets and what that means in the context of construction and renovation. Using the Singapore Green Plan 2030 as a lens to cover this topic and also touching slightly on the wider ASEAN region, we will first consider the targets and steps suggested and taken there, before considering – with broader application – the methodologies and materiality around the greening of buildings and what this means for asset managers.

SINGAPORE – THROUGH THE LOOKING GLASS

With the Paris Climate Agreement and UN Development Goals 2030 as a backdrop and a driver, various countries and regions have set out their own roadmap around the energy transition for existing real estate.

In Singapore, the Singapore Green Plan 2030 was launched in February 2021^[51], which sought to galvanize a whole-of-nation movement and advance Singapore’s national agenda on sustainable development. As part of the plan, greening buildings is a key

strategy to achieve those sustainability ambitions.

It is interesting to note that Singapore’s first Green Building Masterplan was launched in 2006 to encourage developments to embed sustainability as part of a building’s life cycle from the onset. As the built environment sector began to embrace the idea of sustainable buildings, the Building and Construction Authority (BCA) also took into account the greening of the larger stock of existing buildings and embedded those targets into subsequent plans^[52].



The 2030 targets are (a) to green 80% of Singapore’s buildings (by GFA), (b) have 80% of new developments (by GFA) to be Super Low Energy buildings and (c) achieve 80% improvement in energy efficiency for best-in-class green buildings.

In order to achieve (a) and (c) above, BCA have set out these steps:

- **Transparency and benchmarking** - in the building energy performance data that it publishes (starting with commercial buildings), BCA will identify the buildings along with their energy-related information. This information will be accessible to the public. Owners of existing buildings will be able to benchmark their energy performance against similar building types and take steps to improve energy performance.
- **Future-proofing** – BCA will raise the mandatory environmental sustainability standards for existing buildings undergoing major retrofit. This includes raising minimum energy

performance requirements and introducing mandatory sustainable construction practices to lower the carbon footprint for the buildings.

- **Updating certifications** – BCA will update the Green Mark scheme to raise energy performance standards and place greater emphasis on other important sustainability outcomes such as designing for maintainability, reducing embodied carbon across a building’s life cycle and creating healthier environments.
- **Cash incentives** – to raise the energy performance of existing buildings, BCA launched an enhanced SGD63million cash incentive scheme, to help building owners lower the upfront capital cost of energy efficiency retrofits which achieve the higher energy performance standards.
- **Promoting innovation** – established in 2014, the Green Buildings Innovation Cluster (GBIC) program^[53] supports the development and demonstration of innovative energy efficient technologies and solutions with a high potential for adoption. To push the boundaries of energy efficiency in buildings, BCA provided enhanced funding of SGD45million for the program, covering research areas such as alternative cooling technologies, data driven smart building solutions and next generation building ventilation^[54].



ASEAN – A WIDER ROADMAP

In the Roadmap for Energy-Efficient Buildings and Construction in ASEAN published by the International Energy Agency (“**ASEAN Roadmap**”), the following seven areas were identified as key areas for focus to support the

transition to net zero carbon buildings and construction^[55]:

- Urban planning
- New buildings
- Existing buildings
- Materials
- Systems and operations
- Sustainable energy
- Resilience

For existing buildings, there is currently a lack of data regarding the quality and performance of existing stock and therefore also the most effective retrofit measures to employ. Moving forward, the ASEAN Roadmap’s vision for existing buildings is that they are retrofitted to achieve high levels of energy performance and lower levels of embodied carbon to reduce fuel costs and improve thermal comfort. In this context, they identified four key actions and eleven activities (under each action) in the form of:

- Promoting the uptake of high-performance fabric systems by promoting utilization of:
 - High performance insulate and emissive fabric materials
 - Solar and thermal control glazing
 - Solar shading
- Boost the rate of energy efficiency retrofits by:
 - Incentivizing retrofit market activity
 - Increasing availability of energy-efficient retrofit professionals
 - Increasing awareness of building energy performance
- Boost the quality of energy efficiency retrofits by:
 - Developing quality standards for building retrofits
 - Improving consumer confidence through quality standards
- Promote the adoption of building energy performance standards by:
 - Enacting energy performance standards for existing buildings
 - Promoting energy performance certification programs
 - Adopting building energy labelling

In the ASEAN Roadmap, Singapore, Indonesia, Philippines and Thailand have been identified as having the following in place – energy benchmark policies, audits and energy renovation policies and the relevant minimum energy performance standards (“MEPS”). While most of the other ASEAN countries have regulations and policies relating to the latter two, they may not have developed benchmarking and building ratings.

TRACKING THE ROADMAP

Based on the above, we do see some common trends around what is key in enhancing energy efficiency for existing buildings and what an asset owner - regardless of geography - should look out for. We address each of them in turn below.

REGULATIONS, CERTIFICATIONS AND STANDARDS

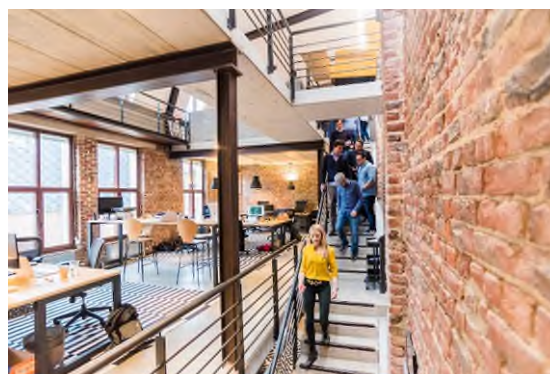
These should be cohesively set such that developers, asset managers, contractors and stakeholders are clear as to what requirements need to be complied with. In Singapore, these are laid out in the Building Control Act and Regulations, BCA Green Mark Schemes, Singapore Standards relating to environment and sustainability for buildings, among others. In addition, there is the collection and benchmarking of data across different buildings, promoting transparency and accountability in the asset managers’ portfolios and in a sense, (hopefully) promoting competition in applying green methodologies for the purposes of, for example, attracting green premiums and financing.

Apart from local certifications, there are also internationally recognized certification systems in many mature real estate markets such as Leadership in Energy and Environmental Design (LEED), Building Research Establishment Global Environmental Assessment Method (BREEAM) and WELL Building Standards.

While asset managers may be familiar with the currency of regulations and certifications, it may also be prudent to consider future proofing and not just complying with the minimum standards that are currently in place. In Part 1 of this series, we discussed the UK government’s plan to put further pressure on real estate owners with additional Energy Performance Certificate (“EPC”) ratings between now and 2030. Without the requisite minimum EPC rating, it will be

unlawful for commercial property owners to let their property out and owners face potential fines of £150,000.

Considering the constant development in technology, systems and materials, owners should keep abreast of these advancements and think ahead, when doing retrofitting, how and to what extent they intend to “green” the building, with the engagement of experienced and accredited consultants. Alternatively, in terms of acquiring buildings and portfolios, it would make sense to do so with a view to properties that already have the highest possible certification – leaving a smaller gap for potential upgrades.



If the life of the building cannot be extended, it would be helpful to consider the reduction of construction and demolition waste by the recycling and reuse of materials in the next project, whether it is a new build or existing project. The relevant codes of practice^[57] provide that it is vital that the waste is properly managed and sorted on site for channelling to appropriate recycling facilities for further processing into usable products, which includes recycled concrete aggregate, metals and compressed wood, and additional guidelines on how best utilize the construction and demolition waste. This would likely go toward helping the owner achieve certain green certifications as part of the usage of sustainable materials and practices.

MATERIALS, CONSTRUCTION METHODOLOGIES AND SYSTEMS EFFICIENCIES

In the last paragraph, we mentioned using recycled materials in building projects, which helps to reduce the embodied carbon of the building. Embodied carbon is defined as the sum impact of all carbon emissions attributed to the materials throughout their life cycle. This includes the extraction, manufacturing and transportation of building materials to its ultimate incorporation in the construction of

the building and finally demolition and disposal.

While there is a limit to the amount of overhaul one could do in relation to an existing building, there is still the possibility to renovate the building envelope (walls, roof and windows) and service systems (cooling, heating and ventilation) as the first action to improve the energy performance of existing buildings and to bring them to the standards of new buildings^[58]. In our previous article, we had similarly alluded to installing LED lighting, optimization of building management systems and insulation to improve building thermodynamics, among others.

In this context, reducing the embodied carbon to the extent possible by switching away from components such as iron, steel, cement and concrete and turning our attention to recycled, low(er) carbon and bio-based materials will be instrumental to decarbonizing construction, going hand in hand with greening the asset.

With the availability of Design for Manufacturing Assembly (DfMA) and Building Information Modelling (BIM), there is also the possibility of lowering the demand for construction materials and increasing productivity through design and collaboration with different stakeholders. BIM can also help to the owner to achieve energy savings during the operation of the building, by monitoring and managing energy usage and assisting with performance management, therefore reducing operational carbon.

Last but not least, other suggested steps in the ASEAN Roadmap to advance energy efficiency in the operation of buildings and systems include^[59]:

- Expanding incentives and increasing availability of efficient systems and appliances, including expanding the using the services of energy services companies (ESCO);
- Increasing adoption of building and energy management systems, energy audits, maintenance tools and recommissioning of existing systems;
- Establishing and developing frameworks around:
- Disclosure of energy performance,
- Increasing the use of rating tools and benchmarking, and

- Developing data protocols for the collection and reporting of building characteristics and requirements as well as building passports with digital passport data storage and sharing.



STAKEHOLDERS AND CONTRACTING

As part of Singapore's Green Mark 2021^[60], BCA published a green lease toolkit. This toolkit was created to aid building owners / landlords and tenants in improving the environmental performance over the life of the building which they manage or occupy and provided a list of standard clauses, containing specific provisions for sustainable design and management by monitoring and improving energy efficiency as well as water efficiency and sustainable materials. There are suggested minimum as well as enhanced standards and benchmarks for both the landlord and tenant. Certainly, the concept and usage of green leases is not new but they have however seen greater adoption in recent years.

In the context of fit-out and renovation contracts, the "green" requirements (such as the specifications in the Green Mark Scheme) would typically be set out in the technical or performance specifications for the contractor to execute. The clauses would likely provide

that the works, equipment and/or appliances supplied are up to the relevant energy efficiency standards.

To help owners and energy performance contracting (EPC) firms achieve a more seamless energy efficiency arrangement, the Singapore Green Building Council has also developed a template for energy performance contracting for buildings. In this connection, asset owners, managing agents and EPC firms will have a point of reference when procuring energy efficient retrofit or renewable energy installation works^[61].

While not under the purview of this article, it bears noting that for larger construction and infrastructure projects, the New Engineering Contract (NEC) form of contract now includes optional X29 clauses, which are climate type change clauses to help the industry achieve net zero emissions and sustainability targets in the creation and operation of built assets. These clauses have been prepared for different types of construction and professional services contracts, and are more specific in the preparation of a climate change execution plan, measure of performance targets, as well as incentives and adjustments

to contract sums if the targets are improved upon / not met.

Depending on the construction required for an existing asset, there could be takeaways from the NEC suite of contracts in order to incentivize a contractor to adopt sustainable construction practices, etc.

CONCLUSION

In the race to net zero, there are many different facets to consider – compliance with regulations, achieving certifications, appointing the right teams, commercial and technological realities and future proofing. As we put one foot in front of the other, it is key to take a holistic view of what we can implement as part of sustainable practices and to generate sustainable outcomes.

Complying with the applicable local and international certifications are a start, but different stakeholders would also do well to collaborate and plan ahead in relation to building life cycles, supply chains and construction materials and methodologies, in a bid to reach the goal of green – and not just greening – real estate.

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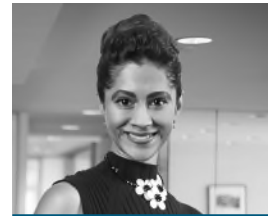
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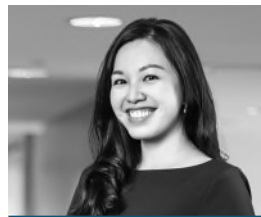
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When you need a practical legal solution for your next business opportunity or challenge, please get in touch.

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