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GREEN LEASING

GREENER, CLEANER
AND MEANER

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CUSHMAN & WAKEFIELD GREATER CHINA RESEARCH



Contents

- P2** Executive summary
- P6** Climate change - The bigger picture
- P8** Green real estate - A top priority
- P12** Green leasing - What is it?
- P18** Green leasing - The drivers for
- P28** Green leasing - The costs and benefits
- P30** Green leasing - The elements to
- P34** Green leasing - The cost recovery
- P36** Green leasing - The international perspective
- P38** Green leasing - A net-zero/net positive future
- P40** Appendix

EXECUTIVE SUMMARY

Climate change is undeniably one of the principal threats we are faced with today, no matter where we live, work and play on this planet. The signs of climate change are clear. According to NASA, over the last 100 years, the average global temperature has increased by 1.1 degrees centigrade.

Given that buildings and the real estate construction sector together now comprise around 36% of global final energy consumption and nearly 40% of total CO2 emissions, (according to the International Energy Agency), it is inescapable that real estate must become greener in the future in order to alleviate global warming and its associated consequences.

A sizable percentage of commercial real estate space in mainland

China is leased and, without a doubt, opportunities exist for leasing to become greener, especially considering the mounting attention afforded to health and wellness in high-performance buildings. For the benefits of high-performance buildings to be exploited, leases must be modelled around green concepts to ensure that the relationships between landlords and tenants are aligned with the newest developments in green real estate.



Vicky Shen

Head of Office Agency,
China,
Cushman & Wakefield

“Green leasing is essential for landlords and tenants to remain competitive and grow resilient in the face of the new threats created by climate change.”

A green lease is essentially a standard lease with new or adapted clauses integrated to better align the financial incentives and sustainability objectives between the landlord and the tenant.



Johnathan Wei

Head of Occupier Services,
China,
Cushman & Wakefield

“A green lease can make it achievable for investments in efficiency to be reciprocally advantageous to the landlord and to the tenant and can inspire or make it obligatory for both parties to collaborate and cooperate to ensure that a building is occupied, operated and managed in a sustainable way.”

There is no one-size-fits-all green lease, and the green clauses to be integrated into a lease should be adjusted to align with the aims of the landlord and the tenant, while recognizing the distinct circumstances of the building.

Recent changes in the real estate landscape have played a significant role in beginning to drive the use of green leasing in mainland China.

In order to resolve the split-incentive enigma and incentivise landlords to invest more in energy efficient projects, a green lease must offer an approach for landlords to recover their capital expenses.



Alton Wong

Head of Advisory Services,
Valuation of Advisory Services
and Co-head of Smart Building
and Green Finance Services,
Greater China, Cushman &
Wakefield

“Green leasing in mainland China not only serves to address environmental concerns in the interests of conserving mainland China’s varied and distinctive landscapes and biodiversity, but moreover offers landlords and tenants palpable gains and savings that exist in many forms, including reductions in energy-associated costs, heightened public image, and greater overall wellness for occupants of such spaces.”

Conventionally, landlords have relied on amortisation to recover the cost of their green investments from tenants, who can benefit from reduced utility bills. Nonetheless, with this approach the capital expenses are typically spread out over the useful life of the retrofit, which can extend over multiple decades. The resulting payback period is often too long to persuade landlords to go ahead with the investment. In most cases, a retrofit will pay for itself through energy savings before a positive return on investment can be achieved by a landlord, who cannot benefit from the reduced utility bills.



Shaun Brodie

Head of Occupier Research,
Greater China,
Cushman & Wakefield

“Such an issue does not arise from green leases, where landlords pass through the cost of their investments to tenants, with the capital expenses passed through being limited to the predicted energy savings associated with the retrofit. This approach shortens the payback period for landlords when compared to amortisation, incentivising them to invest in energy efficiency upgrades.”

While the green leasing model is quite new to the commercial leasing market in mainland China, green leases have become mainstream in some countries around the world, such as the U.S., Canada, Sweden, the United Kingdom and Australia. Around the world, industry organisations, such as the Building Owners and Managers Association (BOMA) and the Building Research Establishment Group (BRE) have also produced documents, (the Green Lease Guide by BOMA and the BREEAM In-Use Assessment by BRE), which support green leasing.

Green leasing is an important initiative in reducing our carbon footprint and preserving our environment. The eventual goal for real estate is to reach net-zero or even net-positive status, where the total amount of energy consumed on an annual basis is equal to or less than the amount of renewable energy generated on-site within the same period. By achieving this, real estate in mainland China and around the world will be greener, cleaner and meaner!



CLIMATE CHANGE

THE BIGGER PICTURE

Climate change is undoubtedly one of the biggest threats we face today, no matter where we live, work and play on this planet. The evidence of climate change is clear. According to NASA, over the last 100 years, global temperature has risen by 1.1 degrees centigrade. The unprecedented rise in global temperature has brought about a range of problems for both the

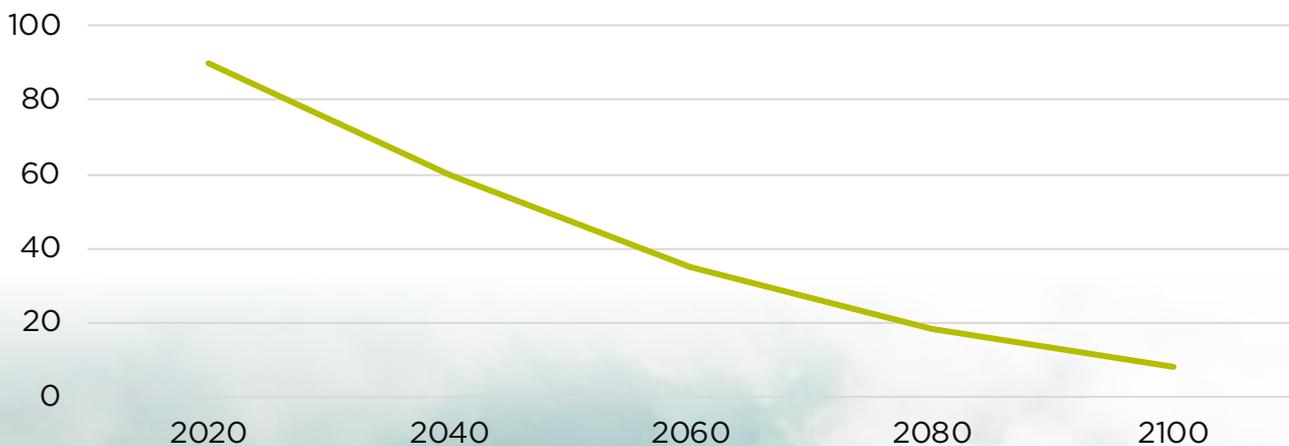
natural and built environment. Rising global temperature is expected to lead to not only more and bigger outbreaks of wildfires, but also further melting of ice caps and glaciers. A landmark report found that at least two-thirds of the Himalayan glaciers could be lost over the next 80 years due to inaction on climate change (Figure 1).

Figure 1:

Everest regional glacier change

Ice volume, percent of initial

Business-as-usual greenhouse gas emissions



Source: Cryosphere, Cushman & Wakefield Research



The permanent deterioration of the Himalayan glaciers could increase the risk of floods and landslides as well as disrupt the flow of major Asian rivers. Such a disruption could adversely affect agricultural production and food supply in affected regions.

The Intergovernmental Panel on Climate Change in 2014 concluded that much of the rise in global temperature over the last 50 years is most likely attributable to greenhouse gases produced by human activity. The question is: What is the single best way to reduce greenhouse gas emissions and mitigate climate change in the future? Is the answer to adopt a plant-based diet? Or replanting the deforested areas of the Amazon? Or cycling to work? In short, the answer is none of these initiatives. According to *The Economist*, the single best way to reduce greenhouse gas emissions is to make

substantial improvements to air conditioner units. Replacing refrigerants causing damage to the atmosphere with less-damaging alternatives would result in a 90 billion tonnes reduction in CO₂ emissions by 2050.

Looking at the bigger picture, it is not hard to see that better air conditioners are just a small part of the overall solution. In fact, we must fundamentally transform the way we live, work and play in order to minimise our carbon footprint and overconsumption of natural resources. One of the newer and more innovative approaches to reducing greenhouse gas emissions is to make real estate greener, and green leasing goes some way to achieving this. There is immense potential for real estate to become greener in the future, due to widespread use of inefficient technologies, a lack of effective policies and insufficient investment in sustainable development today.

GREEN REAL ESTATE

A TOP PRIORITY

Given that buildings and the real estate construction sector combined currently account for around 36% of global final energy consumption and nearly 40% of total CO2 emissions, (according to the International Energy Agency), it is inevitable that real estate must become greener in the future for global warming and its related effects to be mitigated.

Mainland China is the largest building construction market in the world and has a big role to play in green real estate. In 2016, according to Tsinghua University, energy usage associated with real estate construction in mainland China accounted for 20% of the country's total energy consumption, and this is only expected to rise further given the future supply of real

estate still to be built. And with almost half of all new construction globally in the coming decade anticipated to take place in mainland China, we can see that green real estate should be a top priority.

However, when compared to many other regions around the world, mainland China has made great strides in promoting and encouraging sustainable real estate. Real estate in mainland China is consistently becoming greener, firstly from green buildings, which are designed, constructed and operated to have a minimal negative impact on the environment; and secondly from green financing, which provides financial products and services for economic activities, that support sustainable development, including real

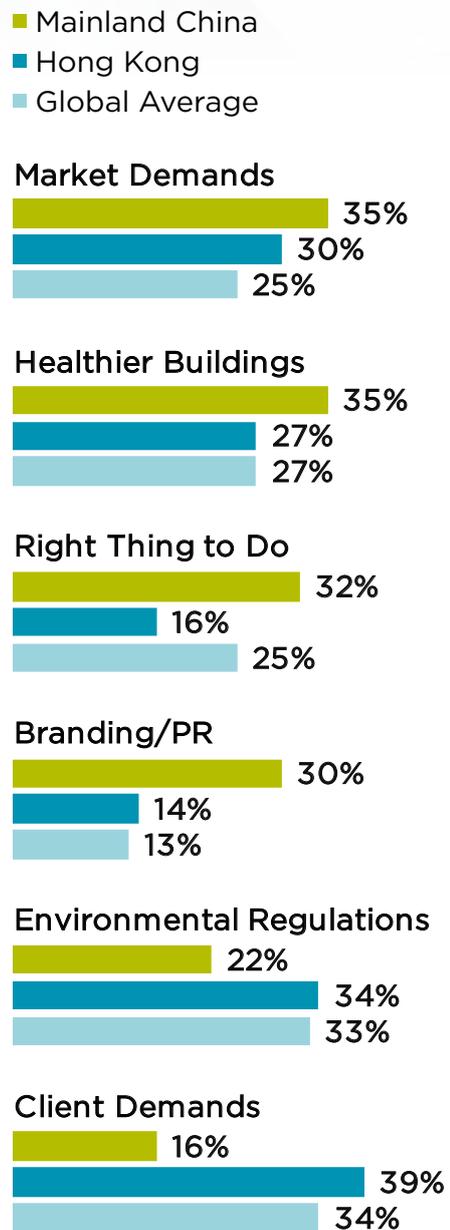


estate.

Developers in mainland China build green for four major reasons: to attract corporate social responsibility (CSR)-minded tenants; to reduce energy consumption, resource consumption and operating costs; to improve occupant health and well-being; and to create a sense of community. In the context of occupant health and well-being, green buildings have been found to bring about a 3% improvement in productivity, a 5% increase in employee retention and a 30% reduction in absenteeism.

These factors make green building an attractive proposition for firms in mainland China that want to differentiate themselves and to earn a reputation for CSR. Besides the social and environmental reasons for building green, firms in mainland China recognise that going green brings commercial benefits. Firms in mainland China are quite conservative about the cost savings that can be derived from green buildings, but they still expect to see payback in just five years, significantly less than the global average of seven years. Green buildings are also able to outperform non-green buildings in terms of property rentals and capital values. The business case for building green is strong and it would not be surprising for green buildings to become more mainstream in China over the mid- to long-term (Figure

Figure 2:
Top triggers driving future green building activity in China (including the global average) (2018)



Source: Dodge Data & Analytics, Cushman & Wakefield Research

Table 1:**Expected Business Benefits of Green Building in China (2018)**

	New Green Building		Green Retrofit	
	Mainland China	Hong Kong	Mainland China	Hong Kong
Decreased Operating Costs Over One Year	5%	5%	7%	5%
Decreased Operating Costs Over Five Years	9%	9%	12%	6%
Payback Time for Green Investments (Years)	5	9	6	9

Source: Dodge Data & Analytics, Cushman & Wakefield Research

2 and Table 1).

In order to support sustainable development and boost growth in green real estate, (including green leasing), many government initiatives around the world have been put in place to promote green financing. As the market for green financial products and services continues to expand, it is expected that funding will become more accessible for green projects both in mainland China and abroad. Facilitating capital inflows into green real estate would further accelerate the growth of green buildings in mainland China and incentivise more firms in mainland China to build green and lease green. The Guidelines for Establishing the Green Financial System released by the People's Bank of China in 2016 highlights the importance placed by the government on green financing and calls for the implementation of measures to strengthen the expansion of green credit in mainland China, improve the regulation of green credit, and increase international cooperation. Mainland China is currently the only G20 member to have met all seven broad financing sector criteria set out at the G20 Summit in Hangzhou in 2016 for scaling up green financing. Such domestic policies and international leadership have generated real progress and made mainland China a global frontrunner in green financing, which provides hope for the future development of green real estate in mainland China and the expansion of green leasing practice in the region.



GREEN LEASING

WHAT IS IT?

While green building and green financing can reduce the damage to the natural environment caused by the construction and operation of buildings, they are not sufficient for making real estate holistically greener. Green building and green financing cannot address the behaviour of landlords and tenants or the agreements between them, and this behaviour, either good or bad, can have a decisive effect on the performance of a building regardless of whether it is green or not.

A sizable percentage of commercial real estate space in mainland China is leased and, without a doubt, opportunities exist for leasing to become greener, especially considering the mounting attention afforded to health and wellness in high-performance buildings. For the benefits of high-performance buildings to be exploited, leases must be modelled around green concepts to ensure that the relationships between landlords and tenants are aligned with the newest developments in green real estate.

Green leasing is required for landlords and tenants to stay competitive and to build resilience in the face of new threats posed by climate change. By structuring leases to enable buildings to be more efficient, to incorporate health and wellness and to achieve a smaller carbon footprint, even properties that are not currently high-performing can be transformed into greener, cleaner and meaner (cost efficient) spaces.

Susan Bright

Professor of Land Law,
Oxford University, 2008

“A ‘green lease’ might seem more immediately appropriate for a modern building designed to high environmental standards but there is absolutely no reason why buildings ... that have poor environmental credentials should not also be used in a manner that seeks to minimise their environmental impact.”

Common commercial leasing practices are often not as sustainable as they could be. A key reason is the principal-agent problem, which refers to the split incentives that exist when an agent performs tasks for a principal but does not act in the best interests of the principal. In the leasing context, split incentives exist when the party responsible for paying the utility bills is not the party making the capital investment decisions, such as investing in more efficient air conditioners. In other words, while the landlord might have to pay for upgrading the air conditioners, the tenant might be the only party paying the electricity bills and the only party enjoying the cost savings associated with the upgrade under the lease. In such a case, the landlord would be discouraged by the lease

from investing in efficiency. The principal-agent problem has resulted in the level of investment in efficiency in the rental market in mainland China to fall short of the level required for utility energy consumption to be significantly reduced.

Green leasing aims to solve the principal-agent problem, and in doing so adds environmental and social value, as well as commercial value, for landlords and tenants. According to the Institute for Market Transformation, green leases can reduce energy consumption in commercial buildings in the U.S. by 11% to 22%, and can cut utility expenditures by up to US\$0.51 per sq ft. In total, green leasing is expected to yield between US\$1.7 billion and US\$3.3 billion in cost savings per year for the office leasing market in the U.S. (Table 2).

Table 2:
Savings associated with green leasing

Table 2a: Potential savings from implementing energy-aligned leases

Green Lease Savings	Low Savings Case	High Savings Case
Tenant Space Energy Savings	6.90%	12.50%
Common Area Energy Savings	1.50%	4.00%
Core Building System Energy Savings	3.10%	5.80%
Potential Energy Savings (Average, per building, across entire market)	11.40%	22.30%

Table 2b: Potential annual energy savings in U.S. office buildings from energy-aligned leases

Measure	Low Savings Potential: U.S. Office Buildings (US\$, Nominal)	High Savings Potential: U.S. Office Buildings (US\$, Nominal)
Savings (US\$)	US\$1,690,000,000	US\$3,290,000,000
Savings (US\$/sq ft)	US\$0.26	US\$0.51
Energy (MMBTU)	77,800,000	152,000,000
Savings (MMBTU/sq ft)	0.012	0.024

Source: The Institute for Market Transformation, Cushman & Wakefield Research

A green lease is essentially a standard lease with new or modified clauses included to better align the financial incentives and sustainability goals between the landlord and the tenant. A green lease can make it possible for investments in efficiency to be mutually beneficial to the landlord and to the tenant and can encourage or mandate both parties to collaborate and cooperate so to ensure that a building is occupied, operated and managed in a sustainable manner. There is no one-size-fits-all green lease and the green clauses to be included in the lease should vary according to the objectives of the landlord and the tenant, considering the individual circumstances of the building. Possible components of a green lease include:

- o **Environmental measures required to be taken by the parties;**
- o **Mechanisms or processes to achieve the measures;**
- o **Compliance monitoring and evaluation, and;**
- o **Non-compliance procedures and penalties.**



The nature and scope of the clauses in a green lease can be adapted to reflect the extent to which the landlord and tenant are willing to be accountable for the energy efficiency of the building. A green lease can be formulated as a light green lease, a mid-green lease or a dark green lease, depending on whether the parties intend for the obligations in the lease to be legally enforceable.

A light green lease is aspirational in nature and may state simply that the parties wish for environmental factors to be considered in any decision-making under the lease. A light green lease generally represents a first step in transforming the relationship

between the landlord and tenant from one that is adversarial to one that is collaborative and cooperative. A mid-green lease is more exacting and may include specific targets as well as an action plan for environmental monitoring and reporting. Clauses in a mid-green lease are usually regarded as 'best endeavours' clauses, and default by either the landlord or tenant does not attract legal liability. Finally, a dark green lease may include a set of obligations that are legally binding as Heads of Terms, with any default potentially leading to financial penalties, such as rent abatement for a landlord or a rent increase for a tenant (Figure 3).

Figure 3:
Shades of green leases



Source: designingbuildings.co.uk, Cushman & Wakefield Research

According to the Green Lease Handbook released by the Council of Australian Governments (and related to the National Strategy on Energy Efficiency), several questions that can help a landlord and tenant decide whether to opt for a lighter or darker green lease are:

- o **Are the parties equally committed to implementing green initiatives?**
- o **Will a party's default cause any actual loss to the other party?**
- o **Are the parties experienced at managing green lease obligations?**
- o **Will the darker green clauses stifle innovation of new environmental measures?**

Where the landlord and tenant are equally committed to the environmental cause, a lighter green lease might be more effective since it would allow for more ambitious targets to be set. The parties will be more encouraged under a lighter green lease to experiment with more innovative approaches to meeting those targets, knowing that the green clauses are not legally enforceable, and that no financial penalties will arise from a default. Conversely, where one party is motivated to a greater or lesser extent than the other party, a darker green lease can be utilised to ensure that both parties are aligned and that the obligations of each are formally set out, with little room for flexibility. Regardless of whether the landlord and tenant opt for a lighter or darker green lease, negotiations on what obligations should be borne by the parties under the lease should be guided by the principle of reciprocity. To this end, a green lease should impose similar obligations in terms of the sharing of responsibility for meeting the sustainability goals and should provide similar remedies in the event of a default for both parties.





GREEN LEASING

THE DRIVERS FOR

Recent changes in the real estate landscape have played a significant role in beginning to drive the use of green leasing in mainland China. Green leasing in mainland China not only serves to address environmental concerns in the interests of preserving mainland China's diverse and unique landscapes and biodiversity, but additionally can provide both landlords and tenants with tangible gains and savings that exist in a variety of forms, including reductions in energy-related costs, enhanced public image, and greater overall wellness for occupants of such spaces.

Green leasing is not simply another method of engaging in green real estate. It is more concerned with coordinating the interests of landlords and tenants without directly modifying physical assets or sources of financing. Green leases serve as a medium of communication between parties to mitigate immediate costs and ensure long-term improvements which leave both parties better off than they would have been without mutual adherence to green clauses. Green leasing is the most effective way to align the incentives of multiple parties to ensure that all facilities are utilised more efficiently and provide win-win situations for all parties involved in arrangements for the use of any variety of commercial real estate spaces.

In considering the growth of green real estate in the mainland Chinese market, there are four drivers that we have identified as directly pertinent to the emergence of green real estate as an increasingly common factor when leasing commercial space:

- o **Decreasing costs of green technology;**
- o **Smarter commercial buildings and spaces;**
- o **Growth in industry demand for green space;**
- o **Government initiatives relating to green development.**





While no single driver explicitly demands the use of green leases, each driver provides its own incentives for tenants and landlords to make green improvements, engage in green practices, and make use of green clauses in the contracts which they work to design. As green practices and improvements become more accessible and sometimes even necessary to remain competitive in various markets, it will be necessary for practitioners involved in the real estate market in mainland China to become accustomed to making use of green clauses with the wellbeing of the environment in mind, in addition to adhering to logical business sense.

Decreasing costs of technology

In 2017, Chinese companies filed 76% of the globe's renewable energy patents, more than any other country. As the world enters the new decade, continuing growth in mainland China's renewable energy sector is projected to provide Beijing with an influential position in a new global energy landscape. Rapid investment and development have been accompanied by the development of more efficient technologies with lower costs of production, implementation, and operation.

Three areas of renewable energy innovation have been identified as critical with regards



to driving the increasing prevalence of green real estate in Chinese markets:

- o Energy storage;
- o Artificial intelligence, and;
- o Microgrids.

Each of these areas provide new opportunities for the expansion of green real estate and thus for the further usage of green leasing. Shrinking barriers restricting access to efficient technologies are a key driving force towards mainland China's green real estate future.

i) Energy Storage

As energy storage technologies become more price-competitive and efficient, green sites will increasingly have access to steady streams of green energy at lower rates than would otherwise be provided by coal and other fossil fuel sources. The levelized costs of energy (LCOE) for onshore wind and solar PV power generation have dropped below that of conventional fossil fuels, even when accounting for capital, operations, and maintenance costs, averaged over its lifetime. Onshore wind has become the world's lowest-cost energy source for power generation, with an LCOE of US\$30-60 per MWh, as opposed to the cheapest fossil fuel, natural gas, with an LCOE of US\$42-78 per MWh.

Improvements in storage technology pave the way for green lease clauses which prioritise the use of renewable energy. With reliable and high-capacity energy storage, commercial buildings can continue to use energy in non-optimal environments, such as during storms or in darkness, and will be able to effectively align the use of renewable energy to peak hours of demand. The necessity of using fossil fuels to generate power during peak usage hours due to the misalignment of power usage with environmental conditions is no longer an issue (Table 3).

Table 3:
Characteristics of selected energy storage systems

	Max Power Rating (MW)	Discharge Time	Max Cycles or Lifetime	Energy Density (watt-hour per liter)	Efficiency
Pumped hydro	3,000	4h - 16h	30 - 60 years	0.2 - 2	70 - 85%
Compressed air	1,000	2h - 30h	20 - 40 years	2 - 6	40 - 70%
Molten salt (thermal)	150	hours	30 years	70 - 210	80 - 90%
Li-ion battery	100	1 min - 8h	1,000 - 10,000	200 - 400	85 - 95%
Lead-acid battery	100	1 min - 8h	6 - 40 years	50 - 80	80 - 90%
Flow battery	100	hours	12,000 - 14,000	20 - 70	60 - 85%
Hydrogen	100	mins - week	5 - 30 years	600 (at 200 bar)	25 - 45%
Flywheel	20	secs - mins	20,000 - 100,000	20 - 80	70 - 95%

Source: *The World Energy Council, Cushman & Wakefield Research*

ii) Artificial intelligence

Artificial intelligence and advanced machine learning algorithms can be used to draw conclusions from massive data sets describing user behaviour, in order to modify the use of green real estate space. While many inefficiency problems were in the past (and are today) addressed just once, the use of predictive analytics can be used to adjust the use of resources continually and almost instantly. The use of smart commercial building technology to rapidly address energy inefficiencies serves to cut operational costs while ensuring a more environmentally-friendly commercial real estate space.

AI-based energy management systems can apply user-defined input, monitor weather forecasts, and analyse real-time data in order to optimise heating and cooling. Modern HVAC systems and commercial building operating systems allow for the implementation of AI-based systems to adjust temperature and lighting on the level of individual rooms based on times of usage, the number of occupants, the amount of natural lighting present, and other collected data, all on an automated basis.

Additionally, through data-based analysis, machine learning can aid in the planning, designing, monitoring, and maintenance of green buildings, with the ability to determine the most suitable building materials such as walling and insulation for optimised energy savings, as well as immediate operational issues that would require quick maintenance.

iii) Microgrids

Microgrids are localised energy grids that are capable of operating either while connected to a traditional grid system, or independently in an islanded mode, with the ability to transition between these two modes with minimal load disruption. The use of decentralised energy systems with connections to a broader network allow for buildings and sites to integrate renewable energy sources into their daily operations without requiring a re-designing of the national distribution system. This allows for an overall reduction of carbon emissions while continuing to provide reliable energy in instances where renewable power is not available. Additionally, microgrids provide several promising value streams for landlords which serve to offset the initial costs of their implementation, including:

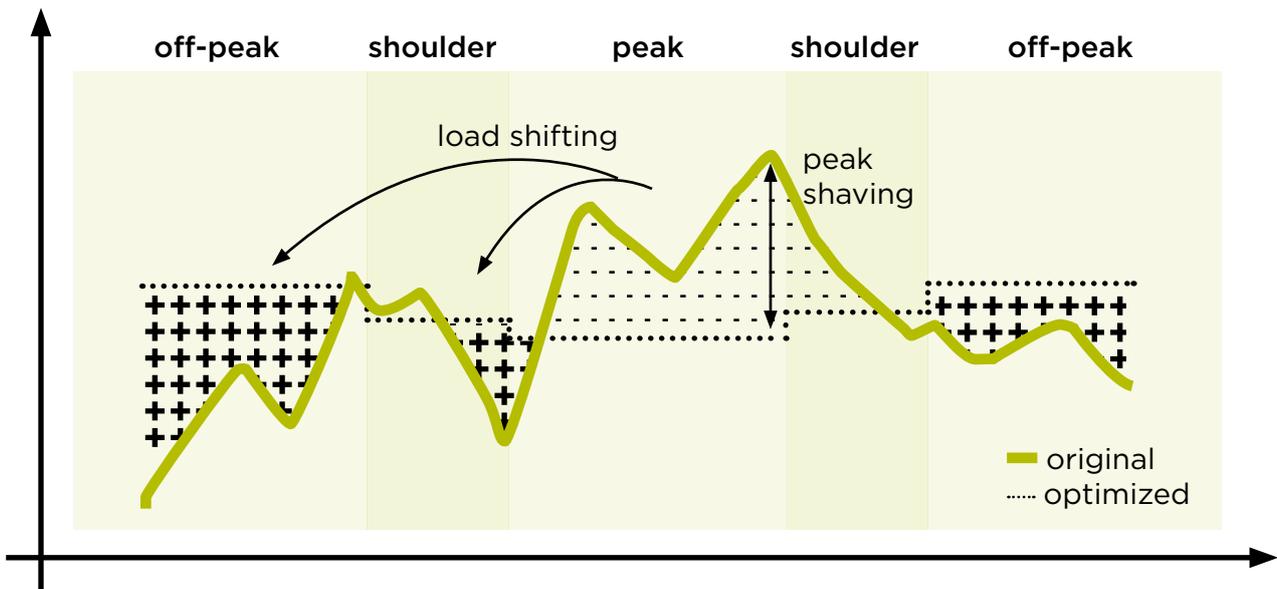
- o **Peak shaving: Using renewable on-site production during peak hours to maximise cost reduction;**
- o **Electricity exporting: Transporting electricity back to the utility grid or between other local microgrids to reduce net energy costs, and;**
- o **Outage resilience: Using on-site production to create back-up power to mitigate losses in the event of an unexpected outage in the utility grid.**

Microgrids create an expansive space for the use of green lease clauses, including modifying the composition of a facility's daily energy usage on an hour-by-hour basis and by source. Even without the network benefits that continue to develop as on-site energy production becomes



Figure 4:

Load shifting and peak shaving under time-of-use rates



Source: *escholarship.org*, Cushman & Wakefield Research

more prevalent, the development of microgrids (which modulate the use of electric power on the scale of individual facilities) shows promise of economic savings and emissions reductions as a general case upon implementation (Figure 4).

Smarter commercial buildings and spaces

Smart commercial buildings and spaces can more efficiently integrate complex systems and coordinate resource management than their conventional counterparts. The

extension of Internet connectivity into physical devices, known as the Internet of Things (IoT) can be applied to building and space management through the implementation of the following digitally-integrated technologies:

- o **Sensors:** Collect measurements from relevant equipment and record environmental conditions;
- o **Data logging devices:** Intercept data streams and aggregate them into a central location, and;
- o **Dashboards/Interfaces:** Interpret and visualise data to aid in prioritising future actions.



Utilising IoT allows building managers to more optimally allocate resources due to:

- o **The optimal use of energy in real time, and;**
- o **The reduction of manual labour necessary to conduct data analysis.**

The use of predictive analytics combined with online integration allows for precise and efficient facility management even remotely. These devices can be integrated with the ambient environment of most facilities, including HVAC systems for proper temperature regulation, windows to most efficiently regulate the amount of electricity allocated to proper lighting and climate control when accounting for the external environment, and security and fire alarm systems.

The breadth of data analytics existing in the smart commercial real estate arena makes it possible to quantify the savings at the tenant level, and even at the level of individuals occupying these facilities and spaces. The expansion of data analytics strengthens the enforceability of green lease clauses and can further incentivise tenants to view energy-saving initiatives seriously, by translating reduced energy consumption costs to lowered rents and occupancy fees.

Growth in industry demand for green space

While green improvements require a higher initial cost than their conventional counterparts, the economic impact of these improvements ultimately have long-run tangible benefits for tenants and landlords, and so promote greater demand for green commercial real estate space. In addition to reduced carbon emissions, working with green real estate provides significant advantages which translate into long-run competitive advantages for all parties involved, including:

- o **Lower operational costs;**
- o **Higher operational efficiency;**
- o **Added-value to physical assets, and;**
- o **Improved CSR and consumer demand.**

i) Lower operational costs

By 2023 mainland China is expected to become the first region to achieve grid parity for concentrated solar power and solar PV, meaning that the use of solar energy will become less expensive than purchasing power from the electric grid typically harnessed using fossil fuels. Especially in places where (and at times when) retail electricity prices are high, the use of alternative energy sources can significantly reduce the costs of energy consumption necessary to operate a facility.



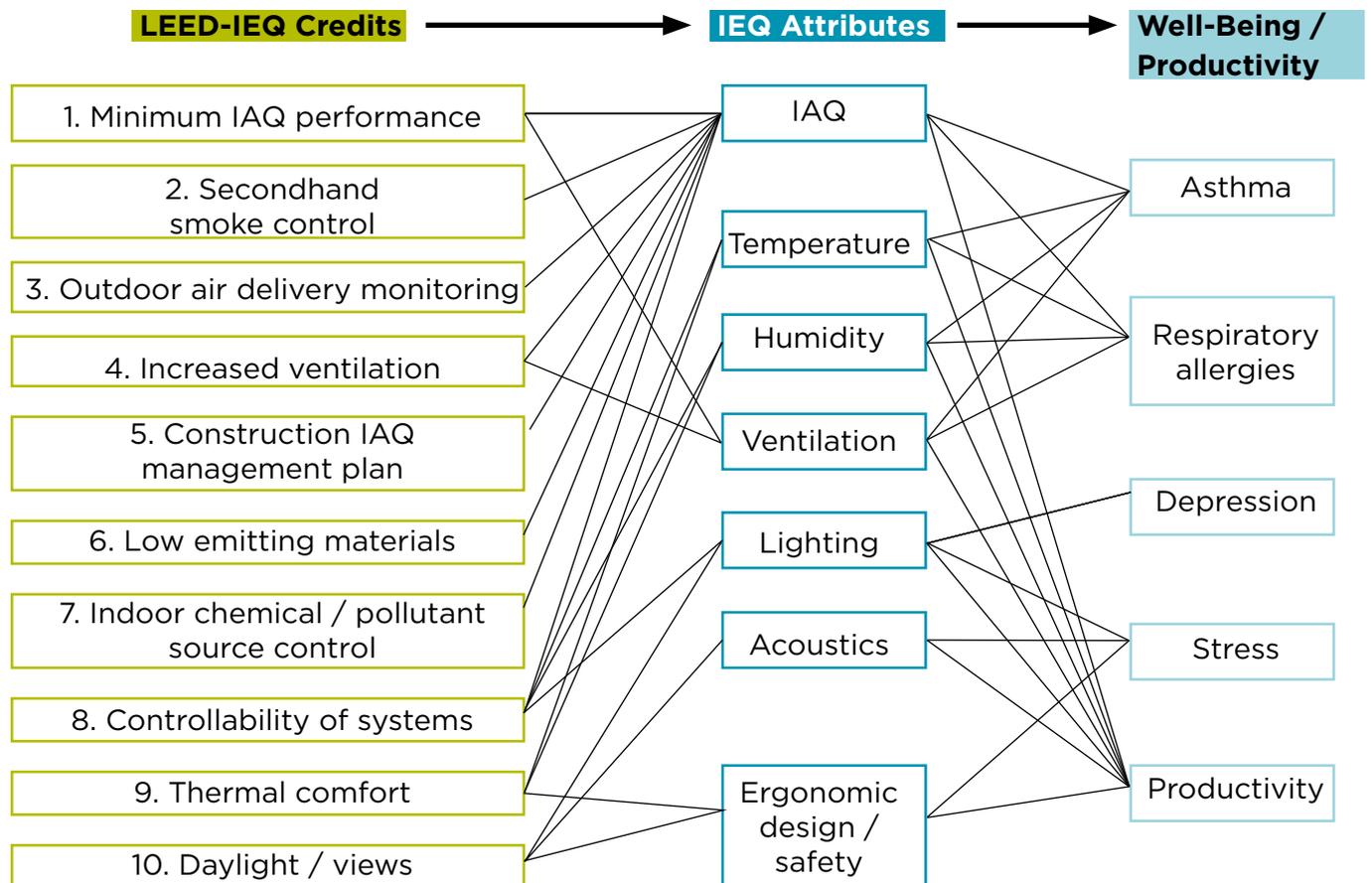
Green leases can be drafted such that the savings rendered by green real estate practices are correctly distributed between landlords and tenants.

ii) Higher operational efficiency

According to figures from China’s Ministry of Environmental Protection, in 2010 environmental degradation and pollution cost mainland China’s economy approximately 1.5 trillion yuan, or roughly 3.5% of its GDP. Some of the lost productivity has been related to health complications caused directly by pollution and other detrimental environmental factors.

In addition to reduced operational costs due to reduced energy consumption, green buildings have also been shown to result in lower rates of absenteeism, higher recorded hours worked, and higher long-term retention rates for occupants – all as a direct result of work-place improvements in health and well-being. According to the LEED certification programme, green improvements can be made to improve indoor environmental quality (IEQ) in order to reduce instances of asthma, respiratory allergies, depression, and stress (Figure 5).

Figure 5:
LEED-IEQ and Wellness



Source: mitsloan.mit.edu, Cushman & Wakefield Research

iii) Added value to physical assets

The value added to real estate by being green is demonstrated in the higher rents charged by landlords and lower vacancy rates demonstrated by the tenants who occupy those premium spaces. Due to global macroscopic shifts in company cultures moving to greater environmental consciousness and sustainability, the ownership of green real estate specifically allows landlords to tap into a more exclusive market that can charge higher premiums on a regular basis due to an increased quality of product. Tenants also value attributes largely prevalent in green buildings, such as improved air quality and access to natural light, and both parties can experience long-term reductions in costs while simultaneously experiencing increased workplace productivity and property demand.

Green leases can be modified to encourage the green improvement of properties by allowing for property modification by the tenant within certain parameters. Clauses such as ‘make good’ clauses, which require the tenant to restore the property back to its original condition when first rented, can render tenant-side green improvement costs prohibitive due to high costs and perceived fruitlessness associated with reverting the property to its original state and removing any green improvements made during the span of occupancy. Under a green lease, these clauses can be rewritten to state that where value-add

green improvements have been made, reinstatement is not applicable.

iv) Improved CSR and consumer demand.

Green real estate and green leases promote sustainability and in turn, CSR. As more individuals and commercial entities realise the importance of CSR, so greater demand for green real estate and green leases will follow.

Government initiatives relating to green development

China’s 13th Five-Year Plan promotes comprehensive environmental governance and protection, emissions controls, and the development of green industries. Government initiatives to implement green finance, green taxes, and green governmental procurement provide firms with great incentives to pursue green initiatives, including green real estate and green leasing. Broader green goals of mainland China’s plan include substantial reductions in water, air, and soil-pollution, the establishment of cross-regional environmental protection and law enforcement agencies, and the establishment of a national carbon trading market.

More specifically, the ‘13th Five Year Plan for Building Energy Efficiency and Green Building Development’ released by China’s Ministry of Housing and Urban-Rural



Development (MOHURD) sets out clear goals regarding on the development of green buildings to be achieved by 2020, including:

- o **Improve energy efficiency in newly constructed urban buildings by 20% from 2015;**
- o **Increase share of newly constructed green buildings to 50%;**
- o **Newly constructed green buildings should reach 2 billion sq m nationwide;**
- o **Retrofitting of existing public buildings for energy efficiency purposes should exceed 100 million sq m, and;**
- o **Retrofitting of existing residential buildings for energy efficiency purposes should exceed 500 million sq m.**

Using LEED certifications as a reference, mainland China has also adopted its own national standard known as the 'Green Building Evaluation Standard' which judges all buildings based on seven criteria:

- o **Conservation of land and outdoor environment;**
- o **Energy conservation and energy utilisation;**
- o **Water saving and water resource utilisation;**
- o **Material saving and material resource utilisation;**
- o **Indoor environmental quality;**
- o **Construction management, and;**
- o **Operation management.**

Moreover, the steadily growing rigor of China's environmental regulations pose challenges to pollution-intensive enterprises, due to the growing influence of enforcement agencies and the implementation of a national carbon trading scheme, which makes conventional carbon dioxide-emitting fuels less competitive due to the increased cost of purchasing emissions allowances. Using cap and trade mechanisms, government officials have promised in international forums to reduce their carbon intensity per unit of GDP by 60-65% by 2030, an ambitious goal in the effort to significantly reduce the growth of national carbon emissions across the board. These carbon taxes work to increase the competitiveness of renewable energy sources and make green investments – such as in green real estate in general and in green leasing – more worthwhile as emissions reduction objectives continue to become the norm.



GREEN LEASING

THE COSTS AND BENEFITS

Green leasing can bring about real and substantial quantitative and qualitative benefits for landlords and tenants. For a tenant, a green lease can help to reduce energy consumption and cut direct (e.g. electricity bills) and indirect (e.g. outgoings for wider building costs) operating costs. In addition, adopting green leasing practices can enable firms to meet their CSR requirements. Firms engaged in green leasing enjoy an enhanced public image for doing the right thing for the environment, which is especially important today as firms' actions around the environment are always placed under scrutiny by multiple stakeholders, including investors, employees, customers, the wider public, the media and governmental officials.

Given that green leasing is by no means widespread in mainland China currently, green leases can serve as a competitive advantage for firms looking to differentiate themselves from their peers and stand out as an environmentally conscious organisation. Firms with green leases today represent the pioneers in their industries and might gain more bargaining power in future consultations with government officials on environmental regulations affecting their industries. Additionally, green leases often translate to improvements in the work environment (such as better indoor air quality) for the tenants, resulting in greater productivity and reduced absenteeism. With the

ability to offer a more comfortable work environment, firms with green leases achieve higher employee retention rates, higher employee satisfaction and higher levels of employee health and wellness, all of which are important in a world where retaining top talent is becoming increasingly challenging.

Green leasing can increase transparency and communication between landlords and tenants, promote a happier landlord-tenant relationship and, when green clauses are properly drafted to be mutually beneficial, reduce landlord-tenant disputes. This makes it less likely for tenants to seek relocation at the end of the lease term and more likely to enter into longer-term leasing arrangements. As a result, tenants will avoid the costs of searching for a new commercial space and landlords will avoid the costs of searching for a new tenant. For landlords, green leases might seem expensive in the sense that expenditure is required to upgrade lighting and HVAC systems for example.

However, such expenditure adds to the value of the commercial building and allows the building or space to command a premium in the rental market. Landlords are also in a better position over the long term once they break even from the reduced maintenance costs and the extended average life span for the upgraded equipment because their early

investments in efficiency will make them more resilient against potential future increases in energy costs due to scarcity of resources. Finally, green leasing is consistent with and can facilitate efforts by either the landlord or tenant to gain and maintain a certain green building certification, such as mainland China's Three-Star System, LEED, WELL and RESET. Certified green commercial buildings give rise to higher occupancy rates and can help to attract landlords attract more high-value tenants.

A green lease must be administered correctly to accomplish its sustainability, social and commercial goals. Consequently, there are some costs involved in carrying out the obligations under the green lease, which the parties would not have incurred had the green clauses not be incorporated. These costs might comprise both the monetary and time costs of obtaining ratings, of collecting and assessing information on the performance of the commercial building and of attending building management meetings.

In addition, tenants' behaviour under the green lease is guided to ensure that environmental measures are met. For example, tenants may be required to turn off lights and appliances upon leaving the commercial space. In most cases, the behaviour changes necessary to comply with a green lease are easy to make. Such behaviour changes most likely become common practice after a period of readjustment, given that they usually do not cause much inconvenience to employees and do not hinder the overall usability of the commercial building. Overall, the costs of green leasing are but a small price to pay for the tremendous value added by a green lease to the commercial building for landlords and the work environment for tenants.

PureLiving

Cost savings from efficiency gains via smart HVAC in general in China

“Ensuring a safe and healthy environment can be realised via innovative financing models, that create a win-win for both workers and the wider sustainability agenda. Through investing in building systems upgrades for example, clean air can be delivered to tenants without sacrificing ventilation supply, while reducing a building's overall carbon footprint. Heating, ventilation and air conditioning (HVAC) systems are the lungs of commercial buildings but in China, PureLiving has found many systems to be underperforming, and in some cases, they have been found to be sources of indoor pollution to commercial spaces. It is therefore essential that HVAC systems are optimised and maintained to a high degree to ensure standards of worker wellness and productivity gains can be achieved. Turnkey retrofits and upgrades to the HVAC system can pay for itself via reductions in energy usage in the range of 20 to 40%, simultaneously increasing filtration of outdoor pollution to achieve reduction of 90% and above. This two-pronged approach ensures a quick return-on-investment, typically within two to three years, via lowered utility bills and increased staff productivity, as well as contributing significantly to achievement of green building standards such as LEED and WELL.”

GREEN LEASING

THE ELEMENTS TO

Five essential elements should be covered in a green lease, no matter whether it is light green, mid-green or dark green:

- o An agreed target rating;
- o Separate digital metering;
- o The establishment of a building management committee;
- o An energy management plan, and;
- o A dispute resolution process.

An agreed target rating

A typical green lease refers to a certain green building certification and requires both the landlord and the tenant to ensure that the commercial building is occupied in a sustainable way to actually take advantage of its environmentally-friendly design and build. The importance of green leasing cannot be understated because even a new building that is designed and constructed to achieve a certain rating might fail to do so unless there is a management framework for shared environmental commitment to prevent it from being operated below a level of efficiency to be expected of it. For

example, it was acknowledged in a report by the New Buildings Institute that 25% of the LEED certified projects in the study performed significantly worse in energy efficiency than the design projections. Although an assessment can be carried out on a commercial building as soon as construction is complete to gain a certain rating under most green building certifications, including LEED, a green lease is nevertheless crucial, as a contractual device to maintain the efficiencies that have been rated, for the building to meet its environmental targets in the future.

In mainland China, green building certifications are becoming more common, with mainland China's Three-Star System and LEED dominating the green building market. Mainland China's Three-Star System evaluates projects in relation to their performance in six categories: land, energy, water, resource/material efficiency, indoor environmental quality and operational management. As at the end of 2017, there were 10,927 China Three-Star projects in mainland China and cumulative

Table 4:
Top 10 Countries and Regions for LEED Outside the U.S. (2018)

Ranking	Country / Region	Number of Projects	Gross Square Meters*
1	Mainland China	1,494	68.83
2	Canada	3,254	46.81
3	India	899	24.81
4	Brazil	531	16.74
5	Republic of Korea	143	12.15
6	Turkey	337	10.9
7	Germany	327	8.47
8	Mexico	370	8.41
9	China, Taiwan	144	7.3
10	Spain	299	5.81
**	United States	33,632	441.6

**Gross square meters are reported in millions. Data is reported as of December 2018.*

Source: U.S. Green Building Council, Cushman & Wakefield Research

China Three-Star certified gross floor area exceeded 1 billion sq m. By comparison, although mainland China ranks first in the world outside the United States in terms of cumulative LEED certified gross floor area, there were only 1,494 LEED certified projects in mainland China, with a cumulative LEED certified gross area of about 69 million sq m, as at the end of 2018 (Table 4).

Besides mainland China's Three-Star System and LEED, there are other green building certifications, such as WELL and RESET, that focus on health and well-being concepts: for example, air, water, nourishment, light, fitness, comfort and

mind. Regardless of which green building certification the landlord and the tenant want to gain and maintain, a green lease can help to delineate the obligations of the parties and the steps that each must take to enable the building to be as efficient as practicably possible and to achieve the agreed target rating.

Separate digital metering

For the benefits of a green lease to be properly realised, energy-use data must be properly recorded and disclosed such that landlords and tenants are made aware of tenant energy-usage rates on an individual level. Detailed and easily accessible usage

data to be shared with landlords and among tenants is best produced through separate digital metering, or submetering, which can most easily collect plug load and lighting usage but can additionally consider usage related to central systems, including heating, cooling, and ventilation.

In a multitenanted commercial building, tenants should all be working towards the same energy goal to ensure they feel that they are being treated equitably. In order to ensure cooperation between parties to address energy-consumption inefficiencies, annual operational reports including total building energy consumption, solar photovoltaic (PV) production, and whether renewable energy certificates (RECs) have become necessary since the publishing of the previous year's report. Ideally, live-tracking can be implemented to encourage rapid troubleshooting by tenants and landlords and a periodic survey can be provided by landlords to clients to monitor tenant sentiment and satisfaction.



The establishment of a building management committee

An established building management committee, usually comprised of both the landlord's and tenant's representatives, serves to support communication, consultation and record-keeping between the parties to the green lease. Under the green lease, the building management committee might be tasked with a wide range of duties. In particular, regarding implementing the energy management plan, the building management committee might be responsible for monitoring data, storing and managing reports and information required for assessing compliance with the green lease and publishing an annual report on energy and water consumption in the building.

Additionally, the building management committee might be empowered to liaise with the government and contractors on behalf of the landlord and tenant. The obligations set out in the green lease on the building management committee should be relatively simple and realistic, given that a high level of commitment to the building management committee might be hard to come across in large commercial buildings. The arrangements for the administration of the green lease by the building management committee should not be a burden to the parties to the extent that the intentions built into the green lease become ignored.



An energy management plan

A commercial building's energy management plan should budget energy allocations on a per-tenant basis based on standard industry usage requirements and on-site renewable energy generation. To ensure that targets are met, many leases deliberately separate energy expenses from operating expenses to ensure more transparent communication among parties.

Creating and enforcing an energy management plan requires trust between tenants and landlords. Landlords should be open and ensure that tenants are properly informed on the types of plug loads and behavioural modifications that must be made in order to meet consumption targets. A weak foundation of trust between parties can easily prevent the execution of a green lease, so tenants must be assured that the clauses included in their lease do not exceed their budget constraints or compromise their employees' productivity.



A dispute resolution process

Different approaches to lease enforcement are applicable in the case of enforcing green clauses. Landlords can include rewards into leases, including rent credits, reductions in operational expenses, funding for the installation of vehicle charging stations, and personal events such as catered lunches to strengthen the personal foundations of trust among landlords and their tenants. Penalties can be worked into leases equally as effectively, including clauses requiring payment for excess energy consumption and the introduction of renewable energy certificates to offset excessive use. Transparent tenant performance is necessary so that all tenants can see the relative performance of their own operations among their peer occupiers. Ultimately, the pursuit of net-zero energy commercial buildings requires the equal cooperation of all tenants to implement energy-consumption reductions, and so a hybrid approach balancing rewards and punishments provides a powerful approach to enforce the clauses agreed upon to reach the green goals in an effective manner.

What's more, transparent tenant performance is necessary so that a building management committee can fairly access why a certain target has not been met. Additionally, committees can be formed and established in the language of the lease to appropriately mediate disputes and make specific modifications to green lease provisions when deemed necessary.

GREEN LEASING

THE COST RECOVERY

In order to solve the split-incentive problem and incentivise landlords to invest more in energy efficient projects, a green lease must provide a method for landlords to recover their capital expenses. One example which has effectively solved the split incentive issue is the case of 500 North Gulph Road, in King of Prussia, Pennsylvania, U.S.A. (Figure 6 and Case study 1 in the Appendix).

Figure 6:
500 North Gulph Road, King of Prussia, Pennsylvania timeline

1979

A Class A office building was completed at 500 North Gulph Road in King of Prussia, Pennsylvania.

2018

The office building at 500 North Gulph Road was redeveloped by Brandywine Realty Trust for around US\$30 million. The façade and interior of the office building were updated, and a car park was added.

2019

CSL Behring, a biopharmaceutical company, becomes the sole occupant of the office building at 500 North Gulph Road.

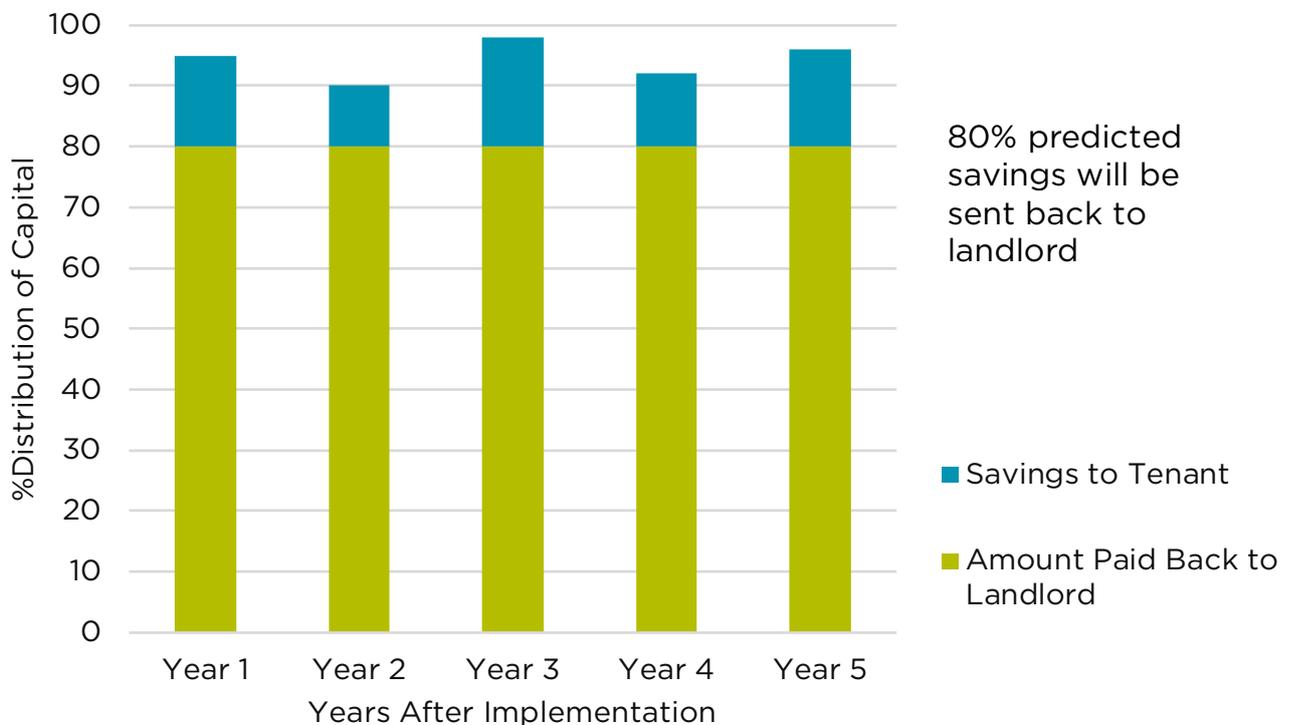
Source:
Cushman & Wakefield Research

Conventionally, landlords have relied on amortisation to recover the cost of their green investments from tenants, who can benefit from reduced utility bills. Nonetheless, with this approach the capital expenses are typically spread out over the useful life of the retrofit, which can extend over multiple decades. The resulting payback period is often too long to persuade landlords to go ahead with the investment. In most cases, a retrofit will pay for itself through energy savings before a positive return on investment can be achieved by a landlord, who cannot benefit from the reduced utility bills.

Such an issue does not arise from green leases where landlords pass the cost of their investments to tenants, with the capital expenses passed through being limited to the predicted energy savings associated with the retrofit. This approach shortens the payback period for landlords compared to amortisation, incentivising them to invest in energy efficiency upgrades. According to a working group in New York, for the investment to be mutually beneficial to both landlords and tenants, a cost equal to 80% of the predicted energy savings should be passed through, allowing the tenant to enjoy the difference between the capital expenses passed through

and the actual energy savings. The predicted energy savings are to be determined by an energy specialist and, generally speaking, actual energy savings fall within plus or minus 20% of predicted energy savings. As such, the risk taken on by a tenant of the retrofit being less energy efficient than expected can be mitigated by the capital expenses passed through being limited to 80% of predicted energy savings, which provides a buffer against loss. This method leads to a win-win situation in which landlords will be able to recover the cost of their investments in a timely manner and tenants will continue to reap the rewards of reduced utility bills even after the payback period (Figure 7).

Figure 7:
Example of energy-aligned clause payback plan in action



Source: Hong Kong Green Building Council, Cushman & Wakefield Research

GREEN LEASING

THE INTERNATIONAL PERSPECTIVE

While the green leasing model is quite new to the commercial leasing market in mainland China, green leases have become mainstream in some countries, such as the U.S., Canada, Sweden, the United Kingdom and Australia. Around the world, industry organisations such as the Building Owners and Managers Association (BOMA) and the Building Research Establishment Group (BRE), have also produced documents (the Green Lease Guide by BOMA and the BREEAM In-Use Assessment by BRE) which support green leasing.

In particular, the green leasing experience in Sweden, the United Kingdom and Australia indicates that “large organisations with environmentally-friendly internal cultures facing (the possibility of) strict government regulations” are most likely to be early adopters of green leasing, according to research by the Energy Institute at the University College of London. Across Sweden, the United Kingdom and Australia, partnerships between the biggest commercial property owners in the country have been similarly established to promote green leasing and to scale up the domestic implementation of green leases. Having said this, the policy context behind the development of green leasing in these countries and the green leasing practices currently in place are unique to each and are worth examining further to shed light on the approach that mainland China may follow in the future.

In Sweden, ambitious targets have been set to cut energy usage intensity by 20% by 2020 and 50% by 2030, from the 2008 levels and 2005 levels respectively. Over the last 20 years or so, landlords and tenants in the country have been cooperating to make real estate greener and, over the last 10 years their attention has turned to formalising the progress, from cooperation on energy efficiency to green leases. Collaboration between landlords has been facilitated by a group of 21 large Swedish commercial property owners named BELOK. An appendix contract to be included in a non-green lease to form a green lease was published by Fastighetsägarna, the Swedish Property Federation, in 2013 and has since then received widespread support from landlords and tenants alike, ultimately becoming the market standard. So far, more than 2,500 green leases based on the appendix contract have been entered into in Sweden and the number is expected to only increase further.



The United Kingdom

Under the building regulations in the United Kingdom, both new commercial buildings and building renovations must achieve a certain degree of energy efficiency. In addition, an energy audit on energy use across buildings, industrial processes and transport must be carried out by large organisations every four years. As a result, green leases have been important to ensuring compliance with the building regulations in the country. The UK Better Buildings Partnership, a group of 30 large UK commercial property owners, has championed the development of green leasing by creating a toolkit on green clauses to be incorporated into leases, and by advocating the use of a Memorandum of Understanding to encourage landlords and tenants in buildings that are already let to engage in green leasing practices without having to amend their non-green lease.



Sweden



Australia

In Australia, there are also minimum energy standards under the Building Code of Australia for new commercial buildings as well as renovations, as in the United Kingdom. However, the proportion of the existing stock required to meet the minimum energy standards is substantially lower in Australia since the standards were only added to the Building Code of Australia in 2006. In relation to green leasing, the government has led by example in formulating a Green Lease Schedule, which mandates collaboration and cooperation for the efficient operation of buildings, and by including the Schedule in all leases of more than 2,000 sq m to which the government is a party.

The Sydney Better Buildings Partnership, a group of 25 large Sydney commercial and public sector property owners, is the Australian counterpart of the UK Better Buildings Partnership and has also created a toolkit on green clauses to be incorporated into leases. According to the Sydney Better Buildings Partnership, more than 80% of prime building leases in Sydney contain green clauses and 94% of the biggest property owners in Australia use green leases. By implementing green leases, the members of the Sydney Better Buildings Partnership – which own 54% of office space in Sydney – have been able to significantly reduce their energy and water consumption. From 2006 levels, emissions, energy consumption and water consumption from buildings owned by the members have fallen by 52%, 43% and 36% respectively. This translates to enormous cost savings, with the members enjoying cost savings of AU\$33 million from electricity savings every year for example. An example of an Australian property owner which has been very involved in green leasing is the Cromwell Property Group (Figure 8 and Case study 2 in the Appendix).

Figure 8:
The Cromwell Property Group, New South Wales timeline

June 2013

Cromwell Property Group acquired six properties from the New South Wales Government (GPNSW) with a lease-back provision that included green clauses which provided the parties involved with several achievable sustainability goals.

Late 2013

A Green Lease Committee (GLC) was established to oversee environmental development plans specific to each property. The committee set the terms of reference, meeting schedules, and timeframes for the implementation of specific development plans.

Early 2014

Facility managers from Cromwell Property Group participated in a series of half-day workshops facilitated by the New South Wales Government Office of Environment and Heritage to educate managers about green leasing, building consumption mechanisms, and how to improve and drive environmental improvement plans forward.

Mid-2014

Environmental development plans for all the acquired properties were completed by facility managers.

November 2014

Full implementation of environmental development plans and tenant engagement was completed, including workshops facilitated by GLC and attended by tenant representatives and Cromwell Property Group facility managers from each property. Topics included the objectives, schedule, and governance of green leases, energy audits, major building initiatives and environmental impact goals, and potential tenant sustainability initiatives that could be included into each development plan.

Source:
Cushman & Wakefield Research

GREEN LEASING

NET-ZERO/

NET-POSITIVE

FUTURE

Green leasing is an important initiative in reducing our carbon footprint and preserving our environment. The eventual goal for real estate is to reach net-zero or even net-positive status, where the total amount of energy consumed on an annual basis is equal to or less than the amount of renewable energy generated on-site within the same period. By achieving this, real estate in mainland China and around the world will be greener, cleaner and meaner!





500 North Gulp Road, King of Prussia, Pennsylvania

Sharing the cost to benefit all

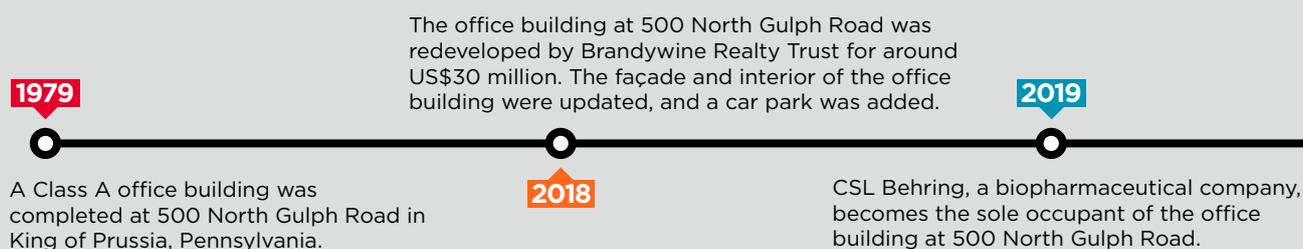
1992 – Present

Summary

A 40-year-old office building in King of Prussia, Pennsylvania has recently been redeveloped. Green leasing, as a solution to the split-incentive problem, has made investments in energy efficiency possible.



Timeline of major events/milestones reached:



Overview:

Brandywine Realty Trust successfully worked with tenants to introduce green cost pass-through clauses, incentivising both parties to introduce green retrofits and significantly reduce energy consumption. This resulted in tenable cost savings and future cooperation through well-structured agreements.

How it was done:

- Brandywine Realty Trust focuses on achieving not only energy efficiency but also data transparency through green leasing.
- In all leases that Brandywine Realty Trust enters into, there is a cost pass-through clause to enable it, as the landlord, to charge its tenants for energy efficiency upgrades that result in cost savings, so long as cost savings to the tenants are greater than the costs passed through to them.
- Since 1992, Brandywine Realty Trust has been passing through the cost of the building automation system in the office building at 500 North Gulph Road to its tenants.
- In order to convince its tenants that a cost pass-through clause should be included, Brandywine Realty Trust communicated to them the nature and scope of the retrofit and how they stand to benefit from the cost savings, even with the costs passed through to them taken into account.
- Although submetering was not available before the redevelopment, costs allocated to tenants were proportional to their square footage to ensure fairness.
- Flexibility is key to success for the cost pass-through clause. To address the concerns of one tenant, who was worried that the retrofit would not actually be able to pay for itself as quickly as expected, Brandywine Realty agreed to monitor the performance of the upgrade and

to extend the repayment period, lowering the monthly payments, for the tenant should the performance of the upgrade fall below what was expected.

Impact:

- Formulated a mutually beneficial method to fund retrofits, such as utilising a building automation system to significantly reduce energy consumption.
- Introduced building-wide monitoring provided by the building manager to address concerns regarding the performance of green-improvement assets given the absence of submetering.
- Reduced energy costs by 46% from US\$3.50 per sq ft to US\$1.90 per sq ft.
- Increased education to facilitate future cooperation among tenants and facility managers for future green improvements.
- Addressed barriers related to limited data availability by installing utility meters and requiring tenants to provide monthly data on usage.

Key takeaways:

- Cost pass-through clauses can be used to make green improvements feasible from a business standpoint.
- Tenant uncertainty can serve as a major barrier to green improvements if not properly addressed, so the incorporation of clauses to reduce initial monthly payments and extend payment longevity can ease initial worries.
- Using green improvements to retrofit older buildings can significantly reduce energy consumption and translate into tangible cost savings for both managers and tenants.



The Cromwell Property Group, New South Wales

Effective planning for a greener future

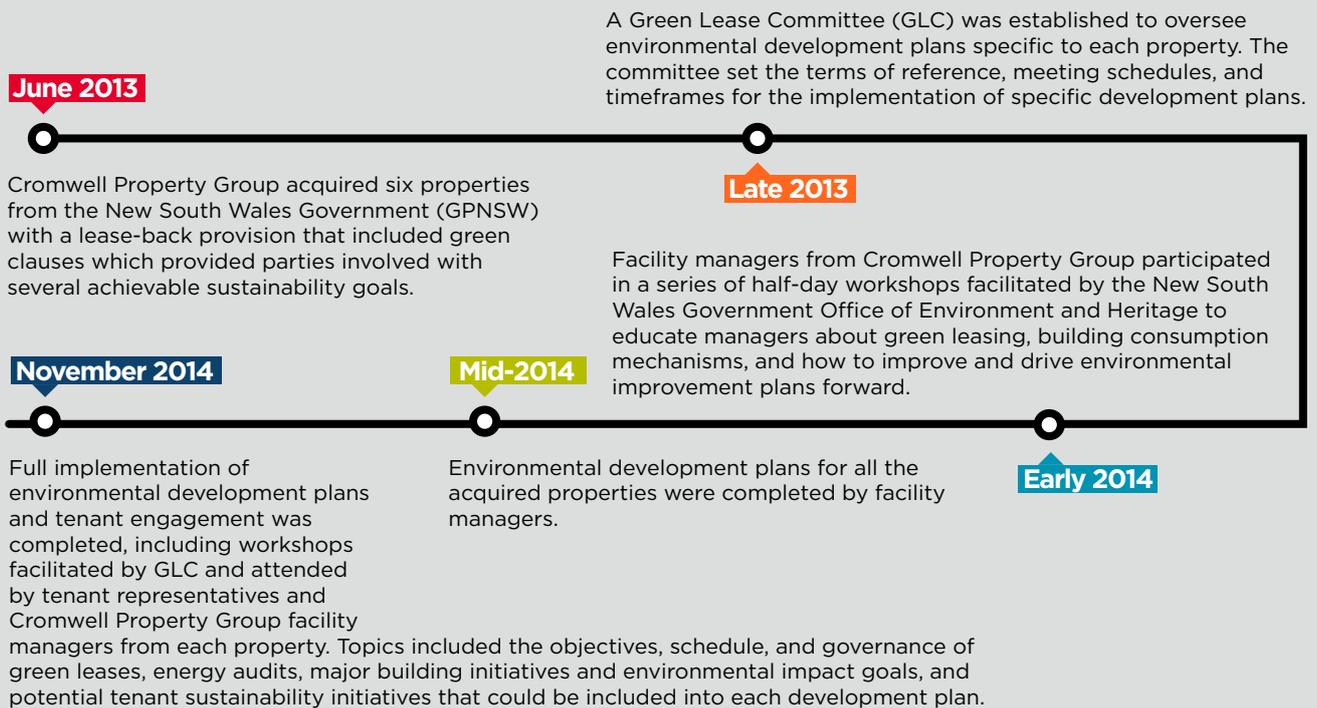
2013 - Present

Summary

Cromwell Property Group acquired a portfolio of six assets with green lease provisions that required parties to cooperate to reach aggressive sustainability goals. This has resulted in significant reductions in energy and water consumption as well as the level of greenhouse gas emissions produced annually.



Timeline of major events/milestones reached:



Overview:

In the case of Cromwell Property Group acquiring a new portfolio of assets in June 2013, the implementation of green leases with coordination among the Green Lease Committee, facility managers from each site, and tenant representatives resulted in significant improvements in energy efficiency.

How it was done:

- General development plans documents provided by the Energy and Sustainability Manager Government Property NSW were refined by the GLC in the initial workshop.
- Continued tenant engagement through communication and joint consultation throughout the process through setting regular meeting times.
- Setting reasonable expectation among all parties was key in securing the most effective and manageable green clauses.

Results:

- From 2014 to 2016, significant savings were directly attributable to green leasing activities,

including a 9.2% decrease in electricity consumption, a 20.3% decrease in gas consumption, and a 12% decrease in greenhouse gas emissions.

- Recycling levels of more than 65% of total waste from each building.
- Improved NABERS Energy and Water ratings in all buildings.

Key takeaways:

- The incorporation of green leases into lease-back provisions can have tangible impacts in reducing energy consumption, waste production, and emissions after implementation.
- Cooperation between facility managers and tenants through regularly scheduled workshops and meetings is key to devising and enforcing a successful green lease.
- Clear goals and outlined timeframes and commitments help keep parties updated regarding changes from status quo operations to make tangible improvements that benefit all parties involved.



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