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ENVIRONMENTAL UPGRADE AGREEMENTS

YOUR GUIDE TO AUSTRALIA'S FINANCE INNOVATION FOR BUILDING RETROFITS

BY LYNNE BLUNDELL

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The Siemens logo is displayed in a white box with a red and white striped border at the top left. The background of the entire slide is a night-time photograph of a city skyline across a body of water, featuring the Sydney Opera House on the left and a large bridge on the right.

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Switch On to a Sustainable Future



CUNDALL

Foreword

It came as a bolt from the blue. An illuminating idea that seemed so strong it could change the game for building retrofits.

Environmental Upgrade Agreements were conceived as a way to finance environmental upgrades for older buildings.

The clever part of the concept is that the loan is paid from energy savings.

The genius part is that the repayments are made through a levy on the council rates. This comes with all sorts of advantages, from cheaper loan funding to making the deal a win-win for tenant and owner.

Yet this is a cautious industry. It likes to proceed on solid ground. New ideas are turned over and examined in every possible light, as they should be.

So the mechanism has been thrown every curly “what if” question that can be mustered. Still we remained convinced, and excited about the prospects. And so were a growing number of fans, passionate about the potential.

The answer it seemed was to bring elements from the different parts of the industry into a roundtable discussion with no audience, just a recording device, and a request to be honest and as difficult as possible! Then to find solutions.

We did this in Sydney and Melbourne. Two great sessions that revealed many of the fundamental issues and potential solutions.

It was a fantastic starting point.

Our deepest thanks to all our sponsors. Without you, of course, such an undertaking would not be possible. A special thanks to James Allston of Siemens who was first aboard and helped give genesis to this book.

A huge thanks also to the City of Melbourne, the Sustainable Melbourne Fund and its chief executive Scott Bocskay, who also contributed a chapter in the book, to the City of Sydney and all councils participating in EUAs.

And so with this fabulous support we embarked on the biggest project in *The Fifth Estate's* history.

We hope it's valuable to you. And we hope it ignites a massive retrofit revolution.

Tina Perinotto

Managing Editor,
The Fifth Estate

maximising efficiency

minimising costs

How NDY can future-proof your facility against spiralling energy costs.

A key element in making an EUA work is to have a package of energy efficiency upgrade works that has been designed, costed and is ready to implement.

The style or type of project undertaken under an EUA can vary from the replacement of major plant such as chillers, building automation systems and main switchboards through to an extensive refurbishment encompassing all building services.

This flexibility makes EUAs an attractive proposition.

With extensive experience in relation to building performance optimisation and energy efficiency, NDY can help existing building owners and tenants unlock funding through EUAs.

By working with the building owner, NDY will tailor a package of environmental upgrade works to achieve improved energy efficient outcomes resulting in whole-of-life cost savings.



CHILLER REPLACEMENT

Casselden - Melbourne

2 Lonsdale St, or Casselden Place, is an A Grade, high rise commercial building located within Melbourne's CBD. NDY were engaged by the building owner, ISPT, to undertake a replacement chilled water plant feasibility study. The final solution involved installation of new high efficiency chilled water plant that led to significant energy savings, improved reliability and reduced maintenance costs.



BUILDING CONTROLS

600 Bourke St - Melbourne

NDY were appointed to provide full design & construction administration services for the replacement of the Building Management Control System of this 55 storey office building. The project involved installation of BMCS backbone infrastructure, field controllers and web based architecture to replace the DDC system. Energy usage dropped by approx 20% for electricity and 35% for natural gas.



LIGHTING

60 Carrington Street - Sydney

Specialised lighting was provided to foyers, lift lobbies and external façade to this property in Sydney's CBD.

Electrical services were totally upgraded including a new lighting system resulting in:

- reduced energy consumption
- improved internal environment
- greater attraction to tenants.
- return on investment for the client.



BUILDING REFURBISHMENT

73 Northbourne Avenue - ACT

This 1980's low-rise commercial building consists of a total NLA of 6,300m². NDY were engaged to improve the base building NABERS rating from 3 to 4 stars. The upgrades included: replacement of chillers & pumps; modification of air distribution systems; replacement of the building management control system; and installation of energy efficient light fixtures & fittings. A year following practical completion the building achieved the target rating of 4 stars.

“NDY’s refurbishment of our building at 73 Northbourne Avenue resulted in improved energy efficiency and enhanced indoor environment quality.”

David Tasker, General Manager Projects
Bennelong PFM Pty Limited

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Introducing the Environmental Upgrade Agreement

The Background

Buildings are a major contributor to global warming, accounting for at least 23 per cent of Australia's greenhouse gas emissions, according to the Centre for International Economics. Internationally the figure is even higher – 40 per cent, estimates the United Nations. And while Australia is a leader in the design and construction of new energy efficient buildings, existing buildings make up around 95 per cent of our building stock. Sustainable upgrade of these buildings is increasingly seen as the key to significantly reducing carbon emissions. To help make this happen, some leading players in the finance sector have been working with government to develop innovative funding schemes, the most recent of which is Environmental Upgrade Agreements.

Our cities are full of aging buildings. According to figures from the Property Council of Australia, secondary commercial property – that is B, C and D grade buildings – make up more than half of our CBDs.

In some cities the percentage of secondary stock is much higher – in Canberra, for example, it accounts for 59 per cent of the market, and in Adelaide 64 per cent.

In regional cities it is also higher – in Newcastle these buildings account for 67 per cent, Wollongong 55 per cent and Parramatta 66 per cent. And in these cities C and D grade properties make up a large percentage of total space – 33 per cent, 34 per cent and 43 per cent, respectively.

Many of these secondary buildings are outdated and very energy-inefficient. A survey recently released by the Total Environment Centre, Lessons and Tools from Existing Office Building Leaders, reveals that the average age of all Australian CBD office building stock since construction is 28 years, or 19 years since last refurbishment (LEHR 2007). Given the large percentage of B, C and D grade buildings in our CBDs, the age of a significant number of these buildings is older than this average.

Tony Arnel, global director of sustainability at Norman Disney & Young, founding director of the Green Building Council of Australia, former chair of the World Green Building Council and a board member of Sustainable Melbourne, says the upgrading of older buildings is essential if Australia is serious about reducing greenhouse gas emissions.

“A decade ago the Green Building Council set out to transform the property industry. I think we can say that has been achieved but it is existing buildings that offer the biggest opportunity for reducing the impact of the built environment. These older buildings are the last frontier,” says Arnel.

Older buildings, constructed 20, 30 and 40 years ago and installed with outdated air conditioning systems and lighting, are those that must be addressed, says Arnel.

Introducing the Environmental Upgrade Agreement

The Background

“It's not good enough to say new buildings are achieving high sustainability ratings when 95 per cent of our buildings are older stock. The numbers are huge and the task is huge.

“These buildings were constructed when energy pricing wasn't an issue and energy efficiency wasn't a priority. Now we need to ensure they are operating for the 21st century.”

Robert Jamieson, chairman of Sustainable Melbourne Fund, says momentum is gathering in the retrofitting of older buildings in Melbourne.

“We need to reach a tipping point – that hasn't happened yet but we are getting there. With more education regarding the importance of retrofitting older building stock that tipping point will come. I think we will see a lot more movement in six months or so,” says Jamieson.

Sustainable Melbourne Fund, which was set up by the Melbourne City Council in 2002 to progress sustainable development in greater Melbourne through strategic investments, has been very proactive in advocacy and education work to promote the importance of building upgrades.

Jamieson, a partner with Ashurst Australia, says there is growing interest from property owners, property trusts and tenants with a wide variety of buildings in the Fund's upgrade pipeline.

“Some are 1970s buildings and others are much older. The two key areas for upgrades are air conditioning and lighting. These two things have a huge impact on reducing electricity use and lowering greenhouse gas emissions,” says Jamieson.

Joel Quintal, Jones Lang LaSalle's director of sustainability in Australia, agrees that upgrading this older stock is the most cost-effective way of achieving major reductions in emissions.

“Although new buildings can address energy efficiency and carbon reductions, we are only replacing a very small percentage of building stock each year. We need to focus on “future-proofing” existing buildings through energy-efficient retrofitting,” says Quintal.

“Since 98 per cent of the buildings that will be here in 2050 are already built, retrofitting these structures – which are hindered by old equipment, aging infrastructure, and inadequate resources – is currently the most sustainable way to achieve major carbon reductions. With any budget, green building measures can be implemented with minimal costs and will result in enormous savings.”

The Background

There is mounting evidence that sustainable upgrades also make financial sense, increasing the value of buildings and making them more attractive to tenants; evidence which is hard to ignore. The Building Better Returns report (released last year by the Australian Property Institute and Property Funds Association) found that buildings with 5 star NABERS rating enjoyed a 9 per cent premium in value and those with a 3 to 4.5 star NABERS, a 2-3 per cent premium.

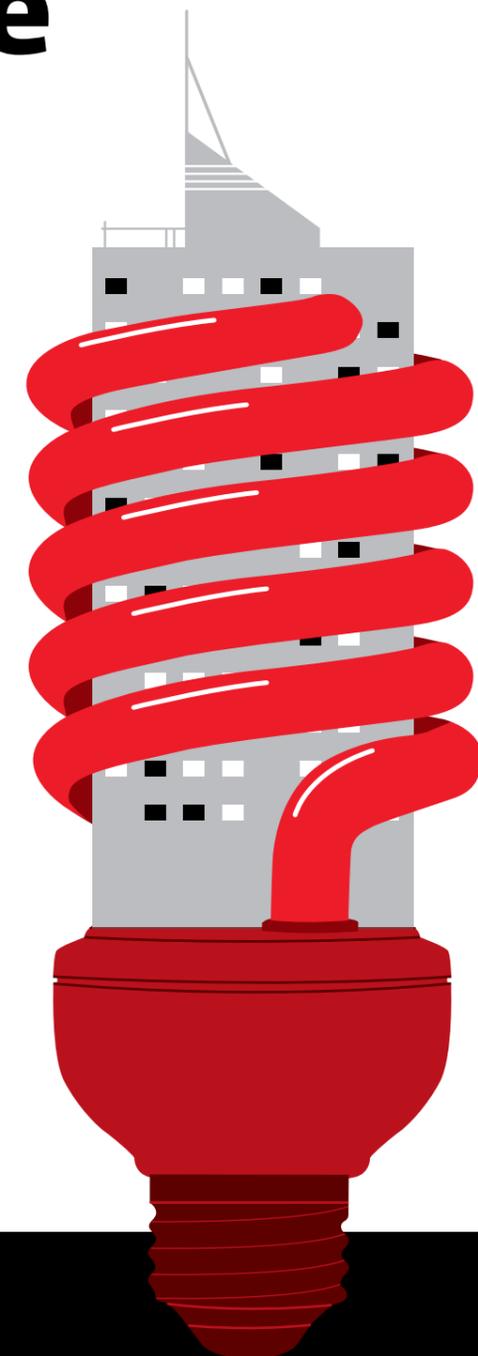
More worryingly for owners of older buildings, those buildings with less than 3 star NABERS suffered a 10 per cent discount in value in Sydney and a 13 per cent discount in Canberra, the study found.

But with access to capital tightening since the global financial crisis, building upgrades have not been a priority for many building owners. In recognition of the importance of stimulating environmental upgrades in buildings, governments at federal and state levels have introduced a range of funding schemes in recent years. The most recent of these is the Environmental Upgrade Agreement, or EUA, a financial product with a very specific goal – to encourage the owners of older buildings to upgrade their properties so they consume less energy.

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Part One

EUAs and the case for upgrading older buildings

Removing the barriers

The EUA concept was developed by Australian financiers in cooperation with government authorities and, while the mechanism has some similarities to overseas schemes such as the Property Assessed Clean Energy (PACE) financing mechanism in the United States (which was developed to help home owners pay for solar panels), the EUA is a world-first for commercial property, according to those who have helped create it.

The product is structured in such a way that removes some of the barriers that have historically discouraged building owners and investors from investing in upgrades; in particular, the high cost of funding and the inability for the landlord to pass the cost of the refurbishment on to tenants, even though tenants are the main beneficiaries of lower energy bills (known as the split incentive).

Pat Dale, principal of Aeris Capital, who was a key player in the development of NAB's product for EUAs, says the funding mechanism has been more than four years in the making. He believes it has the potential to unlock considerable value in the building sector and to push energy efficiency to the next level.

"The genesis of this product is removing the commonly cited reasons or barriers to sustainability investment, which might be capital availability or split incentive. The product effectively dispatches

both those problems. If you're removing the barriers, you're removing the excuses for lack of investment, and the whole premise of the product is really to accelerate and increase the volume of investment that can happen in the built environment where EUAs are available," Dale says.

The EUA achieves this through a tripartite agreement between landlords, councils and financiers, and because the loan is attached to the property and repaid via a special council charge.



Pat Dale - Aeris Capital

Part One

EUAs and the case for upgrading older buildings

It's catching on

So far, EUA legislation has been passed in Victoria and NSW, and the South Australian government is currently considering the introduction of EUAs.

The Victorian legislation was passed in September 2010, and the City of Melbourne Act 2001 was amended to enable the City of Melbourne to levy a new form of statutory charge, called an environmental upgrade charge.

In NSW the Local Government Amendment (Environmental Upgrade Agreements) Act 2010 was passed in late 2010. Applying across the state, its provisions have been adopted by the City of Sydney and Parramatta councils with others expected to follow.

Under the Environmental Upgrade Agreement in both states:

- The financier provides funds to the owner on commercial terms for building upgrade works deemed eligible by the local council, with specifications as to what works will be carried out, the amount borrowed and the repayment arrangements
- The owner repays the loan to the local council in the form of a special rate or charge
- The council forwards received loan payments to the lender.

In announcing the NSW legislation, the then NSW Minister for Climate Change and the Environment Frank Sartor said it would encourage landlords to invest in energy savings upgrades, because over time the resulting savings in electricity pay for the cost of the upgrades.

"The commercial property sector consumes approximately a fifth of Australia's electricity and accounts for around 13 per cent of greenhouse gas emissions – rising by 3 per cent a year," Sartor said.

In high-density areas, such as the Sydney CBD, office, hotel and retail buildings can account for as much as 77 per cent of the city's greenhouse gas emissions, Sartor pointed out.

"Tenants will benefit over time from reduced electricity bills from energy efficiency upgrades that otherwise would have been unlikely to happen."

According to Sartor, the finance sector had estimated that at least \$2 billion worth of energy efficiency upgrades in the Sydney market could be unlocked as a result of the legislation.

One of the main differences in the NSW and Victorian EUA legislation is the extent to which landlords must engage with tenants. In NSW landlords must ensure tenants will be no worse off as a result of the EUA agreement, and must inform them if an EUA is being put in place. In Victoria the legislation goes a step further, requiring the written consent of all tenants before an EUA can go ahead.

It's catching on

Chair of the Future Melbourne (Eco-City) Committee, councillor Cathy Oke said building owners were becoming aware of the benefits and improved competitiveness through better performing buildings.

"There is mounting evidence that higher rated buildings have increased appeal to both buyers and tenants and appreciate more in value."

"The availability of environmental upgrade finance through the 1200 Buildings program overcomes traditional barriers to retrofitting, and enables building owners to seize the business opportunities that upgrades present," Oke said.

Scott Bocskay, chief executive of Sustainable Melbourne Fund, which has been appointed by the City of Melbourne to be the third party administrator of environmental upgrade finance for the third consecutive year, said there is strong interest in environmental upgrade agreements from the commercial property sector.

"Environmental upgrade finance represents one of the most significant breakthroughs worldwide in financing retrofitting of commercial buildings," Bocskay said.

"Building owners and tenants need to be informed about the unprecedented commercial opportunity that EUAs present.

"We want to ensure that industry understands how to reap the benefits and leverage this new financial mechanism to develop retrofit projects and boost revenue."

The City of Melbourne recently extended the availability of EUA finance to property trusts, which the Sustainable Melbourne Fund believes account for 42 per cent of the city's lettable commercial property space and 10 per cent of commercial building owners within the City of Melbourne.

Scott Bocskay said extending EUA availability to property trusts involved a minor wording alteration to the Melbourne EUA agreement.

"Some property trusts are cross-collateralised property portfolios. If you have a portfolio of 10 buildings valued at \$10 million each, it's a \$100 million portfolio. If you had that portfolio conservatively leveraged with, say \$50 million, the previous wording would need to consider all that debt on the building seeking to enter an EUA. That is, a building worth \$10 million with \$50 million of debt would be obviously overleveraged. The wording now allows the debt on the portfolio to be pro-rated down to each building and may allow appropriate consideration for EUAs," said Bocskay.

In South Australia the state government has released a consultation paper regarding the establishment of environmental upgrade finance in South Australia. Key stakeholders from the property, finance and local government sectors are being encouraged to get involved in the consultation, with submissions recently accepted on the issue.

Part One

EUAs and the case for upgrading older buildings

It's catching on

Currently the SA government is supporting the sustainable upgrade of buildings through its Building Innovation Fund. A recent recipient of upgrade finance was Number One King William Street, which received \$453,000 through round four of the Building Innovation Fund to improve its energy performance from 2 to 5 stars NABERS.

In announcing the EUA consultation paper, SA Minister for Sustainability, Environment and Conservation, Paul Caica said EUA finance has the potential to assist building owners gain access to commercial finance and overcome key barriers in implementing building retrofits.

“Environmental upgrade finance is an innovative green building financing mechanism for retrofitting existing buildings,” Caica said.

“There is significant potential to encourage greater investment in upgrading existing buildings. This can generate employment in the construction sector, reduce occupancy costs for tenants, and lower energy use and associated carbon emissions.”



Part One

EUAs and the case for upgrading older buildings

EUAs and other funding schemes

EUAs sit alongside other government funding schemes aimed at encouraging building upgrades. These include:

- The federal government's Green Building Fund (now closed), which provided grants for major building upgrades
- The Clean Technology Program, aimed at the industrial and manufacturing sector
- The Community Energy Efficiency Program, which provides \$200million of matched funding to councils and community buildings for environmental upgrades
- State-run white certificate schemes.

Recent private funding initiatives include the Energy Smart Finance lending program, a partnership between ASX-listed diversified company FlexiGroup

and Low Carbon Australia, aiming to entice small and medium-size businesses to undertake sustainable upgrades.

The program provides leasing finance for everything from a \$3000 lighting retrofit (targeted at tenants), to a new building management system, heating and air-conditioning system of up to \$100,000 (for a landlord).

And, of course, there are also regular bank loans available for upgrades. The major difference between an EUA and other types of loans is that it brings together financiers, building owners and local government authorities in an agreement. So instead of the loan being made to the building owner or the company that owns the building, it is directly attached to the property, to be repaid via an agreed extra council rate. The 10-year terms available under an EUA better match energy efficiency retrofit projects than those of traditional finance, and a blended project between a building owner and tenants has an additional increased rate of return.

OVERCOMING THE BARRIERS TO UPGRADING

The EUA structure overcomes two major barriers to building upgrades:

Access to low-cost loan funds – because the EUA loan is attached to the property and repaid via an agreed special charge through the council rates system, loans can be secured more readily, at a lower interest rate and for longer terms.

Avoids split incentives – an EUA allows landlords to pass on to the tenant a portion of the project cost, something that has not been possible in the past. The legislation includes a provision to ensure that no tenant would pay more as a result of the agreement, unless specifically agreed.

Part One

EUAs and the case for upgrading older buildings

Part One

EUAs and the case for upgrading older buildings

Unlocking the value in sustainable buildings

Peter Frith, managing director of Napier & Blakely, believes EUAs have enormous potential to unlock the value of sustainable upgrades.

“At the moment the EUA structure is still too ingenious for some investors to get their minds around – it is about making an investment to a make a saving. It is a way of thinking of the building as a money-making machine,” says Frith.

Napier & Blakely has been involved with the development of EUAs in Melbourne and NSW, and set up Verdigris Capital specifically to fund sustainable upgrades.

“An EUA protects the tenant by ensuring they can’t be financially worse off because of an upgrade,” says Frith.

James Allston, who was until recently Siemens Australia’s energy efficiency manager and is now working on industrial building sustainability projects in Germany for Siemens, believes sustainable upgrades are on the cusp of major growth.

“We have a perfect storm for environmental upgrades right now – there is increasing regulation and requirement for greater transparency through mandatory disclosure of energy efficiency, rising energy prices and decreasing technology costs.

“We’ve definitely got the situation where things which didn’t make much sense several years ago are now much more competitive. Some of the technologies have been around for decades but there are now more competitive ways of implementing these.”

He believes there needs to be more involvement in the environmental upgrade agreement process from financial decision-makers within organisations.

“In a project aiming to push a building from 3 to 5 NABERS stars, the ROI [return on investment] could be 10 to 12 per cent. But if you factor in increased property value and rents, it might be 100 per cent. The financial people have to get involved,” Allston says.

Tony Arnel, global director of sustainability with Norman Disney & Young (NDY), believes EUAs are hugely important for unlocking the opportunities for upgrading older buildings. He is frustrated that there has not been faster uptake of the funding mechanism among building owners.

“The business case for retrofitting and taking advantage of EUAs to help achieve this is evident. The ones that have already upgraded using EUAs have experienced reduced business costs, improved tenant retention and increased property values.



Tony Arnel, NDY

Unlocking the value in sustainable buildings

“Maybe the owner and tenant benefits are not yet clearly understood in the market. I think once we get more projects to the wire and the results are evident we will get to a tipping point and uptake will take off.”

NDY has been actively educating clients on the potential for using EUAs for retrofitting. The company also recently launched a new commissioning division, Engineering Commissioning Services, which specialises in ensuring buildings are run properly once the upgrade is completed,

“We anticipate growth in this area – both in the retrofitting of older building stock and in ensuring buildings are achieving what they should be once completed,” says Arnel.



Peter Frith, NB Verdigris, centre, James Allston, Siemens, right

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Part Two

EUAs in practice

Part Two

EUAs in practice

EUAs

Environmental Upgrade Agreements and the Swiss Army knife

By Scott Bocskay, Sustainable Melbourne Fund (SMF) Chief Executive

An Environmental Upgrade Agreement is like a Swiss Army knife; it can be used in a multitude of scenarios with surprising results. The challenge is to learn to use this tool ultimately like secret agent MacGyver.

Like Swiss Army knives, EUAs can be used in a number of scenarios; on a number of different building types (basically all but residential) and finance an extensive number of different technological interventions into such buildings. At its simplest, an EUA is a tool for building owners and tenants to finance retrofit projects which deliver superior value when compared to other forms of finance.

As the third party administrator for EUAs in Melbourne, SMF has dealt with many building owners considering EUAs. It has been our job to educate people about EUAs and their applicability to projects. These projects vary dramatically from that of a relatively simple chiller upgrade, to complex building repositioning projects, complex renewable energy projects, and back again, to simple tenancy lighting upgrades. When taking into consideration the size, type and building use, all of the projects vary dramatically.

Subject to meeting the relevant legislative requirements and credit checks, a product such as the one created by the NAB, Low Carbon Australia

and Eureka Funds Management is able to be invested through these EUA schemes to finance a range of different projects within a multitude of different building types.

BLADE NUMBER 1 - SIMPLE PAYBACKS

McKinsey & Company are to thank for their famous greenhouse gas abatement cost curve. Quite simply, this is an analysis of all the different actions that can be undertaken to mitigate the effects of climate change, ranging from the cheapest on the left to the most expensive on the right. On these curves, generally speaking, energy efficiency lands on the negative cost (profitable), left-hand side of the curve. Two points in this are important; first, energy efficiency is profitable and second, that means the primary reason business should act on energy efficiency is because of this profitability and that activity will yield an environmental benefit.

How energy efficiency is profitable relies upon the idea that the savings made through investing in the energy efficiency activity eventually equal (and exceed) the upfront capital cost – the simple payback equation. Recent studies state that business seeks to invest in projects with a simple payback of about three years – commonly referred to as the “low hanging fruit”. Why only pick the low hanging fruit? Because barriers are present, about how to capture the value of energy efficiency, ranging from information asymmetry, lack of capital (or tight internal competition for limited capital) and the “split incentive”.

The Swiss effect

Environmental Upgrade Agreements and the Swiss Army knife cont..

Another important aspect that is often failed to be considered is the terms of debt available to finance these projects. It is important to understand that an EUA, in its simplest form (the short blade of the Swiss army knife) has attractive terms of debt associated with the current NAB product.

BLADE NUMBER 2 - FINANCING ENERGY EFFICIENCY WITH DEBT

Debt markets are currently contracting, with credit availability limited and tenures relatively short. Currently, traditional debt terms for commercial property energy efficiency projects, where the building is used as collateral (a mortgage) are only available of between three to five years. So when financing energy efficiency the available debt terms may be three years, the useful life of the asset may be 15 years and the simple payback of these projects may be around seven years. That means that for 15 years this particular energy efficiency investment should deliver savings, which after seven years equal the cost of the initial investment. However, building owners and their CFOs must consider the debt terms available and weigh the savings generated within the context of available debt.

Within the above example, the efficiency intervention has a simple payback of seven years, but debt is only available over three years. Assuming that the debt terms require principal

and interest payments, the cash-flow implications are such that the building owners will have an increased cost in undertaking that activity. That is, the debt service on a monthly basis is greater than the monthly savings that are generated. Hence the drivers to only undertake projects with simple payback shorter than available debt terms.

So while it is true that over the life of an asset, energy efficiency pays for itself, the way in which it is paid for may not make it an attractive nor feasible opportunity. The McKinsey cost curve fails to consider how to pay for the most profitable opportunities; the cash flow in this scenario is negative, yet over a 15-year period this intervention would have a positive net present value and internal rate of return.

BLADE NUMBER 3 - A WORD ON THE SPLIT INCENTIVE

For years people have wondered what the pointy blade on the back of a Swiss army knife is for. It's an awl blade. The awl is somewhat like the “split incentive” in that people look at it, try to understand it, think they do understand it and then fold it away and don't use the tool ever again.

It's time to stop focusing on the split incentive and get over, or through this challenge. It is a pointy challenge if you use the wrong tool. The awl blade is not to be used to unlock the split incentive challenge; it's time to use the can opener.

An EUA is the tool to help. C'mon, MacGyver, time to use that can-opener.

Part Two

EUAs in practice

Part Two

EUAs in practice

The Swiss effect

Environmental Upgrade Agreements and the Swiss Army Knife cont..

THE CAN-OPENER – ENVIRONMENTAL UPGRADE AGREEMENTS

EUAs enable building owners to work with their tenants and undertake comprehensive building upgrades (both base building and tenancy lighting).

Unlike traditional debt, an EUA enables these comprehensive projects through the nature of the environmental upgrade charge (EUC), which may be shared between building owners and their tenants. An EUC is a statutory charge enshrined in the relevant Local Government Act that is placed upon the building by the local municipality as part of the EUA process. As a statutory charge it may be passed through to tenants under most net leases should the building owner wish to do so. EUCs therefore overcome the “split incentive” – where building owners are not incentivised to invest in efficiency measures since tenants pay the utility bills and therefore receive the savings generated by the building owners’ investment. In Victoria a tenant is required to consent to the charges before becoming liable to pay these, while in NSW charges can be passed through without consent as long as a tenant is deemed to be “no worse off”.

In both cases, however, it should be noted that the building owner can chose to not pass on the costs and still benefit from an EUA to finance their upgrade works.

In practice, both pieces of legislation operate similarly. Evidence is building that in either scenario, engagement between building owners and tenants is key. As a result of this engagement building owners will either obtain agreement from tenants to share the cost and additional benefits of working together or weigh the risks of passing the costs through where the legislation affords that ability. The additional benefits of working with tenants enables tenancy lighting to be included in projects, and this low-hanging fruit increases the internal rates of return for projects (shortens the simple paybacks) and also materially benefits the tenants in their exposure to future energy price rises.

A CAN OF BAKED BEANS – AND THE SWISS ARMY KNIFE APPLIED

To avoid confusion about my analogies, the tin can of baked beans is an existing building in Melbourne with 11,090 square metres of net lettable area over nine levels. Within the can are a tomato base (base building) and beans (tenants). The label on the tin says that the contents are mixed in such a way that the government has rated the baked beans at 2 stars (the building has achieved a NABERS rating of 2 stars).

The owner of the tin can has undertaken an assessment of the contents of the can and believes that they can improve the rating on the can up to 4.5 stars. This requires work in the tomato base and the beans (an audit reveals opportunities to improve the performance by upgrading the base building and tenancy lighting).

The Swiss effect

Environmental Upgrade Agreements and the Swiss Army Knife cont..

The costs of the proposed upgrade are as such:

TOTAL INITIAL PROJECT COSTS	
Description	Cost
Base building improvements	\$817,600
Tenant lighting improvements	\$499,827
Project fees	\$105,000
VEET incentive (credit)	-\$59,979
Total anticipated cost	\$1,362,448

By undertaking this work, the opportunity to create savings has been identified. These savings have been examined in the tenancy and base building both individually and as combined opportunities. The combined opportunity has a better financial outcome than if only the base building was upgraded as shown below.

TOTAL BENEFITS			
Description	Annual Savings	Simple payback	IRR
Base building	\$119,080	6.87 years	11.3%
Tenancy	\$83,673	5.97 years	14.1%
Whole building	\$202,753	6.49 years	12.4%
Whole building + VEET incentive	\$202,753	6.20 years	13.3%

In considering how to pay for this project, the owner can use a number of ways. One option is to use traditional debt (the rusty blade), or they can use an EUA to fund either the base building upgrade, the tenancy upgrades or both. But at the outset, without working with tenants and using debt to pay for the project, the only viable opportunity is to undertake the base building upgrade (the project with the least attractive financial performance). If the owner undertook this opportunity and financed the project through traditional debt secured against the property, then the annual cost would be \$330,010 with no savings being returned to the owner to service that debt.

The Swiss effect

Environmental Upgrade Agreements and the Swiss Army Knife cont..

BUILDING OWNER VALUE			
Building owner value	EUA	EUA as DEBT	DEBT
Annual payments	-\$194,880	-\$125,529	-\$330,010
Anticipated receipts from tenants	\$195,222	\$-	\$-
Annual net cash for building owner	\$343.00	-\$125,529	-\$330,010
Performance above worst case	\$330,352	\$125,871	\$0

The owner's annual cash position could be enhanced through financing the base building project with an EUA and not working with the tenants. By doing so the annual cost would be \$125,529 with no savings being returned to the owner to service that debt.

If however, the owner decided to work with their tenants and improve the performance of their tenancy lighting through an EUA, and upgrade the whole tin can, tenants will benefit from a better base building and a tenancy upgrade without having to pay for it upfront. Tenants would get their lighting upgraded for free and in return would agree to the annual environmental upgrade charge which is less than the total savings that the tenants would receive. That way, the building owners' annual debt service incurred through an environmental upgrade charge is equal to the payments received from

tenants, and tenants would have around \$1000 each extra in their pockets each year. Ultimately, a win-win solution and the most expert use of an EUA.

EUAs can seem complex at the outset, however, once they're understood, an EUA is a powerful tool that can be used to enhance value of retrofit activity. On top of evidence that that better performing cans of beans (better performing buildings) deliver superior equity returns, an EUA expertly applied can deliver premium outcomes for those involved. All the components of successful retrofits are available to owners of large, small, old and some not so old buildings. The technology, service providers, tenant demand and economic returns enable retrofit activity to be considered and an EUA enables retrofit activity to be applied.

The Swiss effect

Environmental Upgrade Agreements and the Swiss Army Knife cont..

As building owners and tenants we all can learn from MacGyver: think creatively, look for opportunities and not be derailed by the barriers presented. Every building has opportunities that lie within. The challenge is now for all to get out our pocket knives and start cooking ants with the magnifying glass. Oops, sorry, I meant to say unlock the opportunities that lie dormant within the buildings we all occupy.

- Scott Bocskay is chief executive, Sustainable Melbourne Fund.



Scott Bocskay, Sustainable Melbourne Fund

Some key questions

Which buildings can use an EUA?

NSW

- An existing building – which means a building that is complete and ready for lawful use and occupation at the time the agreement is entered into
- A non-residential building or a strata building that is the subject of a multi-residence scheme comprising more than 20 lots (includes serviced apartments, hotel or motel accommodation, and backpacker accommodation)
- A building used wholly or predominantly for commercial, industrial or other non-residential purposes.

MELBOURNE

- Applicants for an EUA must become a signatory to Melbourne's 1200 Buildings Program by signing a "partnership commitment" letter
- Buildings that are non-residential, entirely or predominantly
- Buildings that are at least two years past practical completion.
- The program excludes new space added to an existing building.



Some key questions

What works can EUAs finance?

NSW

Works to upgrade the environmental performance of the building, including any activity to:

- Increase the efficiency of energy or water consumption
- Reduce energy or water consumption
- Prevent or reduce pollution
- Eliminate or reduce the discharge of wastes or other substances that are harmful to the environment
- Reduce the use of materials
- Enable the recovery or recycling of materials
- Enable the monitoring of environmental quality
- Reduce greenhouse gas emissions
- Encourage or facilitate alternative methods of transportation to the use of a private motor vehicle (such as walking and cycling).

MELBOURNE

- Measures which reduce greenhouse gas emissions, save or recover water, or generate energy
- Base building works, including tenancy lighting
- Can include anything that is fixed to the building (or for which can be reasonably assured that it will remain in the building for the period of its usable life)
- Feasibility studies, design, decommissioning, demolition, installation, and commissioning directly associated with or required as a result of the improvement and associated with achieving environmental benefit
- Ineligible expenditure includes:
 - plug loads and process loads
 - anything that could be removed by the tenant at end of lease
 - costs associated with improvements not implemented
 - measures which do not comply with BCA, OH&S, Australian Standards or any other relevant requirement
 - power correction and power conditioning
 - measures which cannot be explained in terms of industry standard engineering or scientific principles.
 - refrigerant change.

Do tenants have to consent to an EUA?

NSW

Tenants must be informed of the EUA but do not have to give their consent. Building owners can ask tenants to contribute towards the cost of the upgrade through an increased contribution to outgoings in net leases. This amount should not exceed a reasonable estimate of the cost savings that tenants will gain from the upgrade.

MELBOURNE

If a building owner is seeking to pass on any costs to tenants, written consent needs to be obtained from tenants. If costs are passed on by the building owner, the amount should not exceed a reasonable estimate of the cost savings that tenants will gain from the upgrade.

FREQUENTLY ASKED QUESTIONS

For frequently asked questions on EUAs relating to NSW legislation go to the NSW Office of Environment and Heritage website. There are links on this page with question specifically related to landlords, tenants, councils and strata schemes.

<http://www.environment.nsw.gov.au/sustainbus/eua.htm>



Krista Milne, City of Melbourne

STEP 1

The building owner signs up to the 1200 Buildings program, and submits an application to Sustainable Melbourne Fund.

STEP 2

Sustainable Melbourne Fund assesses the proposed environmental improvements for environmental upgrade finance eligibility.

STEP 3

The building owner secures funding for retrofit works from an Australian financial institution.

STEP 4

The City of Melbourne declares an environmental upgrade charge on the building.

STEP 5

The financier advances the building owner the upfront costs for the retrofit.

STEP 6

Payments are collected through the Melbourne City Council rates system

STEP 7

The City of Melbourne forwards the collected charges to the financier.

City of Sydney EUA

Step by Step

Councils get behind upgrade agreements

STEP 1

A building owner may approach the City of Sydney to discuss potential projects and eligibility for an Environmental Upgrade Agreement.

STEP 2

The building owner obtains finance approval from a finance provider.

STEP 3

The building owner completes the City of Sydney's Environmental Upgrade Application Form.

STEP 4

The City of Sydney assesses the application.

STEP 5

Once the application is approved, the building owner, the finance provider and the City of Sydney complete the Environmental Upgrade Template Agreement.

STEP 6

Once completed, the finance provider makes available the funds for the upgrade.

STEP 7

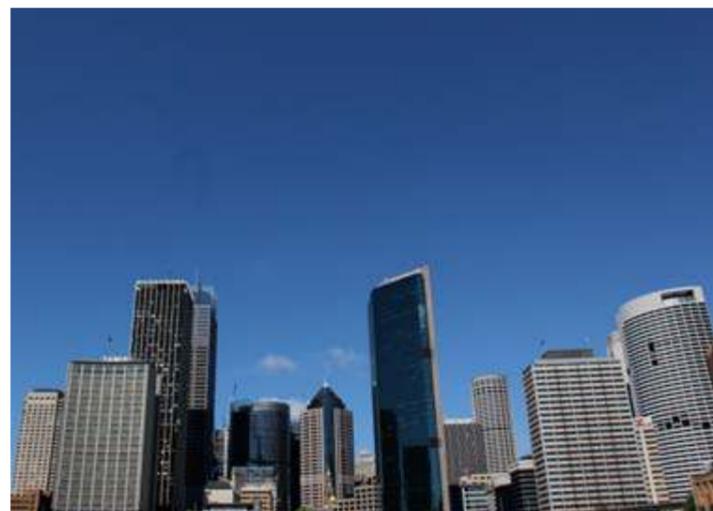
The City of Sydney imposes an Environmental Upgrade Charge on the land via the rates system and levies the charges to the building owner. Charges are payable each quarter (coinciding with regular rate payments) for the life of the EUA.

STEP 8

The City of Sydney collects payment from the building owner and forwards to the finance provider to repay the loan.

STEP 9

The charge stays with the property until all EUA charges are paid.



Central to the success of Environmental Upgrade Agreements (EUAs) is the role of councils in administering them. So far, those councils that have developed their own templates based on the EUA legislation see major benefits in encouraging building owners to upgrade, in terms of reduced emissions and better facilities in their municipalities.

Melbourne

Melbourne has been the first to get EUA projects up and running; two funded through Sustainable Melbourne Fund and another through the National Australia Bank.

The first agreement was signed in October 2011 between the City of Melbourne, Sustainable Melbourne Fund and building owner, Varga Brothers, to fund a \$400,000 retrofit of 460 Collins Street. The upgrade is expected to result in a reduction of approximately 170 tonnes of CO₂e per year.

The upgrade involves installation of an energy-efficient chiller unit and a new building management system.

The other two EUA deals have also involved private investors, and the City of Melbourne expects the financing mechanism will appeal to this end of the investor market.

Chair of the Future Melbourne (Eco-City) Committee, Councillor Cathy Oke, said the signing of the first agreement was a step towards unlocking \$2billion worth of retrofit activity in Melbourne.

"More than 50 per cent of the municipality's greenhouse gas emissions are generated by the commercial sector, and we have an ambitious plan to catalyse the retrofit of 1200 city buildings – two-thirds of the city's commercial buildings. We are confident this signing will be the first of many and that this new financial mechanism will help us reach our goal," Ms Oke said.

"We know that access to affordable capital is a major barrier in retrofitting commercial buildings. This signing marks an important milestone, removing this barrier and equipping building owners with the financial tools they need to reduce their energy use, save water and lower their carbon emissions."

Sustainable Melbourne Fund administers environmental upgrade finance on behalf of the City of Melbourne. Sustainable Melbourne Fund chief executive Scott Bocskay said environmental upgrade finance enabled property owners to share the cost of retrofitting with tenants, who could also enjoy the benefits of higher performing tenancies.

"Building owners and occupiers can now access an innovative financial mechanism that enables them to unlock greater savings and improve competitiveness," Bocskay said.

"Financiers now have a strong incentive to advance funds for retrofit works, with the ability to recover funds as a statutory charge providing them with certainty. The development of the environmental upgrade charge has created a new marketplace, underpinned by a new asset class."

Councils get behind upgrade agreements

The City of Melbourne recently extended the availability of EUA finance to property trusts, which the Sustainable Melbourne Fund believes account for 42 per cent of the city's lettable commercial property space and 10 per cent of commercial building owners within the City of Melbourne.

Sydney

The City of Sydney launched its EUA template late in 2011. Lord Mayor Clover Moore said, in announcing the EUA templates, that "Greater Sydney is the most power-hungry geographical area in the country and buildings produce nearly a quarter of Australia's greenhouse gas emissions.

"This program will overcome a significant barrier for building owners who are discouraged from undertaking environmental upgrades where the tenant benefits from the lower electricity and water bills. Now building owners will have an increased incentive to reduce carbon emissions."

Moore also pointed to the high security expected to come with the finance facility.

The council aims to have 10 EUAs in operation within 12 months, and Moore believes they will build on the council's existing work to "make Sydney an environmental leader with innovative new programs to cut energy, water and carbon pollution costs".

Existing programs include the new Sydney Better Buildings Partnership with major owners of CBD property (nearly 60 per cent of the total) offering grants of up to \$40,000 towards the cost of energy efficiency upgrades, plus up to \$1000 to assist companies get a NABERS energy rating for their office tenancy when they join the CitySwitch Green Office Program in Sydney.

Sydney is close to signing its first EUA for a commercial building. Another, which involves a strata building, is also in discussion, but it will not be possible until the Office of Environment and Heritage develops a template for strata title, something that is currently in the pipeline.



Sydney Round Table - Clockwise from bottom left: Jeffrey Learmonth, LPC; Lynne Blundell, The Fifth Estate; Pat Dale, Aeris Capital; Peter Frith, NB Verdigris and Napier & Blakeley; James Allston, Siemens; Philippa Sutherland and Mark Matthews, City of Sydney (observers) Mark Yates, Low Carbon Australia; Emlyn Keane, AMP

Councils get behind upgrade agreements

Parramatta

Parramatta Council introduced EUAs in March 2012. Lord mayor of Parramatta Lorraine Wearne said Parramatta has one of the lowest A-grade office vacancy rates in the country and building stocks need to be improved.

"A significant number of buildings in and around Parramatta were built over 20 years ago, which should make EUAs attractive for many local building owners," she said.

"Research shows that building owners can reduce their vacancy and outgoings, whilst improving yields and higher tenant retention, by undertaking environmental building upgrades.

"These upgrades make properties more cost efficient and attractive to tenants and potential buyers who want modern, efficient and sustainable buildings. Many upgrades can be easily implemented and achieve a strong return on investment within one to three years."

EUAs can also deliver commercial and environmental benefits for the entire community, Ms Wearne noted.

EUAs in Parramatta's CBD alone can attract potentially \$150 million of investment in building upgrades, create 148 full-time jobs, and reduce building owners' outgoing costs by \$26 million through water and electricity savings.

"Parramatta is home to the sixth-biggest CBD in the country, with an economy generating more than \$14 billion annually. It is important that we continue to look at ways to attract employment and investment in our city," Ms Wearne said.

As an additional incentive, eligible manufacturing and industrial business owners can align an EUA with the Clean Technology Investment Program.

This \$800 million, competitive, merit-based grants program aims to help Australian manufacturers stay competitive in a carbon-constrained economy. It provides grants for eligible businesses interested in investing in energy efficient capital equipment and low pollution technologies, processes and products.

Newcastle

The City of Newcastle is also investigating the implementation of EUAs for buildings in the Newcastle local government area, after receiving a \$200,000 grant from the NSW Government's Climate Change Fund.

Environment and climate change services manager Peter Dormand says the agreements overcome a major barrier for building owners to access affordable capital.

Councils get behind upgrade agreements

“EUAs have the capacity to improve the value and quality of building stock within our region while also making a positive contribution to environmental and social aspects of the community,” Dormand said.

“We’re excited to find out whether this concept will work in Newcastle and are eager to get started on talking with building owners about the appetite and need for this type of financial mechanism.”

Dormand says EUAs could be another step along the path of a clean energy future for Newcastle: “One of the community’s goals and Council’s strategic objective in the Newcastle 2030 plan is for best-practice energy and water efficient buildings and infrastructure. EUAs could be one of the important tools to get us there.”

North Sydney

North Sydney Council is the latest to adopt EUAs. In February 2012 the council endorsed the development of Environmental Upgrade Agreement draft policies, and voted to accept a funding offer of \$200,000 from the Office of Environment and Heritage to facilitate development of an EUA program.

The funding will be used to develop a range of internal processes and procedures required to deliver EUAs, as well as a plan for publicity and promotion of the program, possibly linked to the council’s existing CitySwitch or Better Business Partnerships Programs.



Peter Dormand - City of Newcastle

Councils get behind upgrade agreements

Melbourne study on what drives building owners

In 2009 the City of Melbourne engaged consultants, Arup, to undertake an analysis of Melbourne’s CBD commercial building ownership to aid in the design and delivery of the 1200 Buildings Program. The resulting data on just who owns Melbourne’s CBD buildings and the drivers that motivate these owners was powerful ammunition for effectively communicating the benefits of sustainable retrofits to specific owner groups.

The *1200 Buildings Programme Segmentation Study* revealed that the bulk of Melbourne’s commercial stock (by floor space) with a high potential for upgrade is owned by corporate organisations (34 per cent) and individual or family owned/ small businesses and investors (9 per cent), followed by business (4.5 per cent) and owners corporations (4 per cent).

The 1200 Buildings program aims to:

- Catalyse the retrofit of existing buildings, which include office space, in the municipality of Melbourne
- Reduce greenhouse gas emissions by 383,000 tonnes per year by 2020 through undertaking improvements to commercial buildings to achieve greater energy efficiency and environmental performance.

The Arup analysis project was commissioned to assist develop a targeted communications strategy to encourage building owners to retrofit their buildings.

The primary focus of the study was to analyse the property stock based on physical characteristics, such as age and size. Secondary considerations include overlaying the physical building features with property owner profiles and how the building is used. Other considerations included economic and investment drivers likely to effect decisions over the next 10 years, and the appropriate timeframes required to undertake and stage retrofitting works.

The analysis found that the number of properties owned by corporations is relatively small but accounts for a significant portion of NLA within the City of Melbourne. Consequently, the 1200 Buildings Program has potential to make significant improvements in building stock within the Local Government Area (LGA) by focusing on this particular owner segment.

In addition, the greatest number (735) of property owners (broadly defined as individual and family owned / small businesses and investors), account for a large portion of NLA. While the diversity of this segment poses a significant challenge when developing a program of engagement, after further segmentation of the owners it was found that it would be possible to target owners in this segment with the most potential for retrofit.

Councils get behind upgrade agreements

Property owner groups were segmented into those that have higher, medium and lower potential to achieve improvement. After correlation, it was clear, says the report, that the corporate segment, and individual and family owned / small businesses and investors, stand out as key owner groups, along with business and owners corporations.

Arup concluded that when considered on a number of properties basis, the large number of properties owned by individual and family owned / small businesses and investors becomes less significant as there were 136 properties with the greatest potential (higher and medium) for improvement. This smaller number allows for creation of a targeted communication approach.

Correlation on the basis of NLA and number of properties is presented for larger groupings in the table below.

OWNER GROUP	NO. OF PROPERTIES	NLA BASIS (m2) H & M)	% OF TOTAL NO OF PROPERTIES IN DATA SET (for higher potential properties only)	% OF TOTAL NLA IN DATA SET (for higher potential properties only)
Corporate	80 Higher segment; 9 Medium segment	2.4m	6%	34%
Individual & Family Owned/Small Business & Investors	55 Higher; 81 Medium	0.9m	4.3%	9%
Owner Corporation	34 Higher; 53 Medium	.05m	2.6%	4%
Business	10 Higher; 6 Medium	.03m	0.8%	4.5%

Melbourne study on what drives building owners

PROPERTY TYPE AND POTENTIAL FOR UPGRADE
Two key indicators were used to determine the likely potential of properties to achieve reductions in CO2 emissions through retrofit or recommissioning:

- Age of property
- Net lettable area (NLA) of property.

Properties were then segmented into four groups based on potential to reduce CO2 emissions:

- Higher emissions reduction potential
- Medium emissions reduction potential
- Lower emissions reduction potential
- Retro-commissioning emissions reduction potential.

BUILDING AGE
Building age was used as an indicator of construction methods, including thermal mass, type of façade, building services, building height and resulting lift energy usage, and lighting.

The table below shows how building age and construction methods relate to specific building in the City of Melbourne.



123 Queen Street, Melbourne

Councils get behind upgrade agreements

AGE OF BUILDING	ATTRIBUTES	EXAMPLES
< 1890	<ul style="list-style-type: none"> Designed for natural ventilation Thick, solid masonry walls Higher thermal mass Higher infiltration Lower rise 	<ul style="list-style-type: none"> Parliament House Tresury Melbourne Town Hall GPO
1890 - 1920	<ul style="list-style-type: none"> Lower glass area More cellular in internal layout Lower occupancy density Retrofitted with refrigerant based or water based air conditioning and heating systems (fan coil units) 	<ul style="list-style-type: none"> State Library QV Hospital Flinders St Station
1920 - 1930	<ul style="list-style-type: none"> 40m height restriction introduced in the 1920s 	<ul style="list-style-type: none"> Capitol House Myer AMP House Manchester Unity building
1930 - 1955		<ul style="list-style-type: none"> RMIT Buildings 5,6,7, Et 9 Russell Street Police Headquarters Century Building FAI Insurance Building 142 Collins Street
1955 - 1980	<ul style="list-style-type: none"> Standardised aluminium curtain walling begins to appear Abolition of the 132-foot (40 metre) height limit and the introduction of plot ratios Commercial buildings were sealed and the reliance on artificial climate and comfort control began Constant volume AC systems 	<ul style="list-style-type: none"> Royal Insurance BP House ICI House 369 Collins Place BHP House
1980 - 2000	<ul style="list-style-type: none"> Improvements in glass performance and insulation Automatic controls VAV Systems 	<ul style="list-style-type: none"> Rialto Towers 101 Collins Street
2000 - present	<ul style="list-style-type: none"> BCA Section J ABGR Green Star Climate Change 	<ul style="list-style-type: none"> CH₂ BHP Headquarters Southern Cross

Table 1 Melbourne built environment evolution summary

Building NLA

Net lettable area was the second primary indicator used in this study to group the City of Melbourne property stock. Building size (NLA) impacts CO₂ mitigation on two levels. First, building size influences the total output of CO₂ emissions and hence the reduction potential. That is, a large office building would be expected to consume more energy than a small office building. Second, the percentage improvement potential is impacted by design attributes that are influenced by the size of a building.

Design attributes considered to have a significant impact on potential emissions reduction and retrofit options, include:

BUILDING SERVICES

The size of a building has a large impact on the type of HVAC systems in place (if any), which in turn impacts on the potential improvements that a retrofit may have

BUILDING HEIGHT

Building height is an indicator of magnitude of lift energy. It also gives an indication on the influence of ground and ceiling heat loads. For instance, roof insulation will have a much greater proportional energy reduction for smaller low-rise development

LIGHTING

Lighting is a large component of any building's energy use. However, in smaller buildings, lighting and small power energy use make up a much greater portion of energy use. Also, in smaller buildings the amount of common area lighting is likely to be smaller.

A common trend in these factors is that the smaller the building, the smaller the base building energy component. The larger the building, the more significant base-building central services become.

The table below from Arup's study shows the impact of building size on sustainable retrofit options.

Councils get behind upgrade agreements

NLA OF BUILDING (M2)	ATTRIBUTES
< 1000	<ul style="list-style-type: none"> ■ Likely to be DX split system air conditioning, or possibly naturally conditioned spaces ■ Minimal common area lighting ■ Lower fan energy ■ Likely to be single or small numbers of tenants
1000 - 5000	<ul style="list-style-type: none"> ■ Cool Plant Size > 150kW ■ Portion of stock with central air conditional plant with air handling units. ■ Remainder of stock likely to have packaged water loop or DX air conditioning units ■ Likely to be low-mid rise with small number of lifts ■ Some common area lighting ■ Ducted systems with slightly higher fan energy ■ Likely to have a small number of tenants
5000 -20,000	<ul style="list-style-type: none"> ■ Cool Plant Size > 750kW ■ Central air conditioning plant with air handling unites ■ Likely to be mid rise with lifts ■ Common area lighting ■ Ducted systems with higher fan energy ■ Likely to have moderate number of tenants
20,0000	<ul style="list-style-type: none"> ■ Cool Plant Size > 3,000kW ■ Central air condition plant with air handling unites ■ Likely to be mid rise with lifts ■ Common area lighting ■ Ducted systems with higher fan energy ■ Likely to have a moderate number of tenants

Conclusions and recommendations

The study looked at economic and investment drivers likely to effect owners’ decisions over the next 10 years. Together with the ownership data these drivers formed the basis of recommendations to assist the City of Melbourne to deliver the 1200 Buildings Program and develop a detailed communication and engagement approach. These are outlined below.

CORPORATE

While only 133 properties are owned by organisations defined as “corporate”, this market segment accounts for the highest amount of NLA. As a result, the 1200 Buildings Program has the potential to have a great impact through interaction with a relatively small property ownership segment.

Key drivers – factors that have commercial impact on costs and income/profit:

- Utility costs
- Vacancy rates
- Building stock quality
- Changing lease patterns
- Population growth
- Property values.

Secondary drivers –

- Government policies and legislation
- Fees and charges.

Recommendation: Given the commercial drivers, the 1200 Buildings Program should consider engaging with corporate owners on the basis of cost-reductions and the long-term financial benefits associated with energy efficient building retrofit.

INDIVIDUAL AND FAMILY OWNED / SMALL BUSINESSES AND INVESTORS

Owners categorised as individual, family-owned or small businesses and small investors account for the largest number of properties by number and the second-largest amount of NLA within the set of City of Melbourne properties investigated. This presents a significant marketing and engagement challenge for the 1200 Buildings Program.

It is presumed that all owners within this category will have limited funds to meet escalating energy costs or to make investments in retrofit and other similar initiatives.

Key drivers – factors that impact on financial gain from property investment:

- Utility costs
- Vacancy rates
- Building stock quality
- Material costs
- Changing lease patterns
- Population growth
- Property values.

Recommendation: As small investors will be least impacted by drivers such as building rating schemes and are more likely to own smaller properties, engagement with these owners should be based on influencing and informing suitable cost-reduction

Councils get behind upgrade agreements

BUSINESSES

Properties owned by businesses such as real estate agencies, hospitality or holding companies, account for a significant amount of NLA relative to the number of actual properties owned. Given the nature of the owners, the related economic and investment drivers are similar to that of corporate owners.

Recommendation: Engagement with businesses should be on the basis of cost-reductions and the long-term financial benefits associated with energy efficient building design or retrofit.

OWNERS CORPORATIONS

Properties classified as being owned by owners corporations makes up a large proportion of owners of buildings in the City of Melbourne by volume and NLA. A high proportion of the owners will be small investors, and so drivers and recommendations for owners corporations are similar to the individual, family owned / small business and investor property owner segment.

GOVERNMENT

Key drivers for government property owners:

- Utility costs
- General market forces associated with increasing energy and water supply pressures.
- Emerging local, state and federal policies directly related to property purchases and ownership
- Government purchasing policies and industry rating schemes
- Best-practice sustainable building design, regeneration and operation.

Recommendation: 1200 Buildings Program should consider the influence of local, state and federal government policy and regulations, and how the program's initiatives could complement or inform such regulation.

OUT OF GOVERNMENT

Key drivers for "out of government" property owners are similar to government but these owners have a slightly more commercial focus and so will also be driven by factors that have a financial impact on their income stream or profitability.

Recommendation: The City of Melbourne 1200 Buildings Program should consider the influence of government policies and regulatory schemes as well as market drivers that have a commercial impact.

NOT FOR PROFIT

Not for profit property owners are presumed to have limited amounts of income and limited (if any) profit to reinvest in possible 1200 Buildings Program initiatives.

Key drivers:

- Utility prices
- Other costs and charges
- Regulatory influences that impact costs such as the pricing.

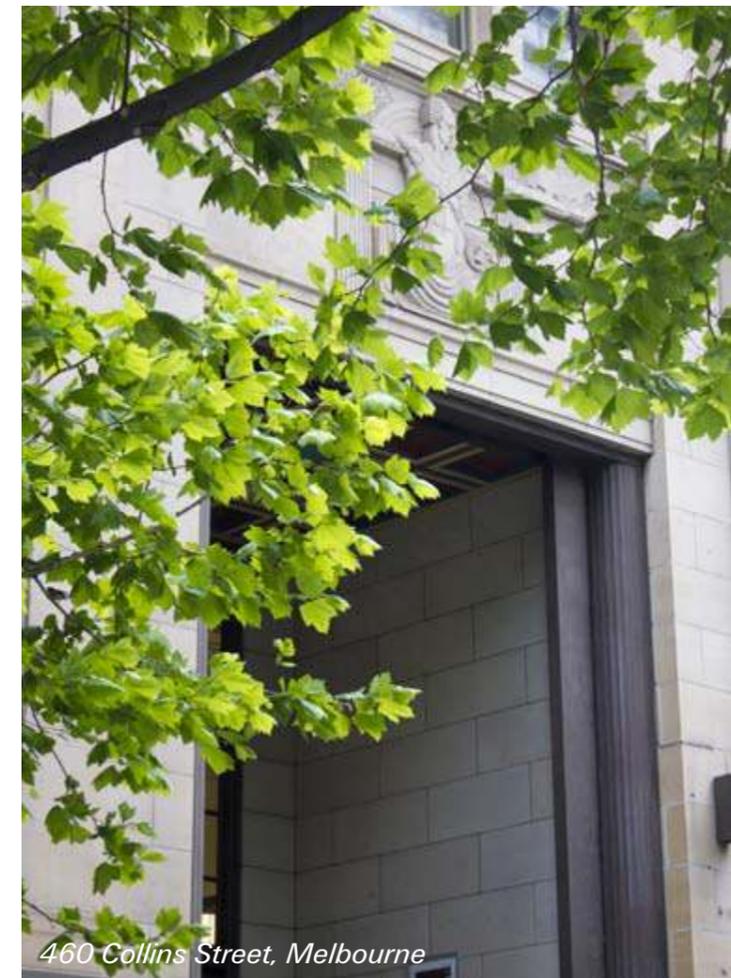
Recommendation: The 1200 Buildings Program may consider informing not-for-profit owners of low-cost investment initiatives, and potentially facilitate a form of subsidy program which may support such investment.

PROFESSIONAL ASSOCIATIONS

The property owners in this category are associations that represent a professional body. The nature of these associations suggests that they may have a relatively complex ownership structure, which may make investing in the improvement of properties more problematic.

Recommendation: Design an engagement program that informs owners of the long-term financial benefit from building efficiency investments. Such a program may also highlight reputation as a driver for investment.

initiatives and demonstrating the long-term financial benefit from small-scale, low-cost building retrofit and/or energy efficiency initiatives.





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PART THREE

Part 3

The financial rewards of sustainable retrofits

What the research reveals

There is mounting evidence that sustainable retrofits reap financial rewards for building owners and tenants, adding capital value to the building, increasing rental returns and creating a more productive, healthy work environment for the inhabitants.

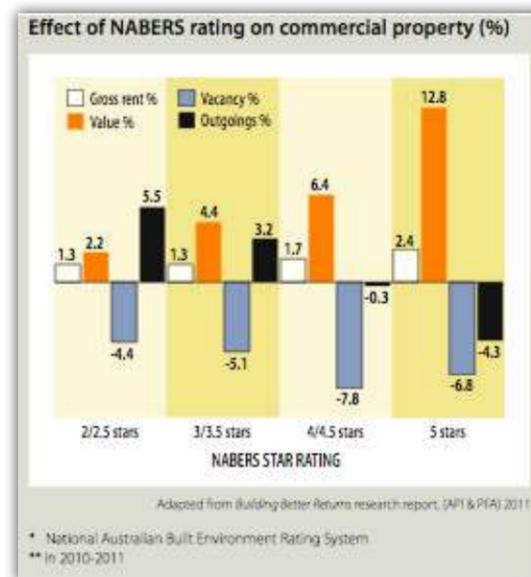
The 2011 Building Better Returns report, a study of the financial performance of Australian green office buildings by the Australian Property Institute and Property Funds Association, found that increasing the NABERS and Green Star ratings of buildings added substantially to both building value and rental income. Conversely, poorer energy ratings lead to a discount in building value.

Key findings included:

- 5 star NABERS energy rating delivered a 9 per cent premium in value
- 3 to 4.5 star NABERS energy ratings delivered a 2 to 3 per cent premium in value
- Green Star rating showed a premium in value of 12 per cent
- Green premiums in value differed in specific office markets, with the Sydney suburban office market having an 8 per cent premium, and the Canberra office market a 21 per cent premium, for 5 star NABERS energy rating. These compare with a lesser impact in the Sydney CBD office market (4 per cent green premium)

- Evidence of major discounts in value for NABERS energy ratings of less than 3 stars for the Sydney CBD (10 per cent discount in value) and Canberra (13 per cent discount in value)
- The Canberra office market showed the largest green premium in the 5 star NABERS energy rating value (21 per cent), as well as the largest discount in value (13 per cent) in the lowest NABERS energy ratings.

These results can be seen in the chart below. Higher rated buildings have lower occupancy costs and an increased asset value and lower vacancies.



Source: NSW Office of Environment & Heritage

Part 3

The financial rewards of sustainable retrofits

IPD research

Another measure of the financial payback from sustainable upgrade of office buildings is the PCA/IPD Australian Green Property Investment Index, which provides a broad measure of investment returns for commercial property assets that hold a Green Star or NABERS rating.

The latest results from PCA/IPD Australian Green Property Investment Index for the first quarter 2012 show that fully refurbished office buildings with a high NABERS Energy rating delivered an annualised total return of 11.3 per cent to March 2012, compared to 9.4 per cent for low-rated assets.

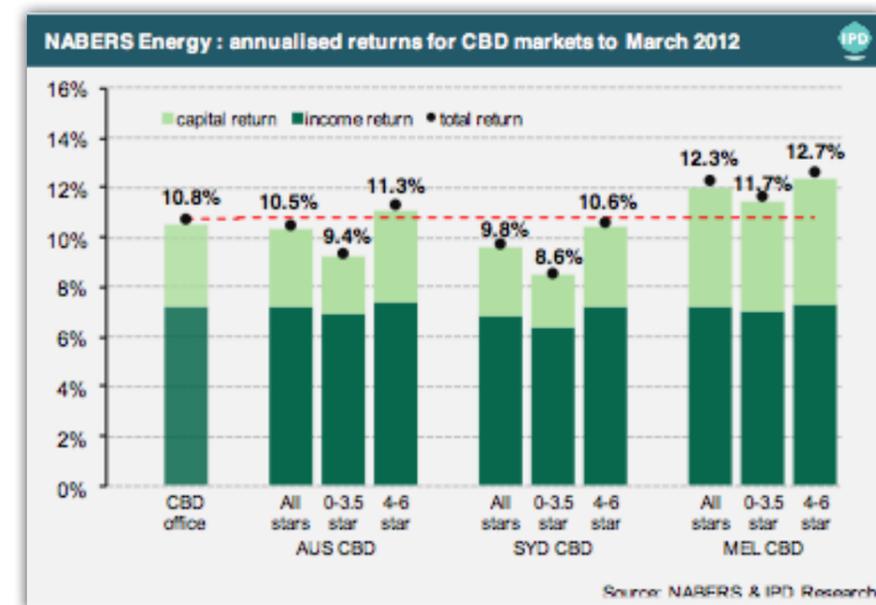
The index is comprised of property assets from 32 participants with a combined asset value of around \$50 billion, representing approximately 87 per cent of the IPD Australian commercial office database by capital value.

The results include an update of the “Green Building – age cohort analysis”, the first industry research which analyses the impact of building age and sustainability rating on the investment performance of office buildings.

Dr Anthony De Francesco, managing director of IPD in Australia and New Zealand, said the strong growth in capital values for high-rated buildings clearly shows increasing demand for these assets within the prime office segment.

“The research suggests that to achieve return outperformance, any refurbished office building should be aiming for a high NABERS energy rating,” said De Francesco.

“Owners who improve the sustainability attributes of their buildings are more likely to experience relatively stronger growth in capital values and will mitigate downside risk in asset values.”

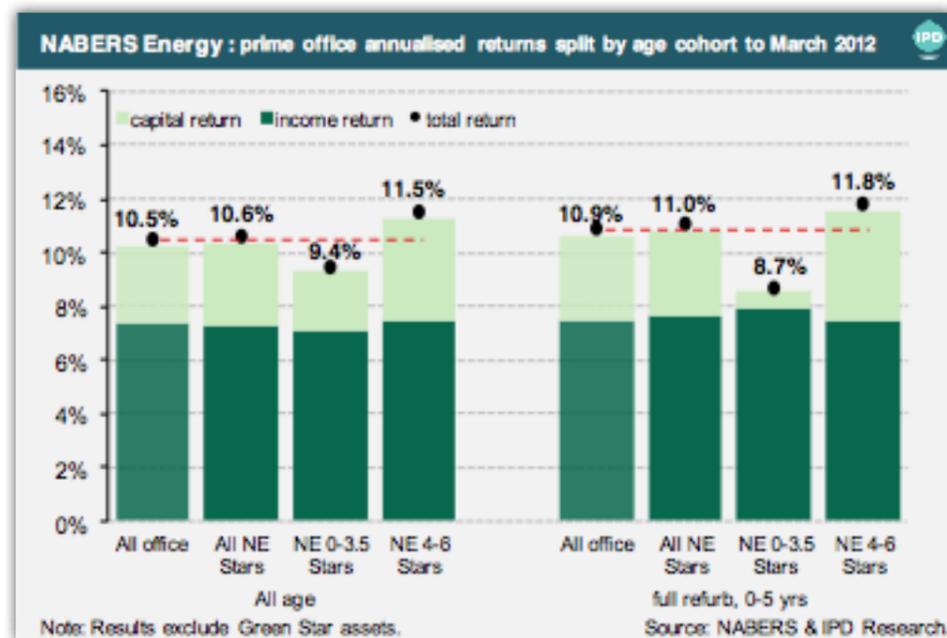


Part 3 The financial rewards of sustainable retrofits

IPD research cont...

As can be seen in the graph above, the trend is consistent when segmenting the dataset for the Sydney and Melbourne CBDs. Notably the high-rated Sydney CBD assets delivered an annualised total return of 10.6 per cent, being c200bps higher than the low-rated assets, which returned 8.6 per cent. Melbourne CBD office assets with a high NABERS Energy rating also delivered c100bps outperformance over the low-rated assets in the year to March 2012.

The graph below shows prime office assets with and without NABERS energy ratings split by total, capital and income return over one year to March 2012. Returns are segmented into two groups: all ages, and fully refurbished within the last five years.



The data clearly show that prime office buildings with high NABERS energy ratings (i.e., 4 to 6 star) have outperformed the broader prime office market. Importantly, when looking at recently refurbished buildings (within 0 to 5 years), assets with a high NABERS energy rating have significantly outperformed assets with a low NABERS energy rating (i.e., 0 to 3.5 star) delivering an annualised total return to March 2012 of 11.8 per cent and 8.7 per cent respectively, representing a c290bps outperformance.

Part 3 The financial rewards of sustainable retrofits

Three case studies from the TEC retrofit project

The Total Environment Centre has recently completed a project studying the effects of sustainable retrofit projects in commercial office buildings in different locations. The study found that increasing the energy efficiency, often without major building works, delivered significant energy cost savings, increased building value and increased rental income.

Repositioning of a C grade building - 100 George Street, Parramatta

This case study presents a significant repositioning of a dated, older C Grade building with aging plant in Parramatta into a premier asset.

THE BUILDING

Year built: 1981

Number of storeys: 12 levels office space, ground floor retail, three levels plant room. Basement car park.

Uses in building: Offices plus retail (including a café and childcare centre)

Area: 10,689 sq m (inc. retail)

Leased tenancies: fully leased

Building owner: Private owner

THE PROJECT

\$2 million project cost for environmental related works Environmental upgrades

ENERGY:

- Energy audit
- Two high efficiency chillers
- Bauer air-conditioning system. This technology uses temperature sensors, pressure sensors and carbon monoxide (CO) sensors throughout each floor and adjusts air flow and temperature accordingly
- New water cooling tower
- Air leakage detected and sealed
- Variable speed drive (VSD) fans and pumps throughout
- Existing air handling units and fixed duct risers were retained (new flexible on-floor ducting)
- New electronically controlled dampers on all floors
- New Building Management System (BMS) control system
- BMS connected to on floor temperature, pressure and CO sensors, as well as controlling damper units. The new BMS has a significantly higher level of control and ability to maintain comfort
- Allows data collection and off site monitoring and alarm notification
- CO sensors and VSD drives in car park (previously fixed speed fans on timers)
- Lighting upgrade planned.

Part 3

The financial rewards of sustainable retrofits

Repositioning of a C grade building - 100 George Street, Parramatta

FAÇADE UPGRADE

- Façade cladding with reflective and insulated composite aluminium panels
- Window shading and reflective films applied to windows.

THE RESULTS:

- Increase from 1 star to 4 star NABERS rating within 12 months
- 50 per cent energy saving
- \$96,000 p.a. reduced outgoings
- Estimated \$6 million increase in building value
- 16 per cent rent increase (pre-completion) – 25 per cent expected post completion

Low-cost upgrade – Royal Prince Alfred Medical Centre, Sydney

This case study presents a dramatic improvement in building performance with low capital expenditure and good economic returns.

THE BUILDING:

- A large medical centre with 56 office suites
- Project cost - \$185,000
- Increase from 0 star to 4 NABERS star rating in two years.

ENVIRONMENTAL UPGRADES

Energy Upgrades - First Stage:

- Power factor correction to base building mains supply
- New cooling tower
- Air conditioning package units replaced with higher efficiency units
- Variable speed drive (VSD) fans on cooling tower
- Timer for constant flow car park fan.

ENERGY UPGRADES - SECOND STAGE

- New Building Management System (BMS)
- Metering on all base building equipment (lifts, air-conditioning, house lights and power, car park fans)
- Outside hours air-conditioning request button installed in each tenancy unit – air-conditioning operation outside standard hours is billed to individual tenant. The condenser pumps were previously constantly on 24/7 regardless of use
- Carbon monoxide sensors and VSD fans installed in car park levels
- 30W halogen globes replaced 50 W globes.

WATER UPGRADES:

- Tap restrictors to bathroom basins
- Dual flush cisterns and pans
- Sydney water grant of \$20,000 was used.

THE RESULTS:

- 52 per cent energy saving (2010/12)
- 20 per cent reduction in water use (2010/12)
- \$84,000 saved per year
- Payback time: 1.6 to 1.8 years.

Part 3

The financial rewards of sustainable retrofits

B grade building - 6 O'Connell Street, Sydney building tuning

This case study presents a B grade building with vastly improved performance achieved largely through very careful building tuning alone.

THE BUILDING:

Year built: 1968

Number of storeys 26 floors office space (plus car park)

Area: 16,351 sq m (630 sq m floor plate)

Leased tenancies: 100 per cent leased tenancies

Building Owner: Colonial (CFSGAM)

Building management: Knight Frank Australia Pty Ltd.

An external consultant manages BMS data analysis, and reporting against target efficiencies.

A second external consultant prepared the sustainability implementation plan and recommended improvements, including a business case which was presented to the asset owner.

THE PROJECT

- Minor plant and BMS upgrades (\$142,576 for energy upgrades)
- Building tuning undertaken
- Ongoing careful monitoring and tuning to ensure plant is run at optimum and achieves a high level of efficiency.

THE RESULTS

- 30 per cent reduction in electricity use
- 50 per cent reduction in gas
- 44 per cent in water consumption
- Improved tenant comfort and amenity
- Immediate payback, as the works have largely been part of general building maintenance and good management
- Increase in NABERS energy rating from 1.5 stars to 4 stars
- Increase in NABERS water rating from 0.5 stars to 3.5 stars.

Part 3 Melbourne case studies

Financial payback attracts private investors to EUAs

Melbourne has been the first location to get EUAs off the ground, with private investors taking up the opportunity to use the funding for environmental upgrades that they believe will reap attractive financial rewards.

The first was a \$400,000 deal between Sustainable Melbourne Fund and owner Varga Brothers for retrofit of 460 Collins Street, Melbourne, as part of the City of Melbourne's 1200 Building Program. The funds will allow for the installation of an energy efficient chiller unit and building management system upgrade, and are expected to result in a reduction of approximately 170 tonnes of CO₂e per year.

In another EUA agreement, the National Australia Bank is funding the upgrade of 123 Queen Street in the Melbourne CBD, owned by green enthusiast and property investor Harry Chua.

Following hot on the heels of these two was another deal for the Kings Business Park in Dorcas Street, South Melbourne, owned by family investment company, Asian Pacific Property Group. This one was funded by Sustainable Melbourne Fund.

123 QUEEN ST MELBOURNE

Key Facts

Building owner: Eighth Grange

Address: 113-123 Queen St Melbourne

Year of construction: 1960

Gross floor area: 18,493 sq m

Building use: conference centre, hotel, hospitality, education and office

Number of tenants: 12

Head Contractor: Rudds Consulting Engineers

Energy consultant: ESCO Energy Solutions

Total cost of funding of the EUA: 7.7 per cent

EUA loan from NAB: \$1.34 million

Total cost of upgrade including loan (plus additional "preparation costs"): \$1.54 million

OUTCOME

- \$180,000 saving in energy bills
- 2500 tonnes of CO₂e saved
- Return on investment – 11.79 per cent
- Payback – 8.5 years.

Harry Chua told The Fifth Estate he was compelled to become a pioneer of the new funding mechanism because the deal was a winner on all levels. It is good for the environment, for his marketing profile, for staff morale, for tenants of the building and for clients who want to know how he, as building owner, is managing the asset.

But above all, it's good for the bottom line.

The building will be upgraded with a 380 kW trigeneration gas-fired energy system, occupancy sensors and double glazing, taking it from a 2 star NABERS energy rating to 4 stars.

Part 3 Melbourne case studies

Chua, a medical practitioner who now concentrates on his property and hospitality portfolio and who prefers to keep a low profile, overcame his reticence to speak to The Fifth Estate in the interests of sending out a message about these numbers.

"Sustainability is something I have a passion for," says Chua, who is a director on the board of advisers for Climate Alliance. However, such concerns are irrelevant to many property investors, he says.

"Some people might want to do this sort of work because they have a passion for doing the right thing environmentally, but if it doesn't make commercial sense, most people won't do it," Chua says.

"So we want to make sure this works financially. That's the message we want to get out.

"With the \$180,000 per annum in savings, that's a return on investment of 11.79 per cent. That's pretty much an 8.5 per cent per year payback."

If electricity goes up 30 per cent the payback will dramatically increase, Chua says.

"On top of that we have a Green Building Fund grant which makes it a 17.3 per cent return on investment.

"But even without the Green Building Fund grant the cost of borrowing from the EUA is 7.7 per cent all up and the return is 11.7 per cent. So it's positive, and the cost of electricity will become more expensive, so these figures are a worse-case scenario."

The building was built in the 1960s and has an unusually complex blend of uses in over 16,240 sq m of lettable area.

There is a 72-room four-star hotel, multiple bars and nightclubs, a function room licensed for 2000 people, and conference facilities, plus retail and office space, including for Chua's own staff to run his property portfolio.

The complexity of the building's uses and the mix of leases meant that Chua decided to pay the EUA loan entirely himself without passing any costs on to tenants.

Most of the tenants are on gross leases and some on net leases. Those on gross leases do not pay additional charges for outgoings – these are incorporated into the overall rent. Those on net leases pay for outgoings separately.

In Melbourne, where a building owner is seeking payment for all or part of the environmental upgrade charge from tenants, consent needs to be obtained.

But with multiple tenants on a mixture of gross and net leases, Chua decided it would be easier to pick up the tab himself.

"We've done all the financials. We are not passing on costs to the tenants. It gets complicated and is very hard [for the tenant] to understand how the savings will work out.



Part 3 Melbourne case studies

“The way I saw it, I will pick up the cost and the savings will amount to \$180,000 per annum in energy. The gas bill will cost more, but we will save on electricity.”

The benefits will come when it’s time to renegotiate the rent. With the tenants enjoying lower cost of outgoings it ought to place an interesting premium on the value of remaining in the building.

The building is currently very inefficient, with a NABERS energy rating of about 1 star, says Chua. “Our carbon footprint is 4800 tonnes per annum and the savings will be 1300 tonnes ... per annum. That’s a 27 per cent reduction in carbon footprint print.

“We do use a lot of energy and to be clean [green] would be fantastic; also as a marketing exercise.

“When people inquire about functions and training rooms they want to know, what is your stand on sustainability? And we can say, we are doing this and in 12 months’ time we will be carbon-neutral.

“It’s a good story for our kids and our future and it makes sense marketing wise.

“To bring it up to 4 star [NABERS energy] will make tenants feel better.”

Chua wants to make the building to be 100 per cent carbon neutral by the end of 2012, with the balance of carbon savings purchased through carbon credits.

Work has commenced, and the trigeneration system is expected to be operational by the fourth quarter of 2012.

He plans to roll out the program to other buildings in his portfolio.

“We have small city buildings. This is the first one to start with; then we will roll this out to a few other properties.”

NAB’s head of property finance Andrew Balzan said he was pleased with the deal.

“NAB has worked extensively with the City of Melbourne to successfully legislate this new initiative, the key component of which is the partnership between building owners, tenants, councils, solution providers and capital providers,” Balzan said.

“The signing of 123 Queen Street in Melbourne signals the first privately funded EUA. It is the first product of its kind in Australia, with legislation now implemented in parts of NSW and Victoria,” Balzan said.



KINGS BUSINESS PARK

Key facts

Kings Business Park precinct is a five-building campus-style development. Four of the buildings were retrofitted using EUA finance.

Address: 80-100 Dorcas St & 99-111 Coventry St, South Melbourne

Owner: Asian Pacific Group

Head Contractor: PJM Engineering

Energy Consultant: Enman

Project Value: \$3.2 million EUA financing (plus \$500,000 invested by the owner)

Year of Construction: 1985-1987

Gross Floor Area: 40,876 sq m (four buildings)

Use: Office and retail

Number of tenants: 57

OUTCOME – ANNUAL SAVINGS:

- \$250,000 in energy bills
- 2680 tonnes of CO2e saved.

Melbourne property investor Will Deague says that when his family investment company, Asian Pacific Property Group, decided to embark on a major energy efficiency upgrade of a major asset in South Melbourne, it hadn’t heard about environmental upgrade agreements.

Thanks to an energy efficiency consultant, the company now has a \$3.2 million loan through the City of Melbourne and its Sustainable Melbourne Fund to retrofit four of the five buildings at the Kings Business Park in Dorcas Street, South Melbourne.

The work extends over 31,000 sq m of office space, with 52 tenants, in paces ranging from 200 sq m to 3000 sq m.

“We’re spending just shy of \$4 million, mainly in air conditioning and downlights – LEDs [light emitting diodes] – and new chillers with new programming systems,” Deague said.

The complex has also provided smart cars for use by tenants on a rental basis and installed two 20,000-litre water tanks.

According to Deague the motivation to undertake the loan and the work came directly from the advice of the consultant. Prior to this, his company did not know much about Sustainable Melbourne Fund or the City of Melbourne’s 1200 Buildings program.

“We needed some upgrading so we looked at where the majority of savings would be. And we thought that would be in the air conditioning and the lighting.

But with 52 tenants to deal with over the complex and the need for an additional \$500,000 investment direct from the owners, Deague says his company will pay back the loan itself until the savings to tenants can be worked out.

“We will just wear the cost ourselves. It’s for the NABERS rating and hopefully that increases the value of our buildings. Eventually, we should be able to get more rent.”

But even so he says: “It’s a wise thing to do for the building and for the NABERS rating.

Part 3 Melbourne case studies

“We’ve spoken to valuers; we’ve seen the uplift in values. And big corporates are almost insisting on seeing what you are doing for the environment.”

Tenants in the Kings Business Park are wide-ranging, from one company involved in the wind turbine industry to a retirement village operator, a financier and technology firm.

Throughout, Deague has found tenants have been cooperative with issues such as a temporary shut-down of air conditioning systems.

“There have been issues, but when we explain that it’s for a green building, they’ve been accommodating and they’ve seen they will get power savings.”

The company also owns three Art Series hotels and 880 student rooms in Bell City, Preston.

Sustainable Melbourne Fund chief executive Scott Bocskay said the commercial property sector was beginning to appreciate the financial and

environmental benefits of retrofitting through an EUA.

“Environmental upgrade finance allows the market to determine the way forward in terms of achieving energy and water savings or energy production to save building owners and tenants money,” Bocskay said.

“Reducing expenses is good business and essentially becomes revenue to your bottom line.”

Sustainable Melbourne Fund was established as a commercially oriented, independent unit trust by Melbourne City Council in 2002 to progress sustainable development in greater Melbourne through strategic investments.

It was established with an initial \$5 million investment and is now worth \$6.4 million, with \$7.7 million so far invested in energy generation, water-saving and energy-efficiency projects to deliver improved commercial and environmental outcomes in the built environment.



Kings Business Park, South Melbourne

Part 3 Unpacking the EUA issues

The nitty gritty of EUA finance

The key financiers supporting EUAs include NAB, Aeris Capital, Napier & Blakely through its Verdigris Capital division, Eureka Funds Management and Low Carbon Australia, the government instrument set up specifically to finance sustainable upgrades. Others are expected to follow once EUA agreements become established in the market.

NAB has been at the forefront of the development of the new funding mechanism and has helped shape it.

Robert White, associate director, environmental finance solutions with NAB, told The Fifth Estate that because EUAs are new to the market there are understandably a lot of questions from investors and the financial sector on how they work in practice.

Common questions include: What will my first mortgagee say and do? What happens if I sell the property? Does the new owner find it easy to get their financier to recognise the encumbrance? Will the financier roll over the loan easily or not at all? Can it, or should it, be paid out when the property sells? What happens to the first mortgage holder if there is a default in payments?

Environmental upgrade finance Applicant process



Part 3

Unpacking the EUA issues

What are the issues for existing mortgage holders?

Central to the concept of EUAs is that repayments for the loans become part of council rates, so that the financier's investment is secured and the loan is tied to the property rather than the owner. The council ranks ahead of the first mortgage holder in the case of a default.

Security for the financier is key. Clearly, not every financier understands the concept of loan security that is tied to council rates, particularly if the council is first in line if there is a default. Robert White says that once financiers understand the way EUAs work these concerns will be ironed out.

"The EUA shouldn't be an issue for the existing mortgage holder on a property as EUA projects should be cash-flow positive – which means the borrower has extra cash available above their debt service. This is good from the mortgage holder point of view as it means the borrower has plenty of available cash to pay their original debt.

"In addition, the property will increase in value, which is clearly good for the first mortgage holder," White said.

An additional safeguard for the first lender is that an EUA is rarely above 5 per cent of the pre-retrofit building value.

"It is also important to understand that a council doesn't act like a bank when there is a default. It is not going to force a sale of the property – it is the mortgage holder that will be driving this.

"The council is passive in this process – it will be paid first but will only be paid the amount owing in unpaid installments, not the entire loan. For example, if there is an EUA of \$100,000 on the property, the council will only be paid the \$1000 or so that is owing in unpaid installments of the special levy.

"And if there is a forced sale, then the EUA payments can pass to the new owner or be paid out at the time of sale," White noted.

Part 3

Unpacking the EUA issues

What happens when the property is sold?

In the case of a sale of a property which has signed to an EUA, there are two choices for the original owner:

- Leave the EUA in place and the new owner takes over the payments
- Prepay the loan.

In the first instance, according to White, the new owner would get the benefits of the refit as well as the increased value in the property and would take over the remaining payments.

In the second instance they would also get the benefits of the refit without the encumbrance of the loan, so the sale price would reflect this.

"If the original owner chooses to prepay the loan then this would be represented in a higher sale price. There would be an agreed negotiation of settlement. The new owner would enjoy the power savings for their tenants and all the other benefits of the refit," White said.

"We see an EUA as straight forward from a financing point of view because we understand it. Once others understand it and see it working in practice then there will be wider acceptance."



Robert White - NAB (left), Garrit Schot - Cundall

Part 3 Unpacking the EUA issues

More understanding once projects established

NAB is considering providing EUA finance to a number of projects in Melbourne and in NSW, including in Parramatta, City of Sydney, Wollongong, Newcastle and North Sydney.

Parramatta is the latest council to introduce a template for the financing mechanism, with other councils expected to follow soon.

“We’ve allocated \$60 million for EUA financing and have \$30 million worth of projects in the pipeline so far. The majority are commercial office buildings that are 2 star NABERS or unrated, and are looking to get to 4.5 stars,” White said.

Ashley Robertson, associate director, environmental finance solutions for NAB in NSW, commented that once there is a case study for EUAs up and running in NSW, others will follow fairly quickly.

“It has been quite a slow process so far and lead times are long. The City of Sydney got their template in place fairly recently and Parramatta only launched theirs last month. Once we get some up and going things will move a bit faster,” Robertson said.

Robertson believes the financing tool will be attractive to smaller property owners because they have had difficulty accessing capital during and since the GFC. The length of the loan term with EUAs is also more suited to smaller investors than institutional property owners.

“A-REITs can tap into US private placement market for finance – the US bond market,” Robertson said. “At the moment our lending terms on EUAs is ten years, which is good for smaller investors but not always long enough for institutional investors.



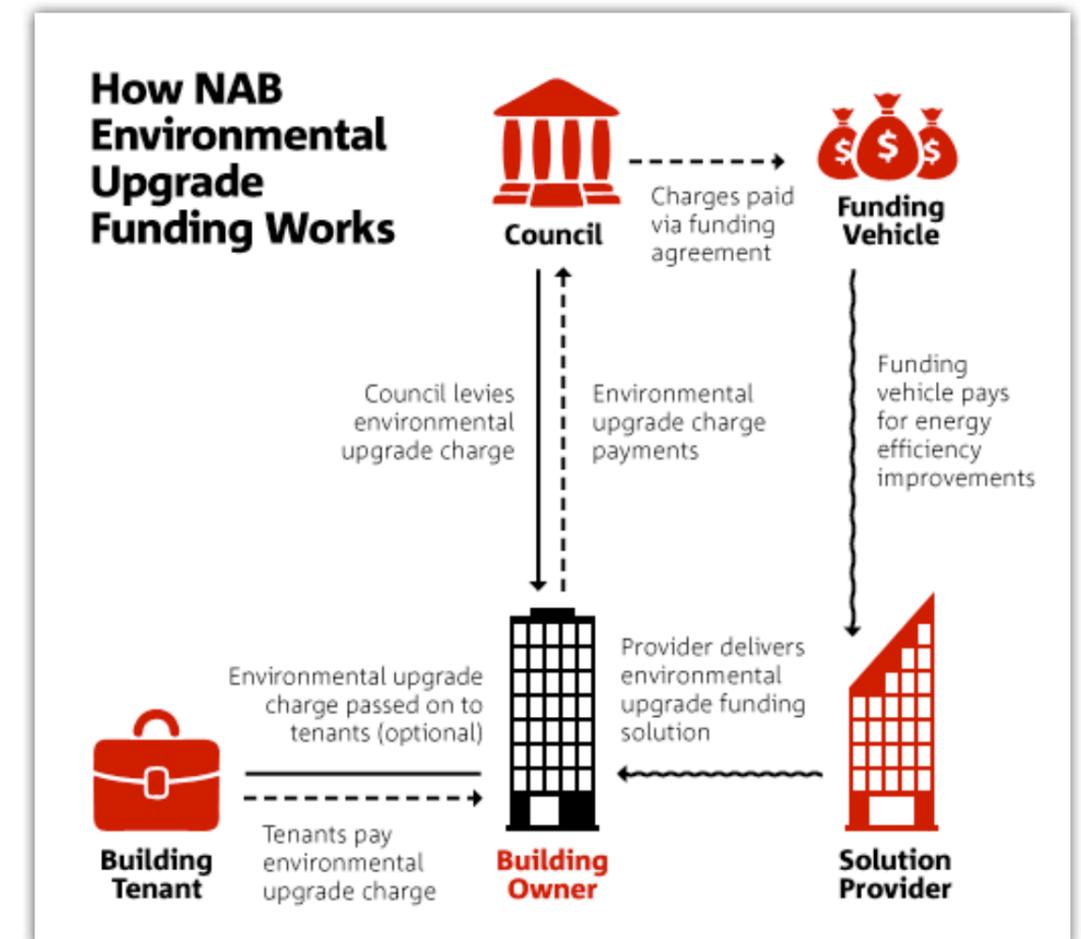
Part 3 Unpacking the EUA issues

Pat Dale, who recently left NAB, where he was a key driver of EUA development for the bank, is now establishing an EUA business for finance company Aeris Capital. He told The Fifth Estate that EUAs were still at commercialisation stage, and it would take some time for market acceptance.

“The market is lacking knowledge and awareness at the moment, and I think that’s entirely understandable. What the market needs is examples and from examples, if it all works, will flow acceptance,” Dale said.

Pat Dale’s work at Aeris involves close association with Low Carbon Australia, NAB, and Eureka Funds Management, which is manager and trustee of The Australian Environmental Upgrade Fund.

“Aeris Capital provides financial and corporate advice to project donors and sponsors where projects have a sustainability element to them. Presently one of the pieces is to work with Eureka Funds Management, which is the manager of the Environmental Upgrade Fund to originate EUA assets or opportunities for that fund,” Dale said.



Part 3 Unpacking the EUA issues

Despite EUAs being “a very powerful and incisive financing product,” Dale said, “getting any sustainability project up, let alone funded, in any modern large real-estate investment enterprise is multidimensional and therefore difficult.

“The larger the business the more narrowly focused individual executives become on each aspect of the business,” he said.

To bring a major project to fruition might require the commitment of a group of internal stakeholders who ranged from asset and facility managers, to portfolio managers, finance and legal teams, senior management, and at times, a board of directors.

“The same executive then needs to manage the needs of a variety of external parties such as local government, tenants, valuers, consultants and engineers.”

Navigating through this complex web, Dale said, required a great deal of passion and motivation from a skilled individual who could tailor the right language and address the correct issues relevant to each sector of the business.

Key for Aeris would be to build the business case for sustainability for all stakeholders, internal and external.

Napier & Blakeley has also been a key player in developing the EUA finance model, setting up a specialised division, Verdigris Capital, to manage the process.

Managing director Peter Frith says it is understandable that it will take some time for the funding model, a global first, to get up and running. According to Frith, the big difference is the approach to what constitutes acceptable security for a loan.

“NAB is running it through its carbon solutions group,” Frith said. “Other financiers are looking at this through their property lending groups, who might find it more difficult to get around the security arrangement, being more comfortable with bricks and mortar.”



Phillippa Sutherland & Mark Matthews at Sydney Roundtable (observers)

Part 3 Unpacking the EUA issues

Working through the issues

The industry is sorting through some of the issues, such as how the agreements will work in practice. Questions include how the councils will manage the agreements and the finer details, such as what happens when properties are sold or if the owner defaults.

The loan to valuation ratios of the EUAs could be 3 to 4 per cent of the value of the property as a whole; but an interesting issue is how the work will change the LVRs, considering the potential increase in building value.

Peter Frith says common questions from clients include: What happens if the energy savings are not as good as we expect? What happens if I sell the property? Does the new owner find it easy to get their financier to recognise the encumbrance? Will the financier roll over the loan easily or not at all? Can it, or should it, be paid out when the property sells?

“It might be a fait accompli they approve the new owner, given the length of leases and quality of tenants, but they might reserve the right to object,” Frith said.

Low Carbon Australia is the latest stakeholder to get behind EUAs. Set up by the federal government last year, Low Carbon Australia has two key planks. One is the energy-efficiency program of \$87.6 million that can match dollar for dollar any approved efficiency work in building. The other is facilitating EUAs.

Mark Yates, director, finances of Low Carbon Australia, told The Fifth Estate Low Carbon Australia has been engaging with both NAB and Eureka Funds Management as a funding partner in order to get EUA finance into the market.

“We don’t see it as a be all and end all to the market. We see it as one of a number of financing products that can be used for improving energy efficiency within a building. Its characteristics mean it will be suited to particular parties,” Yates said.

For the building owner, EUAs could be approached as amortisation over time.

“This approach is well understood by the market and EUAs have been undertaken in this way by NAB and Eureka,” Yates said.



Mark Yates - Low Carbon Australia

Part 3

Unpacking the EUA issues

EUAs will help break down tenant/landlord divide

A major barrier to upgrades of existing buildings has been the divide between landlords and tenants, with resistance on both sides to engaging on issues involving a tenancy. Removing this barrier and encouraging genuine cooperation between the two sides is essential for progress in the sector, and it is something Environmental Upgrade Agreements will encourage, according to those leading their development.

Rowan Griffin, head of sustainability, property with Colonial First State, said EUAs have the potential to turn this divide around because tenant engagement is an integral part of the agreement structure.

“The exciting thing about EUAs is that they open up dialogue between owners and tenants. Providing the agreement is correctly done, tenants get a better building and lower costs in the future.

“The barrier between owners and tenants needs to be broken. EUAs provide the structure for joint outcomes,” Griffin said.

Colonial First State has been talking to Sustainable Melbourne Fund about the potential for using an EUA in one of its buildings in the Melbourne CBD, but wants to make sure the outcomes will be suitable to the corporate tenants.

“It’s too early to say whether we will use an EUA for this particular building. We need to see what the

benefits are – we have major corporate tenants in there, and it’s likely it will assist them meet their corporate goals for reducing emissions.

“We are keen to support EUAs. We think it is a very clever and smart mechanism because it will be capturing the whole of the industry. It will also encourage cooperation between owners and tenants. It is important to support it where we can and get examples out there so it will be picked up by others,” Griffin said.

The complexity of the agreements, with the involvement of four parties – owners, financiers, councils and tenants – may be off-putting for some building owners. This makes it even more important for those at the premium end to use them where they can.

“In our case we don’t have as much incentive [from a finance cost perspective] to put an EUA in place as some might because our funds have internal lines of credit which give us finance at lower rates. But we want to encourage the use of EUAs.

“What we need to do is come up with some examples in buildings with a single tenant, or a few tenants, to lead the way. Once we’ve got some case studies together, it will help those owners who have multiple tenants see how it works.

“We’re all on the same trajectory, aiming to reduce energy use and emissions and this is a mechanism to help this,” Griffin said.

Part 3

Unpacking the EUA issues

Institutional owners have the sophistication to understand the EUA structure but the lower end of the market, to which EUAs are really targeted, needs assistance to grasp their potential.

“There is going to be a lot more education needed at the lower end of the market. Councils and governments should take the lead in this until EUAs become accepted market mechanisms. Landowners will want to see case studies,” Griffin said.

It was interesting that the Melbourne EUAs already in place did not involve passing the costs of the refurbishment on to the tenants. Instead, the owners will pay the entire loan back themselves. If choosing to do this, landlords don’t have to inform tenants there is an EUA in place.

This could be a sign, Griffin said, that some owners in Melbourne are choosing to use the cheaper funding to upgrade their buildings but are still avoiding the complication of getting tenants over the line. Over time, as more EUAs were taken up, he believed this would change.



Rowan Griffin - Colonial First State

Part 3

Unpacking the EUA issues

Tenants should welcome EUAs says JLL

Joel Quintal, Jones Lang LaSalle's director of sustainability in Australia, told The Fifth Estate tenants had nothing to fear from EUAs. In fact EUAs provided tenants in secondary grade buildings with an opportunity to see their buildings upgraded and to reap the benefits.

"Tenants who can't afford premium buildings but still want to be in a sustainable building have a great opportunity here – hopefully they will see that EUAs can give them access to sustainable upgrades.

"It is a funding mechanism that will really help C and D grade buildings upgrade and will raise the overall performance of the Australian property market," Quintal said.

Tenants have everything to gain under the new legislation as they are protected from paying more in outgoings than they would have if an EUA were not in place, and they also get the ongoing benefits of being in a more sustainable building.

"One thing tenants need to be aware of is increasing energy prices and cost of carbon. But the benefits of upgrading buildings go far beyond just the reduced energy costs. There are numerous studies that show worker productivity and wellbeing increases in a sustainable building," Quintal said.

"Tenants should see EUAs as a tool to be able to approach landlords. We talk to tenants about these

issues all the time and are encouraging them to be active in this space and to understand how EUAs and other mechanisms work," Quintal said.

"Tenants can't be sitting on their hands. EUAs offer them an opportunity to actively engage in upgrades of their environments."

Part 3

Unpacking the EUA issues

Tenants are protected

In NSW, while building owners do have to inform tenants that an EUA is in place, owners do not have to have tenants' consent to use an EUA to pay for upgrades. In Melbourne, landlords need to obtain written tenant consent in order to pass through an environmental upgrade charge but do not otherwise need to inform tenants of their seeking an EUA.

Tenants are protected in NSW by a clause in the legislation that ensures they will not pay any more as a result of an EUA than they would have if it were not in place.

It really does seem to be a win-win for tenants, so why the reluctance of both sides to engage in discussion?

Adam Murchie, director of Forza Capital, told The Fifth Estate that better engagement between landlords and tenants was key to the EUA structure.

"It's a case of the devil you don't know at this point," Murchie said.

"Good communication between landlords and tenants is the holy grail. I'm not sure if education on EUAs should come from leasing agents or government authorities, but if tenants feel they are committing to a charge they need to understand what it means for them. We need progressive tenants who understand what the EUA means and how an upgrade will benefit them.

"If tenants can see the real value in the upgrade you might find they will be going to landlords to suggest they use an EUA," Murchie said.

But even if some building owners have chosen not to pass on the costs of the upgrade to tenants at this stage, as has happened in some of the Melbourne deals, there is little risk in upgrading by using EUA finance model, Murchie said.

"An owner would say well there's little risk because we've done the upgrade works," Murchie said, "and despite the fact that we don't get the outgoings capture, it reduces the tenant's overall costs [because of reduced energy bills]. So rather than charging them for \$320 a metre, we'll charge \$350 a metre. We get the payback via a different mechanism and the tenant is not paying any more overall. And then it also reflects into valuation."

Moreover, with an EUA, it's financed through cheaper finance over a longer time period.

Ashley Roberston, associate director environmental finance solutions with National Australia Bank in NSW, said the NAB strongly encourages all building owners to engage with tenants regarding EUAs.

"The big difference in the NSW and Melbourne EUA legislation is that in Melbourne owners must have the signed consent of tenants for the costs of an EUA to be passed on," said Robertson.

While NAB believes the NSW legislation will be easier for landlords to accept, Robertson says it is understandable that Melbourne insisted on full tenant consent, if the cost of the EUA is to be passed on, but not otherwise.



Adam Murchie - Forza Capital

Part 3 Unpacking the EUA issues

To be fair to Melbourne, it was the first to embrace the legislation and it may have seemed the cleanest way to ensure tenants were protected. And if there is a clear difference in the success of the NSW and Melbourne legislation, and there is a call for it to be amended, then maybe that will happen.

But, given that building owners who have so far signed up to EUAs in Melbourne have chosen not to pass on the costs to tenants, is it discouraging engagement?

“I think the fact that building owners have signed up for EUAs even without choosing to pass on the costs to tenants says a lot about the effectiveness and the benefits of this type of financing,” Robertson said.

Peter Frith, director of Napier & Blakely said that while he sees that it will be B and C grade building owners who will be most attracted to EUAs, he would like to see more institutional investors embracing them.

“We think institutionals should be embracing them more than they appear to be doing so, and as part of that, we are developing some tenant engagement tools to try to help landlords to bridge the gap with their tenants. I’ll be interested to see how much landlords have engaged with tenants. It’s a very effective way of hedging against future increase in energy costs,” Frith said.

“When valuers catch on to the increase in the value of the property via these upgrades occurring, smarter tenants will tap into that. There’s some scope for passing the cost through to tenants with some sharing in the increase in value. N&B tries to guide people through the process and educate

landlords and tenants about the scope of works – we try to bridge that gap. The split incentive is technically bridged by an EUA, but then there’s the communication gap that is not necessarily being bridged.”



Emilyn Keane, AMP

Part 3 Unpacking the EUA issues

What the lawyers think

Property lawyers have been busy assessing the EUA legislation in both NSW and Victoria to ensure they can advise their clients on the details. The Fifth Estate asked some lawyers who have been closely involved what they think of it.

Angela Flannery, partner with Allen & Overy, says she believes the legislation is a very positive move but she would have liked to see more simplicity and uniformity between the states.

“It would have been good if the jurisdictions had got together and made it uniform. It’s also disappointing that in Victoria it has been introduced only in Melbourne rather than the whole state.

“As more states come on board with the legislation, I’d hope there’d be more uniformity,” says Flannery.

A key difference in the two pieces of legislation is how applicable environmental upgrade works are defined.

“In Melbourne the environmental upgrade works that can be funded under EUAs are very generic. In NSW there is also a generic definition, but the Local Government Act allows more specific examples. We hope that that doesn’t prove restrictive and that all works that would improve sustainability will be allowed. A greater degree of definition may hinder rather than help,” says Flannery.

While she can see the enormous need for upgrade of existing and particularly older buildings, Flannery believes there would be no harm in allowing new buildings to access the EUA finance as well.

“In the NSW legislation it is not clear whether the finance can only benefit existing buildings or can include new as well. Philosophically it wouldn’t do any harm to allow new buildings to benefit,” says Flannery.

In Victoria EUA finance can be used even for a derelict building, whereas in NSW the building must be “complete and ready for lawful use and occupation”, which Flannery believes is too restrictive.

“In NSW if you have a vacant building, but it is not ready for use as an office building, you can’t apply for an EUA. This seems odd. It seems to us that as long as a structure is there it should be eligible. If there has been some vacant land in the CBD for a while, what would be the harm of accessing an EUA?

“It is not a finite resource. It is a question for each bank and is a very safe product – it is a matter of how much banks are willing to lend. It is not as if including new buildings will limit the amount available for retrofitting old buildings.

The major difference between the two pieces of legislation is the requirement in Melbourne for tenants to provide written consent if the building owner decided to pass on some of the EUA costs to them. Flannery says this adds unnecessary complication.

Part 3

Unpacking the EUA issues

“I don’t understand why that is there in the Melbourne version. If the lease allows the owner to pass on costs, why insist on consent? It gives the impression that the tenant is going to be disadvantaged and they could withhold consent because they don’t understand.”

Ilona Millar, senior associate with Baker & McKenzie, told The Fifth Estate that one area that needed some clarification in both versions of the EUA legislation was valuation issues, particularly where buildings are part of a portfolio owned by an A-REIT.

“REITs have raised a few questions about valuation issues,” says Millar. “The difficulty is working out how an EUA on one building impacts on the whole portfolio’s value when there is a mortgage over the whole portfolio, not individual buildings.

“There is also the issue of the extent of confirmations that need to be provided – the obligation to confirm the value of the refit. Some are provided by the lending body and some by the building owner. There are clear lines of responsibility but one party many not have that information.

“We talked to the City of Melbourne about relaxing this and this led to some changes to allow for ‘best endeavours’ For example, a lending body may have to make representations based on the information provided by the building owner.”

Baker & McKenzie has been running client workshops on EUA finance with real estate and banking clients. Millar says lenders are interested in understanding the level of security attached to the

funding and how much discretion a council has to enforce EUA payments if they fall behind.

“Councils have quite a wide discretion and each council’s enforcement policy should be set out clearly with a timeframe. Lenders want to know to what extent can they step in and issue enforcement rights,” says Millar.

Tenant consent and notification is another area of interest, and Millar believes it should be explored in more detail.

“There is very much a lack of understanding at this point – something that happens with new legislation. It is a communication issue and more engagement between landlords and tenants should be encouraged.”

The engagement between landlords and tenants is something that the City of Melbourne and Low Carbon Australia are hoping to address in with the development of a Building Upgrade Tool. Currently under development, the tool is expected to assist building owners and tenants to determine how they would benefit from undertaking building upgrade projects and sharing capital costs.



Ilona Millar - Baker McKenzie

Part 3

Unpacking the EUA issues

Energy performance contracts and EUAs

With more emphasis on measuring the energy savings achieved through building upgrades under EUAs, energy performance contracts, where a third party (such as Siemens or Honeywell) takes on the risk of environmental upgrades by guaranteeing a minimum energy performance, may become more common.

James Allston, previously Siemens Australia’s energy efficiency manager and now working on industrial energy efficiency projects in Germany for Siemens, believes so.

“We see performance contracts becoming a critical element of EUAs. They remove the technical risk for building owners of upgrades by moving it to a third party,” Allston said.

Part of the EUA legislation is the guarantee to tenants that the benefits to them will be equal to or be better than the cost of the upgrade.

“That contains a risk without a performance contract,” Allston said. “And if tenants are unhappy with the final result in a worst case scenario they could take an owner to court.”

Allston conceded there have been some problems with EPCs in the past in terms of disputes between contract providers and building owners over the way a building is used and how this has contributed to performance, but he believes these issues have been largely resolved.

“The industry will be self-regulating soon with minimum performance requirements for EPC providers through the Energy Efficiency Council,” Allston said.

And with landlords having to guarantee savings to tenants under the EUA legislation, he sees EPCs as the obvious solution.

“From the implementation angle, we are of the very strong view that you’d be mad to do a project, particularly where you engage your tenant, where you don’t use an EPC because with an EPC you are shifting the savings and technical risk of the project onto your provider,” Allston said.

“For the building owner the project can be cost-neutral and have guaranteed returns. We expect providers to provide reports to tenants so the tenants have some clarity about what they’re achieving as well. Tenants need to be shown how to see the savings – it’s not a matter of the building owner just saying there is a saving with the tenant not being able to see it on their bills. Part of our role is to communicate the savings to tenants.

“Obviously, the devil’s in the detail, but we think it is an exciting time for the industry and for energy efficiency as well,” Allston said.

Certainly EPC providers appear to be on the increase and include companies such as Honeywell, Siemens, Cisco and Johnson Controls – to name just a few.

Part 3 Unpacking the EUA issues

Some major sustainable upgrades have been completed in recent years using energy performance contracts. Honeywell's contract with GPT for its building at 530 Collins Street is a good example of what is being achieved out there in the market. The contract aimed for a major cut in energy use and 40 per cent reduction in greenhouse gas emissions. It has also taken the building to a 5 star NABERS energy rating.

Originally completed in 1989, it is a landmark building with approximately 68,335 square metres of office accommodation over 38 floors.

The building was rated at 2.5 star NABERS energy efficiency in 2004 – an industry average. Prior to the upgrade GPT purchased 25 per cent Green Power for the building, a contract that commenced in 2007. This brought it up to 4 star NABERS.

All up, the contract guarantees a saving of around \$360,000 a year. This will be achieved through an improved base building management system, a co-generation plant and new features such as energy efficient lighting, efficient chillers and variable speed drives on pumps and fans.

If Honeywell fails to deliver, particularly on energy performance of the building, it is required to compensate GPT. This covers a five-year period following project completion.

Simon James, Honeywell's general manager energy and environment solutions in South Asia Pacific, told The Fifth Estate that EPCs align very well with the EUA financing process because they guarantee the energy savings outcome, which is critical for paying back the EUA financing.

Any disputes over who is responsible for what are removed by a very clearly drawn-up contract.

The average payback period (in terms of savings on energy bills) for an energy performance contract is seven years. This project included some degree of equipment upgrade, for investments that were at the end of their life, as well as a Federal Government contribution through the Green Building Fund. This allowed the bar to be set very high.

"There were fairly significant capital costs on the project, but GPT was future-proofing the building and ensuring it would continue to attract high-quality tenants. If you factor in the increased value of rent and of the value of the building itself, the payback period could be more like two years," James says.



Part 3 Unpacking the EUA issues

The energy performance contract in practice - the Siemens Australia Model

An energy performance contract (EPC) has a number of benefits for building owners, including guaranteed energy and cost savings. A typical EPC project payback period ranges from five to 15 years, with a savings range of 10 to 60 per cent of total utility costs. Longer payback periods often suit customers requiring infrastructure upgrades, or positively geared cash flows.

Additional benefits of an energy performance contract include:

- Reduced risk – the EPC provider assumes the risk of not achieving savings
- Advanced solutions – Siemens ensures that the latest technologies and resources are used

- Turnkey services
- Marketability – the guaranteed energy savings improve the building's NABERS rating and ability to attract tenants.

PROCESS OUTLINE

The EPC process unfolds in four stages:

- 1) Preliminary analysis to gauge the facility's potential
- 2) Detailed analysis to scope an engineered turnkey solution
- 3) Implementation of the solution
- 4) Guarantee phase to verify savings.

Details of Siemens's approach are outlined below.

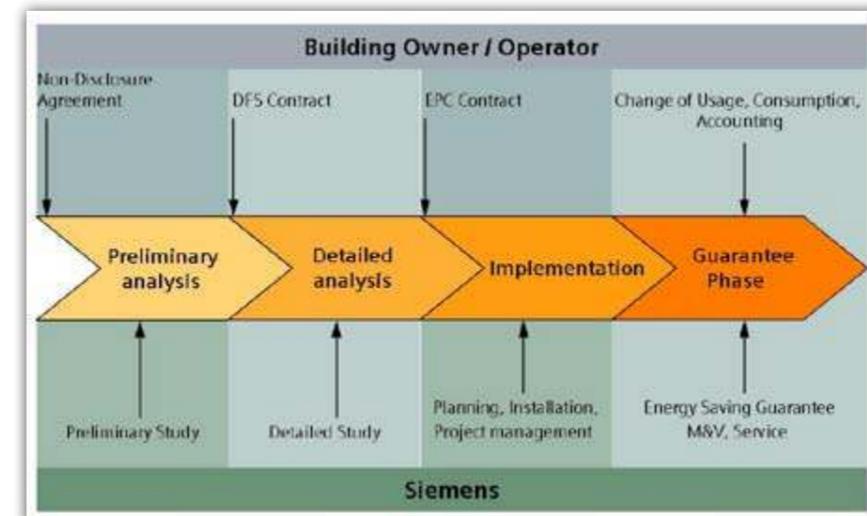


Figure 1: The Siemens Energy Performance Contracting process

Part 3

Unpacking the EUA issues

STAGE 1: PRELIMINARY ANALYSIS

The preliminary analysis will identify the degree to which utility savings can be realised in a building. There are no costs incurred to the customer for a preliminary assessment.

Siemens coordinates a joint site visit to discuss site issues and gain an appreciation of the facility. The relationship is protected under a non-disclosure agreement to protect the interests of both parties.

If, during the analysis, Siemens concludes that significant energy and utility saving potentials cannot be realised, the client is advised of this and of further steps that may be taken.

If the building is determined to be suitable for significant energy and utility savings, Siemens will prepare an offer for a detailed facility study.

STAGE 2: DETAILED ANALYSIS

If the offer for a detailed facility study is accepted, Siemens will undertake a detailed analysis of the building at a specified cost. The detailed facility study provides a comprehensive necessary analysis of the building's current energy use, scopes the identified improvement measures and guarantees the resulting energy savings.

The timeline for completion of a typical detailed facility study ranges from two to four months, depending on the size of the project.

If the detailed facility study suits the customer's requirements and they proceed to an energy performance contract, the detailed facility study

costs may be deferred and rolled into the final project costs.

STAGE 3: IMPLEMENTATION

The implementation phase commences under an energy performance contract where Siemens will guarantee the proposed facility improvement stipulated in the detailed facility study. From this point Siemens takes responsibility of the project's technical and financial risk.

During implementation, Siemens will implement the solutions under an energy performance contract. All reciprocal rights and obligations will align to the agreed contents of this contract. Siemens will manage the design, procurement, engineering, installation and commissioning of all the initiatives, and manage the subcontractors required for the implementation

STAGE 4: GUARANTEE PHASE

Under an energy performance contract, the project will enter a guarantee phase after the implementation. The purpose of the guarantee is to ensure performance of the facility improvement measures that have been adopted. If savings fall short of the guaranteed requirements, Siemens will rectify the issue or failing that, reimburse the customer to the degree of the shortfall.

Siemens will measure, verify and report project outcomes in accordance with the International Performance Measurement and Verification Protocol

Part 3

Unpacking the EUA issues

Sample business case

The tables below show a sample financial summary, based on a real case study, indicating the financing terms and the cash flow to implement the energy cost-saving project. Siemens carried out a ten-year analysis including the performance contract cost to indicate the overall benefits of the proposed investment. Typically, operational and maintenance cost savings can also be achieved through the implementation of the recommendations.

However, they have not been included in this savings calculation. While maintaining a return on investment of approximately five years, the project energy savings achieved a greenhouse gas avoidance of 1,618 tonnes of CO2 per annum. This is equivalent of removing approximately 500 cars off the road.

- Prepared from material supplied by Siemens Australia

FACILITY IMPROVEMENT MEASURE	Financial Summary			Electricity Savings			
	Cost	Savings (\$ AUD)	Payback	Usage (kWh)	Cost (\$ AUD)	e (t CO ₂)	%
Building Automation System Tuning	\$ 13,640	\$ 3,248	4.2	40,302	\$ 3,248	42	0.6%
Carpark Lighting Upgrade	\$ 173,333	\$ 24,170	7.2	299,947	\$ 24,170	312	4.4%
Carpark HVAC Retrofit	\$ 284,667	\$ 94,216	3.0	1,169,197	\$ 94,216	1,216	17.1%
Condenser Water Optimisation	\$ 21,429	\$ 3,762	5.7	46,689	\$ 3,762	49	0.7%
Energy Monitoring & Control	\$ 24,886	\$ -	-	-	\$ -	-	0.0%
Project Management	\$ 25,898						
DFS Cost	\$ 29,428						
Total Base Building Annual Info Blended Rate Information				6,822,435	\$ 549,764	7,095	100%
					\$ 0.0806	1.04	
Total Savings (CFS)	\$ 573,280	\$ 125,396	4.6	1,556,135	\$ 125,396	1,618	22.8%

Table 1: Sample Project Summary

Year End	0	1	2	3	4	5	6	7	8	9	10	Total
Incurred Capital Investment Cost as of YTD (\$)	-573,280											-573,280
Annual Energy Savings (\$)		125,396	129,158	133,033	137,024	141,134	145,368	149,729	154,221	158,848	163,613	1,437,525
Performance Contract Cost (\$)		-20,000	-20,000	-20,000	-20,000	-20,000	-11,214	0	0	0	0	-111,214
Cash Flow (\$)		105,396	109,158	113,033	117,024	121,134	134,154	149,729	154,221	158,848	163,613	1,326,311
Cumulative Cash Flow (\$)	-573,280	-467,884	-358,726	-245,694	-128,670	-7,536	126,619	276,348	430,569	589,417	753,031	
Simple Payback Time [years]	5.4											
Discounted Cash Flow:												
Discount Rate	9%											
Net Present Value (NPV)	245,750											
IRR	17.2%											

Table 2: Ten-Year Financial Analysis including Performance Contract Costs.



SYDNEY ROUNDTABLE

The participants:

FINANCIERS

Pat Dale, Aeris Capital; Mark Yates, Low Carbon Australia; Peter Frith, Verdigris Capital

TENANT REPRESENTATIVE

Geoffrey Learmonth, LPC Australia

THE COUNCIL

City of Sydney – Mark Matthews and Philippa Sutherland, as observers only

BUILDING OWNER

Emlyn Keane, AMP Capital Investors

CONSULTANTS

Peter Frith, Napier & Blakely; James Allston, Siemens

THE TOPIC: MARKET ACCEPTANCE

FINANCIERS

Pat Dale: “We’ve been working on EUAs four and a half years and it’s a long and painful journey. We’re now in the Commercialisation phase with this particular product – it has not yet reached market acceptance. The market is lacking knowledge and awareness at the moment – I think that’s entirely understandable. What the market needs is examples and from examples, if it all works, will flow acceptance.”

Mark Yates: We were set up by the federal government to catalogue energy efficiency in the commercial and industrial sector and to supply funding. We have engaged with NAB and Eureka as a funding partner in order to get EUA finance into the market. We don’t see it as a be all and end all to the market. We see it as one of a number of financing products that can be used for improving the energy efficiency within a building. Its characteristics mean it will be suited to particular parties within the market.

TENANTS

Geoffrey Learmonth: “Tenants all say they believe in green. EUAs are not going to appeal to all tenants. 75% of all tenants in the Sydney CBD occupy less than 600 Sqm space. The chances are EUAs are going to appeal to that sector of the market and in most cases they’re probably the less informed sector of the market.”

Our view is we don’t oppose an EUA but we would think there would have to be engagement with the tenant. Some tenants are probably going to resist it and others will embrace it. We expect state government authorities [as tenants] will love it, others will resist if they’ve only got a limited amount left on their lease.”

BUILDING OWNERS

Emlyn Keane: We are at the premium service end of market and we actively upgrade our properties. I don’t see an EUA as a way of us not paying for work on our buildings. An EUA is a vehicle. I see it more as a make-up rather than a complete payment vehicle – where I have, say, \$4 million to spend but in order to install some innovative product I need \$6m, I might say to the tenant ‘we’ll put \$4million in [and use an EUA to raise the other \$2 million] if you’ll share the returns on the two million.’ That’s what I see it as – not a be all and end all but another instrument that needs to be used in the right place and time.”

CONSULTANTS

Peter Frith: “We are trying to channel clients into adopting EUAs and still waiting for a bit more detail to come through before we do that too actively. I tend to agree it will be B and C grade buildings and those types of investors that will be attracted to it more than the institutionals. But we still also think the institutionals should be embracing EUAs more than they appear to be doing and as part of that we are developing some tenant engagement tools. As these are from N & B they provide an independent perspective. We want to help landlords bridge the gap with their tenants. I’ll be interested to see how much landlords have engaged with tenants.”

James Allston, Siemens: “We’re very excited about EUAs. We think it is a massive opportunity for the market. It is going to essentially dissolve one of the barriers that is stopping a lot of energy efficiency programs from happening, which is access to capital. Lack of access to capital is something that has plagued the industry for decades and no one has found a way to solve it short of pumping large volumes of money through something like the Green Building Fund, which tends to be free money and I think it begs the question – do property funds really need that money in the first place? So what we are seeing now is a way that we can direct private capital into the market. At the same time it dissolves the split incentive barrier and provides a mechanism to do very long term projects as well.”



Peter Frith



Geoffrey Learmonth, LPC Australia

Topics

THE TOPIC: THE BENEFITS

BUILDING OWNERS

James Allston: “There are a lot of synergies in the built environment [from sustainable upgrades] in terms of increasing asset value for building owners, decreasing vacancy rates and increasing potential tenant rental returns.

“And with money coming in from organisations like NAB to lend over the long term there is the potential to positively gear this. Also, in the industrial side we’re starting to see synergies with the Clean Technology Program and EUAs. And also the Energy Efficiency program which is another \$200 million to councils and community buildings. The leveraging from that particular program will be \$1 from the federal government which has to be met by \$2 or \$3 from the customer. That can come from any source so EUAs is a way of potentially getting low cost funding to do the project.”

Pat Dale: “The genesis of this product is taking the commonly cited reasons or barriers to sustainability investment, which might be capital availability or split incentive - the product effectively dispatches both those problems. If you’re removing the barriers, you’re removing the excuses for lack of investment and the whole premise of the product is really to accelerate and increase the volume of investment that can happen in the built environment where EUAs are available.”

TENANTS

James Allston: “The upside for tenants is they hedge against rising energy prices. We’ve done modelling that shows if you halve the energy use of a building, in the future you actually decreasing the amount a tenant would have to pay on utility bills by about 25 per cent over the title. If you’re still paying for the EUA and in the future energy prices double you’re going to be paying half the amount you would have been going forward.

Peter Frith: “It’s a very effective way for tenants of hedging against future increase in energy costs. And when the valuers catch on to the increase in the value of the property via these upgrades occurring, smarter tenants will tap into that. There’s some scope for passing the cost through to tenants with some sharing in the increase in value.”

FOR PRECINCT-BASED ENERGY

Emlyn Keane: Fund managers want buildings to be 4 star NABERS by the end of 2012. Many have got to 3.7 by the end of 2011 and most tenants are happy with 4 star. We now need to look at other things to get more out of buildings such as carbon efficient energy. EUAs may help with this. The Department of Environment doesn’t recognise a set of turbines in the bush targeted at buildings through offsetting. This is not counted in NABERS. This doesn’t encourage precinct-based energy and creates a big gap. Carbon offset is the next thing after technical efficiency inside building but the current regulations put up hindrances to investing in these innovative things. The funding is there but there are no incentives through programs like NABERS. Councils might pay for these things through EUAs.”

Topics

THE TOPIC: THE HURDLES

TENANTS

Geoffrey Learmonth: It’s important to ask whether EUAs are based on cleaner, greener environment or on passing on real savings to the tenant? We were involved in a case recently where for one of Australia’s better buildings we got a breakdown of outgoings and we went through every single one line by line item and benchmarked against a whole group of buildings and we looked at the statutes – utilities, rent, air conditioning. Admittedly there was a saving under energy and gas [of a sustainable upgrade] but we’re not talking mega dollars, we’re talking \$10-\$12 a metre. Everything else was pretty much consistent so most tenants would want to understand the real reason we’re doing it – environment or savings of \$10 to \$12 a metre. Most would say they’ve got bigger fish to fry.”

Peter Frith: “The split incentive is technically bridged [with an EUA] but then there’s the communication gap that is not necessarily being bridged. We try to guide people through the process so that they know the scope of works and how an EUA will work by educating landlords and tenants – trying to bridge that gap.”

“Regarding the savings to tenants not being worth it: our turnover has dropped 25 per cent since the GFC so we have to chase expenses down for everything. For us as a tenant, savings of \$10 per metre over 1000 sqmetres is \$10,000 – that would be enough for us. If you have 2000 sqm it is \$20,000. So from a tenant perspective I wouldn’t say ‘no don’t worry about it’”

Pat Dale: “When you consider that EUAs are available in Sydney, Melbourne, Parramatta and soon in North Sydney, most of the organisations that run businesses in those areas have a relatively low proportion of their gross revenues represented in occupancy costs. If you look at the tiny proportion of occupancy costs that is power consumption, we’re actually talking about something that is minute in the extreme for the tenant. It might be .1 of one per cent of gross revenue of the typical business operating in the city. Once you put this in perspective, is the split incentive an issue at all? That’s what I’m aiming to solve over the next 12 months.”

VALUATIONS AND RENT

Geoffrey Learmonth: “There are other legal issues it raises. Valuation, for example – if an EUA is in place and there are two buildings in the same area where you are doing a capital valuation and rental valuation how does it impact? If, for example, you have got mid term market rent review, and you’re basing it on the value of a building, that would throw up issues if compared to a building next door that has no EUA. It’s going to be interesting to see how that affects the market value under the lease. Likewise with a capital valuation, if you’re valuing a couple of buildings from a capital point of view and one has a EUA and the other hasn’t there are some issues there. What impact will it have on the outgoings?”



MELBOURNE ROUNDTABLE



The participants:

CONVENER

Tina Perinotto, The Fifth Estate

THIRD PARTY ADMINISTRATOR

Scott Bocskay, Sustainable Melbourne Fund

FINANCIERS

Robert White, NAB; Peter Frith, Napier & Blakely

THE CONSULTANTS

Dave Collins, Synergetics, Garrett Schot, Cundall

THE FUND MANAGERS

Adam Murchie, Forza Capital, Shane Quinn, Quintessential

THE LAWYERS

Jeff Lynn, Ashurst

FACILITIES MANAGERS

Nicholas Burt, Facilities Management Association

THE COUNCIL

Krista Milne, City of Melbourne

THE TOPIC: THE DRIVERS

FUND MANAGERS

Adam Murchie: “There will be increased cash flow out of this sort of investment through higher net effective rents – this should flow through to valuations. In time I’d hope the lower risk of sustainable investments will be valued as well. There is an argument for this to be factored into the pricing of bank debt. It is about understanding risk and returns.”

Shane Quinn: “We’re a boutique and property fund manager. We specialise in turning assets around, and one of the big turnarounds is obviously the environmental benefits that we can provide for the tenant.I’m a civil engineer by profession, I’m in education, so it’s something that I’m quite interested in, in terms of the engineering aspect in turning these assets around, because it’s a real driver for our own purchase and the procurement of our assets.”

ENGINEERING

Dave Collins: “I run a small environmental engineering firm that provides, creative Solutions [for energy efficiency]. We’re applying our skills to our own buildings, where we reside, and we’re hopefully going to be one of the next beneficiaries of the new EUA, and create another positive energy building. Our objective is not six stars, our objective is positive energy. And so at the moment we’re at we earn about \$1000 a month in excess power that we sell back to the grid. And so I’m hoping to be able to show other people how to do that through this process.”

FACILITIES MANAGEMENT

Nick Burt: “One of the things that we see as an opportunity with EUAs, is the opportunity to package up a whole range of both quick and easy wins with some longer term payback opportunities, and really sell it as a package, rather than just I looking at each ...environmental upgrade aspect or energy efficiency upgrade aspect as an individual proposition.”

COUNCIL

Krista Milne: “We have had a policy commitment around zero net emissions for the city for some time. And I had identified that 50 per cent of our emissions come from the commercial property sector. We identified that getting increased investment into the buildings within the city was really important for the prosperity of the city. Also, looking at the nature of ownership structures within the city we know that a large number of buildings are owned by private investors who don’t necessarily have access to capital.

“To maintain or enhance the competitiveness of Melbourne’s building stock, we need to help support stimulating the market. So there was both an environmental and an economic driver from the city to go down this path.”



Garrit Schot, Cundall

THE EUA MODEL

THE COUNCIL

Krista Milne: “The way that we’ve developed the program, and the application process and the reporting, is to have set interventions that we deem and know from evidence will deliver energy savings.....So a whole element of the program design is to provide as much certainty as is possible, without signing council’s name in saying that we’re delivering that certainty.”

FINANCIERS

Robert White: “Here in Melbourne, because you need tenant consent, the only way you will get that is by having clear avenues for explaining what it will deliver. It could be through an EPC [energy performance contract] with Siemens, or maybe you’ve got Cundall – and they say ‘We’ll do the work, we’ll guarantee, and if there isn’t there’s the appropriate remediations in place to duly compensate the tenants.’ And that’s the only way you’ll actually manage to convince tenants to sign. Anyone who thinks they can do it without a guarantee and then just charge their tenants is mistaken.”

LEGAL

Jeff Lynn: “It seems to me, that one of the starting points for the EUA discussion is that this is a cheaper source of capital than the debt market. But if that turns out to not be true, or well, the difference is so small that with all the other complexities associated with the EUA it doesn’t make it worth your while, then that’s the issue.”

The topics

THE TOPIC: EUAS AND BUILDING VALUE

FUND MANAGERS

Adam Murchie: “We’ve all had the argument with valuers around what sustainable upgrades deliver. Intuitively we all know that investing in this stuff gives you a better product, and it should then result in less risk and higher value, but we’ve got to speak to the valuation profession so they can actually recognise that inherent value in EUAs and sustainable upgrades and support that.”

“If valuers get their heads around EUAs and how the financing works it should manifest in valuations. The key thing is keeping the EUA model simple.”

FINANCIERS/CONSULTANTS

Peter Frith: “I think the valuers have got to go back to first principles in terms of lifecycle costs of capex. Where you do due diligence on a building’s capex – over 10, 15, 25 years - and you’ve done an EUA in place, by our definition you’ve got a capital improvement in parallel, so you’ve got brand new equipment. If that building was ten years old, will the valuer take this upgrade into account? We think they should.”

Scott Bocskay: “We’ve now got a tool that actually helps you monetise the future energy savings. When we first started talking about sustainable upgrades, everybody was saying the split incentive was stopping things.”

“Now [with EUAs] the split incentive’s gone and the problem is how do we talk to people to align our incentives so that we deliver real value. What this does is that it gives an incentive to work out value.”

“The Green Building Fund was about filling out the forms and whoever could fill out the forms best won. And now the incentive is sitting in the buildings right here, right now.”

Garrit Schot: “But I sit here as an engineer, you guys are sitting here as capital raisers, there are disconnects. There needs to be a whole. We get it - the valuers, they don’t know ... in terms of sustainability, they’re saying, well, it’s got a few stars next to it, I might give it a bit extra, but they don’t know ...”

TENANT ENGAGEMENT

[Note: In Melbourne tenants must all agree in writing to an EUA if costs are passed to tenants. However, if the owner decides not to pass on the costs agreement is not required.]

Tina Perinotto – convener: “Some people are saying the projects that have been signed in Melbourne and have chosen not to pass the costs of the EUA finance through to tenants are not pure EUAs. The perception is they’ve accessed some low-cost funding and they’re paying for it themselves because rather than engage with tenants they’ll just increase rent when the rent review comes up.”

LEGAL

Jeff Lynn: “You need to sit down and get a signature on a piece of paper, and if you’ve got 100 tenants in a building that’s obviously not something you look forward to. But if you carry out works yourself, you increase the value of the building, there’s a market review mechanism in the ordinary course, and obviously the EUA value-add will be taken into account in that market review process, so you can get it in indirectly without tenant consent ... that way, but it’s a less direct way than saying simply that your share, Mr Tenant on level 1, of the EUA, of the upgrade works are X, and therefore your rent goes up by Y ...”

BUILDING OWNER

Shane Quinn: “As a landlord, at this stage, I’d rather go and do the works [with EUA finance], have a market review, have the works completed, and then go to the valuer for a determination once the building is upgraded it from two star to five star NABERS. We can extract value from the rent by increasing from \$300 to \$375. And then I’d sell. It’s a tidy deal and it’s a complete package. Otherwise it’s complicated and it’s untidy in terms of sale process, and where the value’s attributed in terms of that income and where the value’s attributed in terms of that income.”

CONSULTANT

Dave Collins: “I wonder if the FMA [Facilities Management Association] has a key role here? I’m just trying to think of a trusted advisor that small

business, small building owners are going to listen to. And I think it deals with the issue of overseas investors as well. You still have to have someone on the ground, hopefully a member of the FMA – if they’re not, they should be - and through his members provided a forum of case studies and people who can communicate.”

THE TOPIC: THE BARRIERS

FUND MANAGERS

Adam Murchie: “One of the main barriers to taking up EUAs is engagement across the spectrum, both in terms of landlord and tenants understanding this, actually dare I say it, the whole walking through the model and explaining the process to them. It’s the devil you don’t know.”

LEGAL

Jeff Lynn: “A barrier is the fact that it doesn’t smell or look like something they’ve seen before.”

CONSULTANT

Peter Frith: “Institutional investors - and they say they understand it - say, it’s too hard.”



Shane Quinn - Quintessential, Nicholas Butt - Facility Management Association



NB Verdigris
SUSTAINABLE PROPERTY SOLUTIONS

“Napier & Blakeley is excited to announce the launch of NB Verdigris - a new business unit solely focussed on Sustainable Property Solutions for existing buildings.”

NB Verdigris has just launched - offering tailored Project Management, Finance & Sustainable Property Solutions advice to suit the needs of your next project. At NB Verdigris we maximise the potential of our client’s investments, whilst continuing the Napier & Blakeley philosophy of focussing on the things that actually matter.

As part of Napier & Blakeley, NB Verdigris provides the focal point to access other useful N&B services such as costing, tax write-offs, and engineering services; adding value to each project in every possible way.

Offering specialist and expert advice for every project:

- We have a great track record in project directing the scoping, design and construction of sustainable retrofit works for many properties.
- We have participated in the development of Environmental Upgrade Agreements (EUA’s) providing an insight that is rare.
- Our team includes a former financier, experienced in pulling together the financing packages.

NB Verdigris provides the expertise that makes the difference, to rethink, reposition, and reignite your property portfolio.



Check out these two case studies below – two great examples of how we maximise the potential of every project we work on!!

Port Central Shopping Centre, Port Macquarie, NSW

	Client:	Gowing Bros Limited
	Project Description:	In order to improve the energy efficiency of the building by over 50%, the HVAC system is being upgraded with high efficiency chillers, VSDs, new BMS and a economy mode system. In addition to these works, a new 99 kW solar PV Cells system in being connected to the main electrical supply as well as the base building lighting being upgraded to LED lighting. This \$1.8 million of works was aided by \$500,000 from the Green building Fund and will result in increase from 2.5 star to 5 Star NABERS Energy
	NBV Services:	Project Management, Technical due diligence, Energy Efficiency Assessment, NABERS certification, Green Building Fund application, Tax Depreciation

80 Clarence Street, Sydney, NSW

	Client:	Aviva Investors – Asia Pacific
	Project Description:	The 5,000m2 13 storey building was improved from NABERS Energy 1 Star to 4 Star. The project also included a lobby and partial office refurbishment works as part of a repositioning of the asset. To achieve this dramatic improvement in NABERS rating for a building of this size, the air cooled HVAC system was converted to a SMAC water cooled system with a new BMS, induction VAVs and E1 lighting.
	NBV Services:	Project Management, Technical due diligence, Energy Efficiency Assessment, NABERS certification, Green Building Fund application, Tax Depreciation, Quantity Surveying

Key Contacts

OFFICE OF ENVIRONMENT AND HERITAGE
<http://www.environment.nsw.gov.au/sustainbus/eua.htm>
1300 361 967
eua@environment.nsw.gov.au

SUSTAINABLE MELBOURNE FUND
<http://www.sustainablemelbournefund.com.au/euf>
Environmental Upgrade Finance customer service:
1300 432 044

SOUTH AUSTRALIAN GOVERNMENT
www.sa.gov.au/climatechange

COUNCILS

City of Melbourne
<http://www.melbourne.vic.gov.au/1200buildings/Pages/Funding.aspx>
03 9658 9658

City of Sydney
02 9246 7843
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Parramatta City Council
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Lake Macquarie City Council
02 4921 0333
<http://www.lakemac.com.au>

Wollongong City Council
02 4227 7266
<http://www.wollongong.nsw.gov.au/Pages/default.aspx>

The City of Newcastle
02 4974 2214
dsheehan@ncc.nsw.gov.au

North Sydney Council
02 9936 8100
eua@northsydney.nsw.gov.au

Penrith City Council
02 4732 7803
eua@penrithcity.nsw.gov.au

Useful Resources and links

Best Practice Guide to Energy Performance Contracts, from the Energy Efficiency Council.

Dollars and Sense of Green Buildings, published by the Green Building Council of Australia. Reviews case studies, industry practices and rating tools. It also discusses cost benchmarks, business benefits and economics for green buildings.

Existing Buildings Survival Strategies. International engineering firm Arup worked in partnership with the Property Council of Australia to produce this guide, which contains a six-step program for upgrading buildings and analysis of more than 200 upgrade initiatives.

Green Lease Guide for Commercial Office Tenants. Published by Investa Property Group, this guide explains what a green lease is and how it can benefit owners and tenants.

Greening Your Building: A Toolkit for Improving Asset Performance is a guide for building owners and facility managers, presenting a range of initiatives designed to improve building environmental performance and reduce running costs.

Glossary of Property Terms. This is a joint publication of the Property Council of Australia, Australian Property Institute and the Real Estate Institute of Australia.

Handbook on Applying Energy Efficiency Provisions to New Building Work. Published by the Australian Building Codes Board, this handbook contains information on applying the energy efficiency

provisions of the Building Code of Australia to building refurbishments.

HVAC & R Maintenance Handbook. This publication, written by the Australian Institute of Refrigeration, Air Conditioning and Heating, contains maintenance guidance and schedules for heating, ventilation and air conditioning systems.

Low Energy High Rise Buildings Project Report. Prepared on behalf of the Warren Centre, this report identifies a number of methods for improving energy efficiency in commercial buildings without making significant investments in equipment upgrades.

Sustainable Property Guide. Developed by the Department of Environment and Climate Change NSW in conjunction with Colonial First State Global Asset Management, the Sustainable Property Guide provides a broad range of practical advice, case studies and step by step guidance for incorporating sustainability into building projects.

USEFUL LINKS

Australian Building Codes Board

Australian Institute of Refrigeration, Air

CONDITIONING AND HEATING

Building Commission Victoria

Energy Efficiency Council

Equipment energy rating scheme

Green Building Council of Australia

LOW CARBON AUSTRALIA

NABERS

Plumbing Industry Commission

Resource Smart

Sustainability Victoria

Water Efficiency Labelling and Standards

ABGR – Australian Building Greenhouse Rating – now known as NABERS

AMORTISATION – a tax deduction for the gradual consumption of the value of an asset, especially an intangible asset.

BCA – Building Code of Australia – The BCA is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and State and Territory Governments. The goal of the BCA is set nationally consistent, minimum standards for the construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, services and equipment, and energy efficiency as well as certain aspects of health and amenity.

CARBON FOOTPRINT – is the total set of GHG (greenhouse gas) emissions caused directly and indirectly by an individual, organization, event or product.

CARBON NEUTRAL – refers to a company, person, or action either not producing any carbon emissions or, if it does, having been offset elsewhere.

CO₂e – to account for the differences in the warming effect of various greenhouse gases, emitters often express their emissions of various gases in CO₂ equivalent (CO₂e) terms. This represents the amount of CO₂ that would have the same relative warming effect as the basket of greenhouse gases actually emitted.

CARBON OFFSETS – are certificates representing the reduction of one metric ton (2205 pounds) of

carbon dioxide emissions.

COMMISSIONING – the systematic process of verifying that all building systems perform interactively according to design intent, that they meet the operational needs of the owners and occupants, and that staff responsible for operation and maintenance are sufficiently trained. The goal of this service is to improve system performance, operation and maintenance, energy efficiency, occupant comfort and indoor environmental quality.

EMBODIED ENERGY – the energy consumed by all of the processes associated with the production of a building, from the acquisition of natural resources to product delivery.

EUA (Environmental Upgrade Agreement) – is a financing mechanism that allows building owners and developers to access funding at competitive rates to undertake sustainable building upgrades. The EUA involves a tripartite agreement between landlords, councils and financiers and the loan is attached to the property and repaid via a special council charge. This charge can be passed on to tenants as long as the cost does not exceed the benefits they receive from improved building efficiency

EPC – an energy performance contract is an agreement between an energy services company (ESCO) and a building owner or developer. The ESCO designs a project to increase the energy efficiency at a facility and guarantees the savings from the increased efficiency. If the project fails to achieve the guaranteed result then the ESCO pays the buildings owner the gap between the actual and guaranteed saving.

Glossary

GREEN STAR – the Australian national voluntary environmental rating system that evaluates the environmental design and construction of buildings and communities. It is operated by the Green Building Council of Australia.

THE GRID – refers to an interconnected network for delivering electricity from suppliers to consumers.

HVAC – Heating, ventilation and air conditioning (cooling) system.

MANDATORY RENEWABLE ENERGY TARGET (MRET) – In 2001 the Australian Government introduced a mandatory renewable energy target scheme designed to increase the uptake of renewable energy in Australia's electricity supply.

In 2007 the Government committed to ensuring that 20 per cent of Australia's electricity supply comes from renewable energy sources by 2020.

MIXED-USE DEVELOPMENT – A development in one or several buildings that combines several revenue producing uses that are integrated into a comprehensive plan – such as a project with a elements of housing, retail, and office space.

NABERS (National Built Environment Rating System) – NABERS is a national rating system that measures the environmental performance of Australian buildings, tenancies and homes. NABERS is managed nationally by the NSW Office of Environment and Heritage, on behalf of Commonwealth, state and territory governments.

(Net) Zero Energy Building (ZEB) – is designed for zero net energy consumption and zero carbon emissions annually.

RENEWABLE ENERGY CREDITS (REC) – or “green tags”, are bought and sold to offset a percentage of annual electricity use, typically sold in 1 megawatt-hour units.

RENEWABLE ENERGY – is generated from natural resources, such as sunlight, wind, rain, tides and geothermal heat, which can be naturally replenished.

SITE ASSESSMENT – The thorough environmental analysis conducted as a stage in planning to assess a variety of measures from soils, topography, hydrology, environmental amenities such as wetlands, wind direction, solar orientation, animal and plant habitat, connections to community, etc. Geographical information systems (GIS) can facilitate this task.

SITE DEVELOPMENT COSTS – All costs needed to prepare the land for building construction, such as the demolition of existing structures, site preparation, off-site improvements, and on-site improvements.

TRIPLE BOTTOM LINE – refers to social equity, economic prosperity and environmental quality (people, planet, and profit); those who subscribe to the concept seek to benefit many constituencies, not exploit or endanger any one group.

VAV systems – Variable Air Volume air conditioning systems

VOLATILE ORGANIC COMPOUNDS (VOC) – carbon-based organic compounds used in a wide range of products, such as paint, carpets, furnishings, and cleaning agents. VOCs off-gas, vaporise, and combine with other airborne

Glossary

WHITE CERTIFICATES – are documents certifying that a certain reduction of energy consumption has been attained. In most applications, the white certificates are tradable and combined with an obligation to achieve a certain target of energy savings.

Switch On to a Sustainable Future



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