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The valuation of sustainable urban development

A pre-carbon tax review

ABSTRACT

Whilst debate currently surrounds the introduction of a carbon tax in Australia, the property industry has commenced gearing towards the development of sustainable green office buildings with such a tax incorporated in its business plan. This plan incorporates both the development of new green star rated commercial office buildings and the retro fitting of existing office buildings.

This paper identifies factors in the evolution and operation of a carbon tax which should impact on the value of sustainable commercial office buildings. It identifies difficulties and deficiencies in the determination and reporting of value and highlights the importance of valuation models correctly and sufficiently distinguish between sustainable and non-sustainable development.

The paper concludes with a pre carbon tax analysis of various classes of commercial office buildings, the cost of sustainable outgoings and a review of the lease structure needed to ensure unsustainable development is attributed to the owner of the property, not passed onto the user or lessee.

Keywords: Value, green rated office buildings, carbon tax, urban development

INTRODUCTION

The United Nations through the Kyoto Protocol (1998) and more recently Copenhagen Summit (2009) have amplified the impact of global warming on the sustainability of the earth's environment over the next 50 to 100 years. Among factors of vulnerability resulting from climate change are impacts on health, habitat, wildlife and weather / climate (Department of Climate Change and Energy Efficiency 2011). In addition to its global responsibility, Australia with one of the largest international coastlines is directly exposed to the impacts of climate change.

Despite being among the world leaders in addressing climate change and accounting for less than 2 percent of global green house gas (GGH) emissions, Garnaut (2008) identifies Australia as one of the highest emitters of GHG per capita in the world. At 28.1 tonnes (CO_2-e) per person, Australia is close to double that of the OECD average and is the world's sixth highest emitter per person behind Bahrain, Bolivia, Qatar, Brunei and Kuwait.

In Australia, focus has centred on rural, mining and secondary production sectors of the economy. The built environment has been identified as a contributor to global warming. Office buildings, accommodating service professions have been identified by Garnaut (2008) as contributors to carbon emissions in the built environment. In total 12.2 percent of emissions are attributable to commercial services which encompass the office and retail sectors.

The cost of power is particularly relevant in cases of older less energy efficient buildings where a portion of energy costs are not attributable to either the use, or the base running of a building, but that portion attributable to the operation of an inefficient building. These inefficiencies may result from services such as dated air conditioning, lifts and lighting and is further hindered by old building cladding with poor thermal rating. These inefficiencies will require greater accountability in the determination of value and will need to be addressed through mechanisms in leases to ensure costs attributable to inefficient buildings are not passed onto the end user or lessee.

A review of the operation of a carbon tax, lease structures and the evolving rating systems for ranking the energy efficiency of office buildings is provided as a prelude to the analysis of a framework for the impact of a carbon tax on the value of property. Information on the operational efficiency of office buildings in three capital cities of Australia obtained from the Property Council of Australia is used in assessing the likely impact of the carbon tax in a pre-carbon tax environment. This provides a way of anticipating the strengths and weaknesses in accounting for the impact of the tax, once introduced mid 2012 on the value of office buildings.

The paper defines the potential problem in establishing whether the lessee or lessor will pay the carbon tax levied through increases in power consumption. This is particularly relevant to occupants of older less efficient office buildings, where the additional costs resulting from inefficiencies in the building structure and fabric are masked as consumption costs incurred by the lessee or occupant in the use of the building.

POLICIES FOR CHANGE – EMISSIONS TRADING SCHEME OR CARBON TAX

As Australia moves closer to taxing carbon from July 2012, it is among the world leaders in implementing change in environmental sustainability. The energy efficiency changes adopted internationally are set out in Table 1, in which the European Union in 2005 and New Zealand in 2008 lead the way in adopting emissions trading schemes (ETS). Despite this achievement, Australia will be among the first countries to price and directly tax carbon at $25 / tonne. (Department of Climate Change and Energy Efficiency 2011)

Table 1: International Emission Trading / Carbon Tax Schemes

Country / Region	Policy	Date enforced	Inclusions / exclusions
European Union (30 Countries)	ETS	2005	Power, oil refineries, iron & steel works, factories manufacturing cement, steel, glass, bricks & paper
New Zealand	ETS	2008	Electricity generation, transport fuels & industrial processes
United States	ETS	2012*	Not stated
Australia	Tax $25/tonne with transition to ETS 2015	2012*	Top 500 polluters (excludes fuel)

Source: Productivity Commission May 2011; * due to commence

Further to the European Union's use of an ETS, carbon taxes are used in Denmark, Finland and Germany (Hansford and McKerchar 2010). As to which system is the better option, Kendall (2010) states that there are benefits and drawbacks to each the ETS and a carbon tax and the most suitable policy choice will be best served by the objectives and circumstances of an individual country. Largely perceived as different mechanisms for controlling emissions, in principle both emission trading schemes (ETS) and a carbon tax set to achieve the same objective of creating a behavioural response through pricing carbon. The primary difference between these two alternatives is defined by the Productivity Commission (2011) to be that a trading scheme allows the market place to set the price on carbon, where as tax is centrally set and places a floor under which the price paid for carbon cannot fall below. Further, Kendall (2010, p 154) states, "a carbon tax fixes a price for GHG emissions, whereas an ETS fixes the quantity of emissions permitted."

The taxation of pollution dates back to Pigou (1932) who supported the polluter pay principle. A pollution tax would require the polluter to pay for the amount of clean air it consumed in the course of production. Baumol and Oates (1971) state that the polluter would either avoid the tax by reducing pollution or repay society for the amount of damage it causes by paying the tax. In contrast to taxes, Coase (1960) points out where factors of production are thought of as rights and these are unambiguous and transferable, the market would value these rights as well as allocate these being used in the most effective way. Under an ETS, government allocates the rights to pollute to an overall tolerable level. Those who pollute below that level could trade their unused rights to those who need to emit more than their allowance (Baumol and Oates 1988, pp180-190).

Australia has opted to commence with a tax and then after a three year period, transition to an ETS. The advantage of this process, is to allow government to collect information and monitor the amount of emissions over that period, which will suitably inform it as to the allocation of permits need to be sold into the market for an adequately but neither over or under resourced ETS. What has been overlooked in considering the merits of an ETS or a Carbon Tax, is the option for the coexistence of the two. Under an ETS, in the form of a Cap and Trade system, once the rights to pollute have been sold to polluters, the tax is imposed once on sale. Ongoing taxes are collected in the form of capital gains, GST and transaction taxes as the rights to pollute trade among polluters. In contrast, a mix of an ETS and a Carbon Tax would result in a recurrent tax retained at a lower rate for the ongoing right to pollute.

In the case of property owners, investors, trusts and funds, an ETS is a workable option, particularly as buildings age and their ratings drop. In these cases, the ability to be able to trade emission credits will be crucial as buildings age and become physically and economically obsolete. This point then raises the question as to what impact pricing carbon will have on the financial operation and viability of property. This is regardless of whether the price of carbon is imposed as an ETS or a tax. In the built environment, the imposition of a recurrent carbon tax is more likely to apply in one form or another regardless of a whether a tax or trading scheme is imposed. As the built environment ages and becomes less energy efficient, rating systems have been developed to measure operational and functional depreciation, through the output and use of energy (Department of Environment, Climate Change and Water 2011).

TAXING THE BUILT ENVIRONMENT – WHO PAYS THE TAX?

The imposition of a carbon tax as highlighted earlier is to create a behavioural response to energy efficiency and consumption. In the case of office buildings, the question turns to who should bare the cost of the tax and most importantly, how is that to be determined and measured in the context of the value of sustainable development.

The Building Code of Australia in 2003 introduced a number of measures for greenhouse gas mitigation. The 2003 measures were introduced for minimum performance measures in residential housing, which covered building fabric. These measures were expanded to include commercial office buildings in 2006 and in addition to covering building fabric and also cover heating, ventilation, air-conditioning and lighting, (Australian Building Codes Board 2009).

In order to rate the efficiency of buildings, in 1999 the New South Wales Government developed the Building Greenhouse Rating. In 2000 it was extended nationally and renamed the Australian Building Greenhouse Rating (ABGR) and in 2008, it was renamed the National Australian Built Environment Rating System (NABERS) (Department of Environment, Climate Change and Water 2011). The NABERS rating system is designed to categories buildings into classes of energy efficient clusters which are defined by a Star Rating of between 1 and 6.

The purpose of this rating is to establish a method which distinguishes buildings by reference to their operational energy efficiency. This is of particular importance for consumers of power in correctly apportioning the consumption directly attributable to the operation of a building versus the operation of the business within the building. Diagram 1 is a simple demonstration of an occupier, also the owner of the building and the split in power consumption between the occupier and the base building consumption. In this example any inefficiencies in the building are absorbed by the owner and are not readily distinguishable between use and ownership.

In contrast Diagram 2, the Post Carbon Tax Model demonstrates the power consumption in a tenanted building, in which ownership and occupier are not the same. In this example, the portion of the power consumption attributed to a low rated building with higher power consumption is absorbed by the occupier / owner of the building. In these cases however, the building itself is the business unit in which the power consumption arising from a low rated building, is to be absorbed by the owner of the business in the operation and leasing of the property.

Under a NABERS rating system the building is rated and the power consumption arising from a low rated building as shown in Diagram 2, would then be absorbed by the owner of the building in the recalibration of operational power consumption. This concept is now expanded in the following section of tenanted office buildings and is important, as valuation models incorporating income and returns from income used to value property are derived from the rented component of the property market.

Diagram 1: Pre-Carbon Tax Power Consumption Model

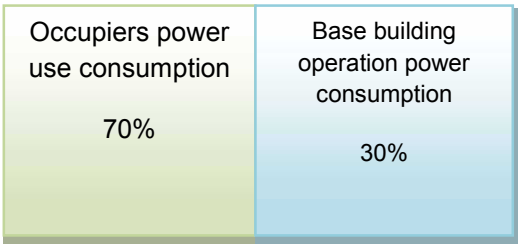
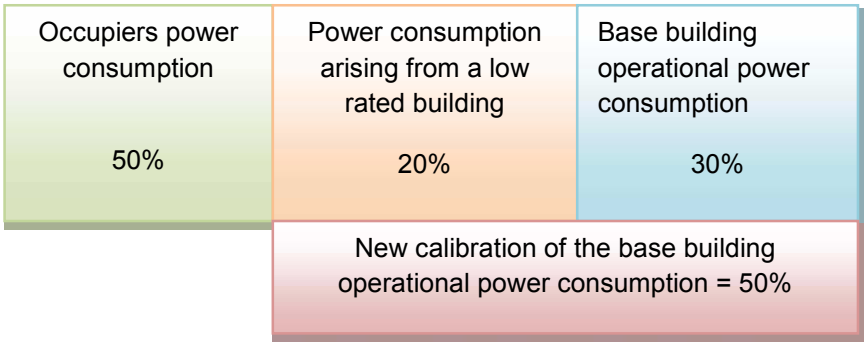


Diagram 2: Post Carbon Tax Power Consumption Model



Tenanted Offices Building Case

Where a building is tenanted, it is arguable that a carbon tax is automatically passed onto the tenant who consumes the power in the operation of their business under their tenancy, which is separately metered. This has traditionally been the case in the past and is arguable on the basis that an older less efficient building would attract a lower rent. This argument is likely to change when a tax is levied on consumption and that consumption is impacted based on the efficiency of the building plant or fabric.

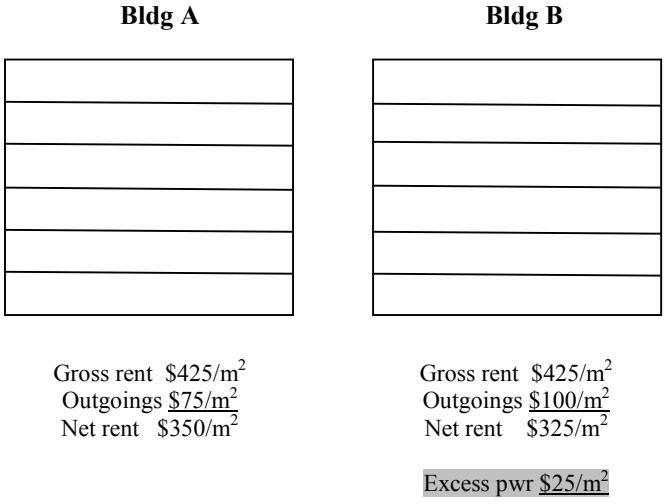
The challenge will be determining the power consumption and tax attributable to the lessees use of the premises, versus the power consumption and tax attributable to the efficiency of the buildings fabric and services. To this end, in the case of the tax attributable to the inefficiency of the building, the tradition of valuing a building based on the net rent is questionable, as the impact of a higher

power charge encompassing a tax on which the lessee is paying a rent to use, may well be viewed differently.

The tax is further likely to impact on the structure of leases and the basis on which the rent is paid, as tenants will opt for a gross rent which encompasses all outgoings within the rent. Diagram 3 sets out an example of the impact of the carbon tax applicable to the leasing of two adjoining buildings. Building A is a building with efficient building fabric, cladding and services, in contrast, Building B similar to but an older less efficient building which utilises higher power charges directly attributable to inefficiencies in the building fabric, services and fit out.

In this example, the net rent on which these buildings are differentiated, will impact on the value of each property when the rents are capitalised into value. However, where if in the case of Building B there was no mechanism or rating tool on which to assess the excess power and tax, the excess power attributable to the inefficiency of the building, would be solely borne by the lessee and there would be no impact on the lessor in an adjustment of the value of the property.

Diagram 3: Impact of the carbon tax on the returns of similar buildings



In an office market with perfect information, it would be possible for a lessee to make adjustments for the excess power paid over and above the normal market use rate for buildings in that location when negotiating the lease. Where such an adjustment is achievable, the excess power accrued as an expense to the lessee would be deductible and impact on the total net rent collected for the space. Where items in excess or outside the lessees control such as excess power attributable to the efficiency of the building are unavoidable, this cost would then be incurred by the lessor or owner of the property reflecting in the net rent collected. As demonstrated in Diagram 3, the gross rents of the two buildings are the same, however a lower net rent is collected by the owner / lessor in a gross rent lease, where excess power attributable to the inefficiency of the building is borne by the lessor.

In the leasing of office space there is no legislative provision or mechanism codifying how rent is to be measured. This void also extends to the way in which property is valued. In contrast, Section 19 of the Retail Leases Act 1994, provides for such adjustments to be accounted for in the determination of the rent at the time of reviewing the rent to market.

> **19 Reviews of current market rent**
> (1) A retail shop lease that provides for rent to be changed to current market rent is taken to include provision to the following effect:
>
> (a) The current market rent is the rent that would reasonably be expected to be paid for the shop, as between a willing lessor and a willing lessee in an arm's length transaction (where the parties are each acting knowledgeably, prudently and without compulsion), determined on an effective rent basis, having regard to the following matters:
>
> (i) the provisions of the lease,
>
> (ii) the rent that would reasonably be expected to be paid for the shop if it were unoccupied and offered for renting for the same or a substantially similar use to which the shop may be put under the lease,

(iii) **the gross rent, less the lessor's outgoings payable by the lessee**,

(iv) rent concessions and other benefits that are frequently or generally offered to prospective lessees of unoccupied retail shops.

As shown in (iii) the excess items of expense are grossed up and accounted for as part of the rent. In this formula, the excess payments for power beyond the base running of the building are paid by the lessor, not the lessee as the excess power is deemed to be part of the gross rent. This will require a statutory definition for expenses to be included as part of the rent. A matter currently void in the loose non-descript difference between net and gross rent, Whipple (2006) highlights the importance of a uniformed classification of income and outgoings in order for a uniform net rent to be deduced and hence capitalized in determining the value of property.

Power usage is a utility charge currently not accounted for in adjustments between net and gross rents, beyond common power used for the operation of the building. However, as a price on carbon translates into a tax on power consumption, any excess power attributable to the inefficiency of the building in which rent is being paid for in the use of such capital will need to be accounted for. Failure to account for this would amount to a double recovery by the lessor, already captured and paid for in the rent for the building. A tax on carbon accounted for in the net rent collected by the owner of the property, would impact on the market return as highlighted in the above example. This may be referred to as a top-down cost or incentive to retro-fit or lift a low rated building or in some cases force redevelopment of property.

This objective is similar to the intended operation of a land tax, which is assessed on the highest and best use of the land, which produces a bottom-up and additional incentive to upgrade or redevelop an underperforming property. Whilst commonly viewed as a tax which stimulates development, Gaffney (1995) and Arnott (2000) support the view that the objective of land taxation is to force the highest and best use of land. In contrast Oates and Schwab (1996) in their analysis of land taxes and their impact on land development concluded that land tax itself did not force or promoted development, but provided a more neutral base than other bases such as improved value for the assessment of a property tax.

Similar to land tax, the carbon tax sets to achieve an objective in that it requires land to be utilized to its highest and best and most environmentally sustainable use. In contrast, the carbon tax, correctly implemented, directly taxes unsustainable development by higher consumption resulting from obsolete improvements on land. The success of this objective will depend on the ability for the excess charge for power to be passed onto the owner of the property and will be the test and greatest challenge for this tax in its application to the built environment. This will necessitate a rating system of buildings that distinguish aging and energy inefficiency from those that are energy efficient and environmentally compliant.

BUILDING RATINGS AND THE FUNDAMENTALS OF 'GOOD TAX DESIGN'

The previous section looked at the operation of a carbon tax on the built environment and the inter relationship between the two key consumers of property, owner occupiers and lessors / lessees. Reference to the rating of buildings was made, which is key in distinguishing between the operational efficiency of buildings, beyond power usage alone. The NABERS Rating system was introduced in 2000 and was applied to office buildings among other property types in 2008. The objective of this rating is stated to be, "The NABERS energy rating tool for offices uses a nationally consistent methodology to compare buildings within their market." (Department of Climate Change and Water 2011:1).

The NABERS rating system is a nationally recognised rating scale and is administered by State Government, in which the New South Wales Department of Climate Change is the custodian of the rating scale. This rating allows distinction for the comparison of buildings within and across locations nationally. It has been designed to measure and drive improved performance. NABERS is the only rating system internationally which rates the operational performance of buildings against their peers. (Department of Climate Change and Water 2011)

The NABERS rating system in addition to rating power, also rates efficiencies of the operation of office buildings in three additional of waste, indoor environment and water consumption. At the time of its introduction, up to 2010, the rating scale was 0 to 5 Stars. A position paper released in December 2010, sought the views of industry as to the potential of extending the rating scale from 0 to 7 Stars.

The rationale for this extension was to recognise a rating of 6 Stars as being for (market leading performance) and Extension to 7 Stars (zero emissions), (Department of Climate Change and Water 2011:3). The criteria for assessing the NABERS rating of office buildings is set out in Table 2.

Table 2: Office building NABERS energy rating structure

Data	Tenancy Rating	Base Building Rating	Whole Building Rating
Floor Area	Rated area of office space	Rated area of office space	Rated area of office space
Hours per week	Hours of occupancy	Hours of agreed service	Hours of occupancy
Computers	Number of computers in regular use	Not applicable	Number of computers in regular use
Energy	Energy consumed by building occupants	Energy consumed by central services	Energy consumed by building occupants and central services
Location	Postcode	Postcode	Postcode

Source: Department of Water Heritage and the Arts

The NABERS rating tool and more specifically the scale used to measure and assess the performance of office buildings, has in its short duration, served the purpose of providing distinction between the overall performance of buildings in line with its charter. The introduction of the carbon tax in July 2012 has questioned the proposed extension of the rating scale to 6 and 7 Stars. Concerns as to the rationale and transparency in the extension of this rating have been raised by a number of stakeholders.

Commentary by Lend Lease (2011) refers to the inconsistent application of the NABERS rating across the States in the following, “The NABERS energy rating tool for offices uses a nationally consistent methodology to compare buildings within their market.’ However, given the different state based normalisations, this is an incorrect statement.” Further, the Green Building Council (2011) states “the NSW Department of Environment and Climate Change and Water (DECCW), as the administrators of the NABERS rating tool, and the Commonwealth Department of Climate Change and Energy Efficiency (DCCEE) develop a clear policy position for the NABERS rating tool from which decisions on change to the rating scale can be referenced.”

The NABERS rating tool as a foundation policy for the benchmarking of building performance has the potential for use as a basis on which future additional environmental taxes could be levied by state government. This policy would be particularly relevant for office buildings which underperformed a minimum nominated Star Rating, in which the assessment criteria extended beyond waste, indoor environment and water. This extension has been identified by Royal Institution of Chartered Surveyors RICS (2011, p16) which states “In future it is likely that the cost and value of embodied carbon will be brought into the equation.” The expansion to include embodied carbon would transcend taxes on the built environment from consumption base to include taxes on capital, in which a dual tax system could coexist.

As a potential agent for change, it is necessary for rating systems like NABERS to conform to the ‘Principles of Good Tax Design’ as set out in Asprey (1972) and more recently applied by IPART (2008) in the review of state taxes in New South Wales. The concerns raised in the above comments on the NABERS scale, points to potential gaps in these principles, with particular reference to transparency and the operational simplicity of this tax.

THE VALUATION OF GREEN BUILDINGS

To date debate has begun to focus on the difficulties in distinguishing the value of office buildings, across the NABERS rating range of 0 to 6 star ratings. Further identified are the difficulties in determining who will pay the carbon tax, which is also complicated by the absence in a method of determining the value of NABERS rated buildings. It is stated by the Green Building Council of Australia (2008) that the study of the impact of the added value of green buildings has not been as readily observable as was thought. Following an extensive international literature review on the value of green buildings, it has been suggested that one study in the United States has identified a level of distinction of the added value of green rated office buildings, in which the following summary is provided:

- Operating expenses decreased by 8% to 9%

- Building values increased by 7.5%
- Returns on investment (ROI) improved by 6.6%
- Occupancy ratio increased by 3.5%; and
- Rent ratio increased by 3%

(Gotthfried 2006, cited by the Green Building Council of Australia 2008)

In the absence of a tax on carbon or an ETS, it may be more difficult to observe the differences in values of green buildings in Australia. Once a carbon tax is operational, the additional cost that will distinguish green and non-green buildings, or buildings with a low green star rating will likely broaden the value gap once the tax is synthesized into the office building. The ability for valuers to articulate this difference is discussed by Van Der Kallen (2011) who points to the following factors contributing to the deficiencies in the knowledge of valuers in three key areas as:

1. Not aware or well informed about sustainability related issues
2. Understanding of the commercial tenancy market
3. Corporate Social Responsibility (CSR) branding is a significant driver of tenancy demand for green buildings

In the study undertaken by Van Der Kallen (2011), three focus groups were conducted in monitoring among matters, value and valuation issues associated with green buildings. The focus group participants comprised valuers, fund managers, owners, asset managers, developers, property managers, property lawyers and green building performance managers. The three key themes emerging from the focus groups as set out in Table 3 relate to, valuation information and process, lack of evidence in the market place in gauging the value of green buildings. The first two points are operational, the latter two are information based and are not likely to be resolved until a carbon tax becomes operational. This supports the need for greater transparency in the provision of market data available to lessees, lessors and valuers.

Until a carbon tax becomes operational in mid 2012, the likely impact of the tax remains speculative. Once the carbon tax is introduced, it will take a number of years for sufficient properties to transact to for distinction in value to solidify. The factor that will best reflect distinction in value will be rents, the increases in the cost of outgoings as a proportion of total rents and the structure of leases, the way rents are determined and outgoings accounted for and recovered.

Table 3: Emerging focus group themes on the valuation of green buildings:

Rank	Theme	Weighting
1	Confusion over what new information should be applied to the valuation process and how it should be applied	24
2	Confusion over details and impacts of relevant current legislative / market framework	16
3	Underpinning financial performance drives value / valuation decisions / present lack of evidence of green value premium	2
4	Medium / long term risk / benefits are presently somewhat uncertain	9
5	Benefits of building / retro-fitting for green building performance is largely a risk management strategy from a financial perspective	1
6	Green building market is currently impacting on Corporate Social Responsibility policies, corporate branding and other less quantifiable benefits to valuers	2
7	Sudden change in market forces may create opportunities for skilled professionals	1

Source: Van Der Kallen 2011

In a pre carbon tax analysis, it is apt to monitor the factors impacting on the value of office buildings for the purposes of providing a basis of comparing changes in values attributable to the introduction of the tax. The research that follows is an analysis of pre carbon tax rents and provides a basis for making a post carbon tax analysis once the tax is introduced.

Research Method and Data

In undertaking an analysis of factors contributing to the value of commercial office buildings, information was provided by the Property Council of Australia (PCA) for the period 2006 to 2010 in the

Central Business Districts of Brisbane, Sydney & Melbourne. The data is in three categories being 1) Premium and A grade buildings, 2) B Grade Buildings and 3) C Grade Buildings. These categories have been used to distinguish office buildings by the Property Council of Australia for two decades and are primarily determined on the age of the building, the last upgrade of the building and the quality of the upgrade and services in the building. The specific data sought for each class of these buildings is as follows:

1) Gross and net rents
2) The charges for power, water and waste as a percentage of total operating charges.
3) The structure of rents i.e. gross versus net rent leases.

The objective is to undertake a preliminary analysis of rents and outgoings based on the three categories on which buildings are rated under the NABERS system using the information from the Property Councils rating of buildings in a pre carbon tax environment. The PCA building sample analysed is set out in Table 4, which is followed by an analysis of the outgoings and lease structures in the building samples. It is noted that the information for B & C Grade Brisbane offices are combined.

Table 4: Office building sample size and data

Brisbane	**Premium & A Grade**	**B Grade**	**C Grade**
No of Buildings	10	18	
Net letable area m^2	246,365	243,420	
Med Gross Rent m^2	$446	$385	
Med No of Lifts	10	6	
Sydney			
No of Buildings	47	25	11
Net letable area m^2	1,681,384	405,689	130,408
Med Gross Rent m^2	$621	$515	$395
Med No of Lifts	13	6	7
Melbourne			
No of Buildings	23	17	11
Net letable area m^2	951,196	223,074	51,026
Med Gross Rent m^2	$396	$301	$274
Med No of Lifts	13	5	2

Source: Property Council of Australia

Analysis and discussion

Gross Rent Leases: Table 5 in conjunction with Graph 1, sets out the percentage of leases in which the rent paid by the lessee is a gross rent, inclusive of all outgoings. As noted in Sydney and Melbourne, as property progresses in age from A Grade to B & C Grade, there is an increase in the trend towards leases being negotiated as on a gross rent basis. This indicates two factors, firstly there is a greater demand for Premium and A Grade office space in these two cities over B and C Grade. With higher demand, lessors may have greater bargaining power in negotiating lessees paying a percentage of outgoings. The second point, is that tenants have greater bargaining power and chose gross rent leases, particularly in Melbourne as buildings continue to age. This is in contrast to Brisbane, in which leases commence with high gross rent leases which decrease as buildings age. This further points to the potential for a higher demand for B and C grade office space over Premium and A grade space in Brisbane.

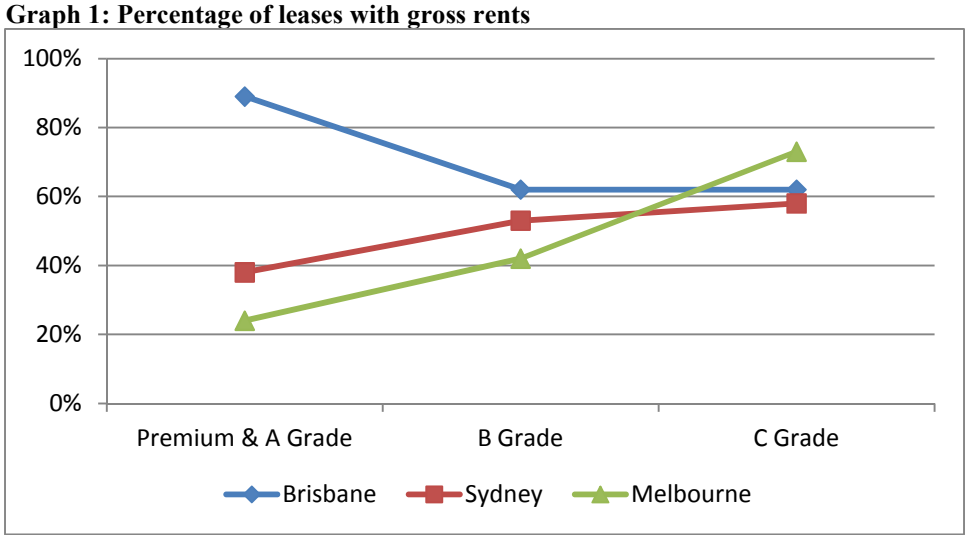
Power Water and Waste as a percentage of total operating expenses: The results in Table 6, in conjunction with Graph 2 indicate that energy, waste and environmental factors show an increase in office building outgoings from A to B Grade buildings. This reverses from B Grade to C Grade buildings with a drop in outgoings as a percentage of total operating outgoings. Whilst it is not conclusive, this may in part be due to C Grade buildings having a lower median office area and fewer operational services such as lifts which would be reflected in the rent. As is pointed out, the PCA highlight that C Grade office buildings have fewer lifts per m^2 of floor area, smaller floor areas which are less expensive to moderate air temperature. The unknown variable is the quality and sustainability of the building cladding in retaining environmental conditions, which is not yet observable. This will require further analysis to confirm that the impact of age and services is the contributing factor.

In summary, what is clear is from the percentage of gross rent leases highlighted in Table 3, is that a carbon tax, once impacting on office buildings through increased outgoings, will impact on rent and in particular, the net rent to the lessor. This is particularly the case where leases are negotiated on a gross rent basis and the tax, will impact on the net rent to the lessor. This in turn will filter through to the value of the property when rents are capitalized into value. Whilst power consumption of the lessee has not been included in the valuers analysis of the operating expenses of the building, the valuer will need to consider the benchmark use of power for typical tenancies across buildings rated under NABERS rating once the carbon tax is introduced. This will be necessary in classifying the rent collected by the lessor, which may not initially reflect the cost attributed to the operational efficiency of the building.

Table 5: Gross Rent Leases

	Premium & A Grade	B Grade	C Grade
Brisbane	89%	62%	62%
Sydney	38%	53%	58%
Melbourne	24%	42%	73%

Graph 1: Percentage of leases with gross rents

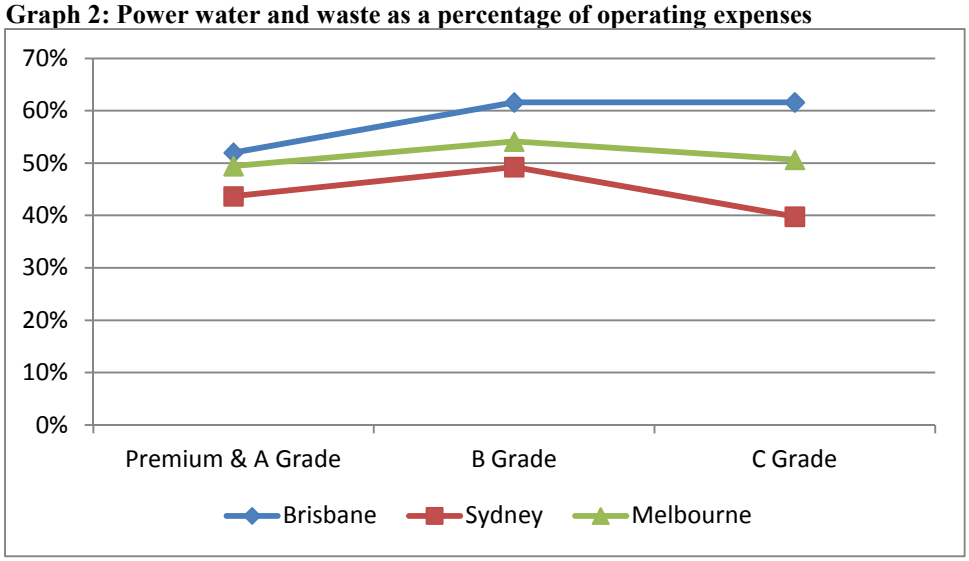


Source: Property Council of Australia

Table 6: Power Water & Waste as percentage of operating expenses

	Premium & A Grade	B Grade	C Grade
Brisbane	52%	62%	62%
Sydney	44%	49%	40%
Melbourne	49%	54%	51%

Graph 2: Power water and waste as a percentage of operating expenses



Source: Property Council of Australia

CONCLUSION

Evidence distinguishing differences in the value of property across the categories of the NABERS rating system is yet to emerge in property transaction data. This is in part due to the fact that a carbon tax will not commence until mid 2012, after which a transition period will be needed for transactions to reflect the impact of this tax on the built environment. In the absence of this evidence, the Property Council data provides a level of distinction in rental income and value in its ranking of commercial office buildings within its grading and rating system. This provides a basis of making a pre and post carbon tax analysis and comparison once the carbon tax is introduced. Whilst some level of adjustment to values may emerge in anticipation of the tax, its full impact may take a number of years to be reflected in property transactions.

The impact of the carbon tax and how it is accounted for in the lease agreement and more importantly who pays the tax will be impacted on by the lease structure as well as the need for additional legislation in determining the composition of gross rent. Whilst the economics of demand and supply will impact on the level of rents, the basis for determining who will pay the tax is highly dependent on transparency of rental information and property outgoings, in conjunction with information on the structure of leases in the market place. As discussed in this paper, this has in part been addressed in the retail property market under retail lease legislation, which requires outgoings paid by the lessee to be included in the definition of gross rent.

A similar structure to retail leasing legislation, expanded to account for excess power costs resulting from a poor performing building, in contrast to the consumption of power used by the lessee in the operation of their business will be needed for defining a gross rent. A clear distinction between rent attributable to the use and occupation of office space, as opposed to the operational cost of the building is imperative if the carbon tax is to achieve its behavioural objectives. These being best practise in power consumption by businesses within property and secondly, creating the need for the upgrading or retrofitting of older buildings for property owners providing the real estate capital in which businesses operate.

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