



COMMERCIAL PROPERTY AND CLIMATE CHANGE

*Exposures, opportunities, and the
crucial role of existing buildings*

TEC EXISTING BUILDINGS PROJECT
Industry Partnership Program



Total Environment Centre Inc

www.tec.org.au

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EXECUTIVE SUMMARY

Climate change is emerging as one of the key driving forces in the commercial property sector. As climate change gathers momentum, the responses of government, the market, and the elements will all impact upon the asset valuations and profit margins of commercial property trusts. As a result of climate change, commercial building owners are simultaneously exposed to demand risk, regulatory risk, increasing cost structures, extreme weather events, reputational risk, and broader market risks.

Fortunately, the means by which commercial property trusts can manage such risks not only offer above market rates of return but are also eligible for third party subsidisation. The neutralisation of carbon liabilities currently embedded within the commercial property sector boasts the rare quality of simultaneously allowing trusts to realise the value that has long lied dormant within property assets.

Recent years have witnessed the rise of both public and private sector concern around the greenhouse performance of office buildings. Emissions from the non-residential building sector, of which office buildings are the largest contributor, are predicted to double from 1990 levels by 2010. This growth is not only inconsistent with the deep cuts required if Australia is to play its part in avoiding dangerous climate change but also the modest targets established by the first stage of the Kyoto Protocol.

Concern around the emissions profile of office buildings has manifested in both demand and regulatory risk for the sector. In Australia, both Commonwealth and State governments have put in place minimum greenhouse performance ratings for government tenancies and elements of the private sector seeking to limit their own emissions are increasingly following suit. For commercial building owners, the failure to reduce the emissions profile of their stock exposes those trusts to significant

demand risk with the number of prospective tenants for inefficient buildings likely to fall over time.

Commercial property owners also face significant regulatory risk. In November 2005, the Building Code of Australia (BCA) came to require a 20% increase in energy efficiency for commercial property assets. The associated Regulatory Impact Statement foreshadowed significant scope for the further tightening of standards over time. On February 9, 2007, Australia's State Premiers released a joint communiqué stating that they were considering mandating energy efficiency upgrades that carry payback periods of up to 3 years. This comes on top of the Commonwealth Government's requirement for large energy users to publicly report, by December 2007, the means by which they will identify the energy efficiency opportunities available to them. As governments come under increasing pressure to reduce emissions there is a real likelihood that energy efficiency requirements will be substantially tightened.

The broader policy responses to climate change and its environmental implications also stand to substantially increase the operating cost structure of building owners. Of most immediate concern is the exposure of trusts to increases in energy costs as emissions trading becomes a reality and water shortages become increasingly prevalent. The Commonwealth Government has signaled its commitment to implement an Emissions Trading Scheme (ETS) by 2010 and intensive work is being undertaken. The implementation of an Australian emissions trading scheme within the next 3 years is now a certainty. As power generators are forced to pay for the greenhouse gases that they emit, and water shortages become increasingly prevalent, energy prices will rise.

EXECUTIVE SUMMARY

Implications for the operating cost structure of trusts are not only limited to energy prices. As predictions of decreased rainfall over Australia's population centres and increased frequency and severity of extreme weather events increasingly manifest, both water prices and insurance costs will rise. More broadly, upward pressure on such basic inputs to production as energy, water, and insurance threatens to increase the price of all other goods and services demanded by commercial property trusts. As one example amongst many it is worth noting a recent CSIRO report which warned that the costs of telecommunications services would increase as both insurance costs rose and the costs of upgrading the structural integrity of telecommunications infrastructure were passed on to end users. As government, the market, and the elements all respond to climate change, operating costs will rise, and the profit margins of building owners will be imposed upon.

In addition to the significant reputational risk that inaction on emissions presents for commercial property trusts, it is important to recognise the exposure of the sector to the broader market impacts of unabated climate change. The climatic sensitivity of the Australian economy is not only derived from the prominence of the agricultural, tourism, and extractive sectors but also from the fact that the fortunes of the Australian economy are increasingly tied to that of the global economy. In this regard it is worth noting the warnings of the Stern Review that unabated climate change threatens to yield downturns of the order of the Great Depression and the Great Wars. Industrial disruptions of any magnitude will undoubtedly have direct implications for the demand for office space, vacancy rates, and the subsequent yields earned by trusts.

The financial materiality of climate change has laid the groundwork for the growth of investor pressure witnessed in recent years. Internationally the Institutional Investors Group on Climate Change (IIGCC), whose members collectively account for USD \$41 trillion in funds under management, administers the Carbon Disclosure Project (CDP) which requests information from the world's leading companies on how they are addressing the climate change-related risks that they face. This pressure has been built upon by the Investors Group on Climate Change (IGCC), the US based Investor

Network on Climate Risk (INCR) and, more locally, by the recent review into the ASX Corporate Governance Principles. Also ASX guidance is that listed companies will be required to disclose whether they have policies in place to manage material business risk. It is clear that there will be greater investor scrutiny of the measures that Australian companies are taking to manage their climate change-related risks.

Fortunately whilst the commercial property sector is one of those sectors most clearly exposed to climate change-related risks it is also one of those sectors that is best placed to manage these risks. The energy efficiency upgrading of existing stock boasts the rare quality of offering building owners above market rates of return whilst also qualifying for third party subsidisation; thus ensuring that the management of an embedded liability simultaneously allows trusts to realise the embedded value that has long lied dormant within commercial property assets. Whilst recent years have played host to the rise of the 'green building' movement the focus of industry has so far been upon the development of new buildings. Where needed, new 'green buildings' will help to mitigate the predicted growth in emissions but the fact that up to 98% of existing floor space is accounted for by retrograde property stock, ensures that any real attempt to reduce emissions from the commercial property sector will require upgrading the greenhouse performance of existing stock.

Replacing Australia's retrograde commercial property stock with new energy efficient buildings is not the solution. Upon some estimates a new building designed to achieve a 5 Star ABGR will not repay its embodied emissions for 290 years and if the ABGR of that building falls below 5 Stars over its lifetime it may never repay its embodied emissions.

Total Environment Centre (TEC) recognises that the most climate friendly buildings are not new buildings designed for maximum energy efficiency but existing buildings¹ that have been upgraded to achieve substantial greenhouse performance gains. The embodied emissions of existing buildings are a sunk cost that needs to be capitalised upon in order to optimise environmental outcomes.

¹ The term 'existing building' is used here to refer to buildings that were built without sustainability considerations in mind.

EXECUTIVE SUMMARY

Total Environment Centre's *Existing Buildings Project* seeks to:

- Communicate the climate change-related risks facing the sector
- Provide information on the means by which energy efficiency improvements can be made to neutralise embedded liabilities whilst realising embedded value
- Suggest profitable and innovative ways to finance such upgrades
- Communicate low emissions energy options
- Celebrate industry leaders seeking to achieve cross-portfolio emissions reductions

The project will also provide an independent framework that will allow third parties to differentiate between genuine attempts by property trusts seeking to promote the sustainability of their portfolios from those trusts seeking to 'greenwash' their operations by making only superficial improvements.

TEC welcomes the opportunity to collaborate with industry on this project and invites commercial property trusts to choose one of three project tiers. The first two tiers entail public commitments to ABGR targets for portfolio base building averages whilst encouraging and assisting tenants to match gains at the tenancy level. The third tier will allow participating trusts to defer making a public commitment to either target for a period of 1 year whilst considering the information presented by a series of workshops that will be made available to project participants.

TEC Existing Buildings Project Tiers

Time Period	Base Building		Tenancy
	Short Term	Long term	
		January 2012	January 2008
First Tier	Discretionary	4.5 Portfolio ABGR or better	Begin actively engaging tenancy framework
Second Tier	Discretionary	4.0 Portfolio ABGR or better	Begin actively engaging tenancy framework
Third Tier	Active consideration over 12 months. Participation in workshop series	Active consideration over 12 months. Participation in workshop series	Active consideration over 12 months. Participation in workshop series

01 THE COMMERCIAL PROPERTY SECTOR'S CONTRIBUTION TO AUSTRALIA'S GREENHOUSE GAS EMISSIONS

01

Emissions from the non-residential building sector², of which office buildings are the largest contributor³, are predicted to double from 1990 levels by 2010⁴. This prediction needs to be set against the fact that in order to play its part in averting dangerous climate change, Australia should reduce 1990 emissions by at least 40% by 2020 and effectively decarbonise by 2050. In promoting movement on

such reductions the Rudd Labor Government has ratified the Kyoto Protocol. However, the predicted growth in emissions from the commercial property sector⁵ is not only inconsistent with the deep cuts required in future years but also with Australia's modest targets established by the first stage of the Kyoto Protocol. This fact alone presents a myriad of risks for commercial property owners.

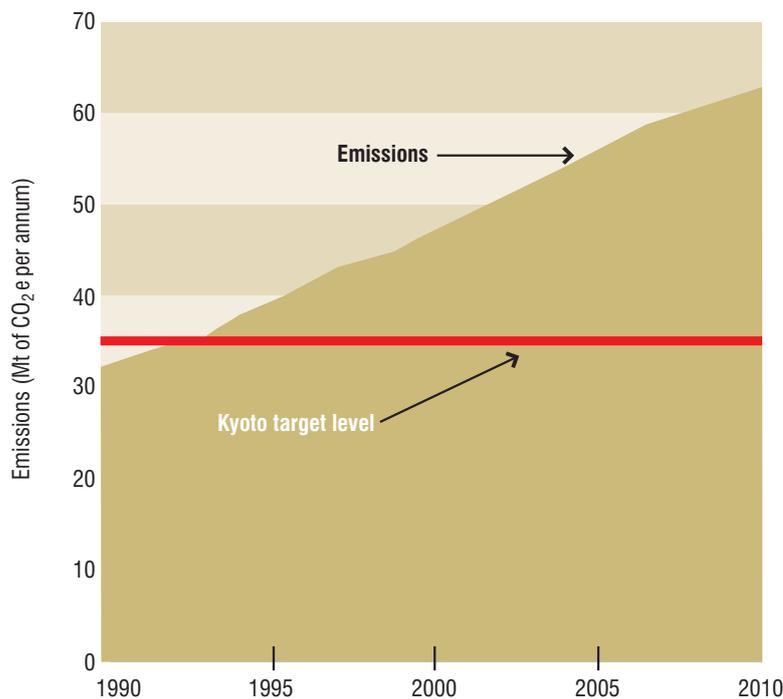


Figure1: Predicted emissions growth from non-residential buildings
SOURCE: (Australian Greenhouse Office, 1999, p.4)

² Building Classes 5-9 in the Building Code of Australia

³ AGO, 1999, p.6

⁴ Ibid, p.4

⁵ M.G.J den Elzen & M. Meinhausen. 2005, p.23

02 THE COMMERCIAL PROPERTY SECTOR'S PROBLEM WITH CLIMATE CHANGE

02

The inconsistency between the predicted growth in emissions from the commercial property sector and current and future emissions reductions targets presents a myriad of risks for the commercial property sector.

2.1 Demand risk

The growth in demand for office buildings with relatively low emissions profiles has been fuelled by both legislated green procurement policies of governments as well as the voluntary actions of companies seeking to reduce their own carbon footprint. The growth of green office procurement by the public sector presents significant demand risk for commercial property funds that fail to upgrade the greenhouse performance of their assets. The following table shows the base building and tenancy Australian Building Greenhouse Rating (ABGR) requirements for government tenants in jurisdictions throughout Australia.

The demand for office buildings with relatively low emissions profiles is also being fuelled by elements of the private sector that are increasingly looking to reduce their carbon footprint. The number of

companies seeking to achieve emissions reductions will only grow following the recent passage of the *National Greenhouse and Energy Reporting (NGER) Act*. Under this legislation organisations emitting more than 50,000 tonnes of CO₂e a year in total, or 25,000 tonnes of CO₂e from a single site, will be required to publicly disclose their emissions profile. This will not only capture all large companies but most of Australia's medium sized enterprises.⁶

2.2 Regulatory risk

In November 2005, the Australian Building Codes Board (ABCB) decided to include energy efficiency provisions for office buildings in the Building Code of Australia (BCA) 2006. When set against the predicted growth in emission from the sector it is clear that the target of a 20% increase in energy efficiency embodied in the amendment will not go far enough to ensure that Australia sets down the path of achieving the deep cuts in emissions that the international scientific community is currently advocating. There exists a real risk that, as the issue of climate change becomes increasingly politicised, the energy efficiency requirements embodied in the

Jurisdiction	Base Building	Tenancy
Commonwealth	4.5 ABGR	4.5 ABGR
NSW	≥ 3.5 ABGR	4 ABGR
Victoria	4.5 ABGR	5 ABGR
South Australia	Disclosure + preference given to 5 ABGR	Disclosure + preference given to 5 ABGR
Western Australia	4.5 ABGR	4 ABGR

Figure 2: Australian Government Tenant ABGR Requirements

⁶ Media release. The Hon Malcolm Turnbull. Minister for the Environment and Water Resources. August 15, 2007

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BCA and other state based regulations will be ratcheted up; a potential reinforced by the following revelation from the *Regulation Impact Statement for Proposal to Amend the Building Code of Australia to include Energy Efficiency Requirements for Class 5 to 9 Buildings*.

*The ABCB's approach to the optimisation of the regulation is to first eliminate the worst of current practices, targeting a 20% reduction in energy use in this case. Given experience with the proposed regulation, including resolution of some of the many existing uncertainties, and the time required for industry to adjust current practices plus reduce existing stock, it is possible that increased stringency in a second round of energy efficiency measures may be appropriate. The high benefit/cost ratios suggest there may be scope for further improvements.*⁸

Of more immediate concern to the sector is the February 9, 2007 joint communiqué from Australia's State Premiers stating that State governments were considering mandating energy efficiency upgrades that carry payback periods of up to 3 years.⁹ This comes on top of the Commonwealth Government's requirement for large energy users to publicly report the energy efficiency opportunities that they have identified.¹⁰ Victoria's Energy and Resource Efficiency Plan (EREP) program requires large energy users to identify and implement energy efficiency opportunities that carry three year payback periods. Importantly Rudd Government election policy included mandating disclosure of energy or environmental ratings for appropriate types of large commercial buildings at point of sale or lease, beginning with office buildings above 5,000m².

It is foreseeable that mandated energy efficiency projects would result in a scramble for the services required to achieve such gains. The surge in demand for such services would only add to the costs of the inevitable upgrades required in the sector; it is much better for commercial trusts to be ahead of inevitable regulatory changes by moving 'early' to implement energy efficiency upgrades.

2.3 Operating cost structure exposures

The broader policy responses to climate change and its environmental implications stand to

substantially increase the operating cost structure of building owners. The financial sensitivity of trusts to these movements can be ascertained simply by comparing the combined magnitude of these costs to an entities net profit after tax (NPAT). If the two are of the same magnitude then a combined 40% increase in these costs would subsequently erode NPAT by 40%. 'Early' movement on operational efficiencies will not only safeguard profit margins, but will also ensure a competitive advantage over those groups that fail to pursue operational efficiencies in preparation for Australia's entry into a carbon constrained world.

a) Energy

Of most immediate concern is the exposure of trusts to increases in energy costs as emissions trading becomes a reality and water shortages become increasingly prevalent. As power generators are forced to pay for the greenhouse gases that they emit, energy prices will rise.

These increases will come on top of those price rises attributable to an environmental symptom of climate change - water shortages. The past year has witnessed significant increases in both the spot and forward price of electricity as both hydro and coal fired generation has fallen below capacity. Whilst the connection between water shortages and hydro generation is obvious to most, the implications of water shortages for coal fired generation is often overlooked. Coal fired generators rely upon the creation of steam to drive turbines and use water for thermal cooling; if water shortages exist, turbines cannot be driven at full speed, and generation will be below capacity.

In response, the National Electricity Market Management Company, NEMMCO, recently commissioned a Drought Scenarios Steering Committee (DSSC) to investigate the impacts of water shortages on Australia's electricity supply. A subsequent report released on April 30 2007, found that the continuation of rainfall patterns experienced over the previous 12 months, an outcome that the report itself acknowledges as 'optimistic', could reduce Australia's electricity supply by up to 10% of total capacity.¹¹ Within the context of ever increasing demand it is clear that water shortages, increasingly prevalent as a result of climate change, will continue to drive increases in the price of

⁷ ABCB, 2006, p.iv

⁸ CAF, 2007, p.4

⁹ Energy Efficiency Opportunities Program

¹⁰ NEMMCO, 2007, p.4

¹¹ CSIRO, 2001, p.4

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energy. Whilst there will be those who will point to the role of desalination, water recycling, increased dam capacity, and air cooling for generators, these solutions will only add to the capital intensity of electricity generation and its subsequent cost to end users.

Perhaps of more relevance over the longer term is the impact of a warming Australia on the capital intensity of electricity generation and the frequency with which bushfires will initiate short-term price fluctuations. With the capital intensity of electricity generation being driven more by peak demand than average demand, a warming Australia that brings many more days with high temperatures¹² will substantially increase the peak demand for electricity, and subsequently increase the capital intensity of electricity generation. This will increase the unit cost of electricity production, and the ultimate cost to end users.¹³

In terms of short-term price fluctuations it is worth considering the potential impact of predicted increases in bushfires. A joint CSIRO/Australian Bureau of Meteorology report released in December 2005 predicted that the combined frequency of days with very high or extreme fire danger in south-east Australia could increase by 4-25% by 2020 and 15-70% by 2050 as a result of climate change.¹⁴

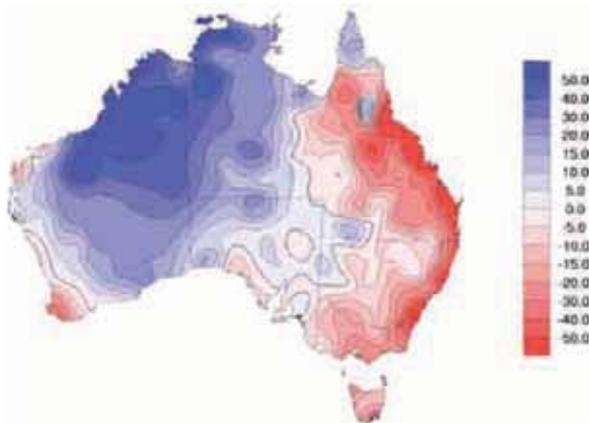


Figure 3: Australian trend in rainfall 1950-2003
SOURCE: Commonwealth of Australia

¹² AGO & DEH, 2006, p.12

¹³ CSIRO & BoM, 2005, p.5

¹⁴ NEMMCO Market Data.

¹⁵ CSIRO, 2001, p.6

The implications of bushfire for electricity prices were made apparent on January 16, 2007 when bushfires caused the largest electricity transmission link into Victoria to fail. As a result, 20% of supply was cut off and the spot price of electricity surged by more than 21,000 % to over \$9585 per Megawatt hour (MWh).¹⁵

The implications are clear. As climate change gathers momentum, the responses of government, the market, and the elements will all converge to ensure that energy prices will rise significantly over the short, medium, and long term.

b) Water

Implications for the operating cost structure of trusts are not only limited to energy prices. As predictions of decreased rainfall over Australia's population centres increasingly manifest, water prices will rise. Figure 3 demonstrates the drying trends experienced around Australia's population centres over the period 1950-2003. As shown in Figure 4, this drying trend is predicted to continue as the pace of climate change increases over the coming decades.

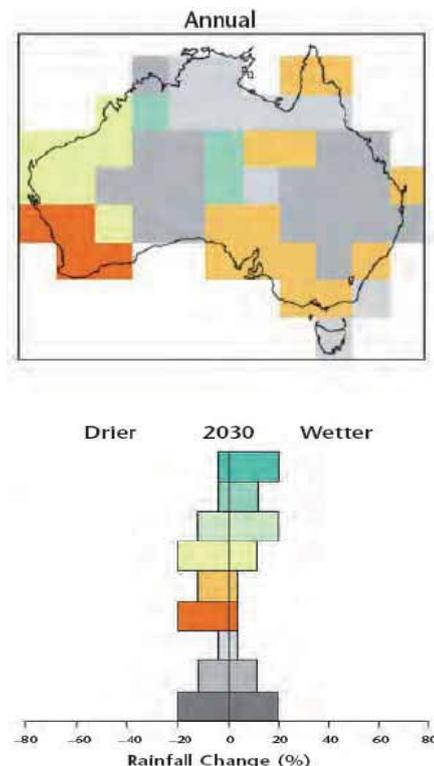


Figure 4: Predicted change in rainfall by 2030
SOURCE: CSIRO, 2001, Climate Change Projections for Australia, available at <http://www.cmar.csiro.au/e-print/open/projections2001.pdf>

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Even areas of Australia that are predicted to experience increased rainfall are predicted to be drier than they are currently. This simply reflects the predicted impact of increased evaporation throughout a warmer Australia.¹⁶

In considering the operational impacts of such drying it is worth noting a recent report from the Water Services Association of Australia which predicted that \$30 Billion in urban water infrastructure investment would be required to diversify water infrastructure away from rain-dependent systems. Movement away from rain fed systems requires capital intensive options such as desalination and water recycling and would have 'to be paid for in some way.' The report noted that these costs would ultimately be passed onto end users.¹⁶

In this regard, the warning that Melbourne water prices will double within the next 5 years as a result of such investments should be taken as a sign of things to come.¹⁷ This reality was confirmed on September 17, 2007 when Sydney Water announced that it would seek to increase water bills by a third over the next 4 years, largely to cover the cost of building and operating Sydney's desalination plant and water recycling grid.¹⁸ This was followed on October 23, 2007 by the ACT Chief Minister's announcement that water prices would rise by more than 60% as \$308 million in capital expenditure was undertaken in response to the water supply challenges presented by climate change.¹⁹

c) Transport & logistics

As transport fuels enter into an emissions trading scheme transport costs will rise. This will not only impact upon the cost of staff transport but also stands to drive increases in logistics costs. Whether freight costs rise will ultimately turn on the extent to which logistics companies pursue operational efficiencies.

d) Insurance

Commercial property owners are also likely to face increasing insurance costs as a result of two climate change related phenomena; the increasing frequency and severity of extreme weather events, and rising sea levels. Whilst the Intergovernmental Panel on Climate Change (IPCC) predicts that sea levels stand to rise by between 18 and 59 cm by 2100,²⁰ there are those such as James Hansen of NASA that predict that sea levels could rise by several metres by the end of the century.²⁰ This will have clear implications for Australia's predominantly coastal real estate.

Perhaps of more immediate concern to trusts are increases in the frequency and severity of extreme weather events. Of 8,820 natural catastrophes analysed worldwide between 1960 and 1999 85% were weather-related, as were 75% of economic losses and 87% of insured losses.²² These figures closely accord with the Australian experience in which 87% of economic losses in the period 1967–1999 were attributable to weather related events.²³

Of particular concern for trusts are the 'non-linear' impacts of severe weather events. Whilst some have pointed to the fact that a doubling of wind speeds results in a four-fold increase in related damages²⁴, the experience of Insurance Australia Group (IAG) suggests that a 25% increase in peak wind gust strength can generate a 6.5 fold increase in building claims.²⁵ As the frequency and severity of extreme weather events increase, and insurers are forced to contend with greater uncertainty, insurance premiums will rise. In the case that global warming results in sea level rises of such magnitude as to threaten coastal real estate, trusts may not even be able to secure insurance coverage; an outcome that would have obvious implications for asset valuations.

¹⁶ WSAA, 2007, p.15

¹⁷ Media Release: August 14, 2007. Reform of Melbourne's Water Industry. The Premier of Victoria

¹⁸ SMH. September 17, 2007. Water bills to rise by a third.

¹⁹ Media Release: August 14, 2007. Reform of Melbourne's Water Industry. The Premier of Victoria

²⁰ IPCC, 2007, p.13

²¹ Hansen, 2007, p.1949

²² Munich Re, 2000 cited in Coleman, 2002, p.2

²³ BTE, 2001 cited in Coleman, 2002, p.2

²⁴ Mills et al, 2001, p.72 cited in Coleman, 2002, p. 5

²⁵ Coleman, 2002, p.4

²⁶ CSIRO et al, 2007, p.3

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e) Telecommunications

The telecommunications sector faces a myriad of challenges as a result of climate change; the costs of which will be ultimately passed on to end users. A recent report, jointly authored by the CSIRO, Maunsell Australia, and Phillips Fox, explored the potential impact of climate change on infrastructure. The report noted that above-ground fixed line telecommunications infrastructure would be increasingly impacted upon by the increased frequency and intensity of extreme wind, lightning, and bushfire events, whilst underground facilities would be increasingly impacted upon by extreme rainfall events.²⁶ As the costs of maintenance, insurance, and structural integrity upgrades increase, the cost of telecommunications provision will increase and the telecommunications costs of property trusts will rise.

f) Intermediate goods and services

As the cost of such basic business costs as energy, water, transport, insurance, and telecommunications rise, the operating cost structure of all businesses will increase. In the absence of operational efficiency gains these costs will be largely passed on to end users.

2.4 Reputational risk

While the commercial implications of climate change are significant, climate change is not solely a commercial issue. Climate change is ultimately a human rights issue. Global warming will drive changes that amount to a redistribution of the world's resources. When considered within the context of fixed national boundaries, climate change threatens to reduce the resource base upon which the living standards of individual nations are built.

Organisations not pursuing practical emissions abatement opportunities will be increasingly open to the criticism of environmental and social disregard. The capacity for third parties to make such claims will only increase as individual entities are forced to publicly report their emissions profile as well as the energy efficiency opportunities that are available to them.

Reputational risk clearly has the potential to have a financially material impact upon commercial entities. As noted by the Finsia submission to the recent review of the ASX Corporate Governance Principles

an 'increasing component of company value (book and market) is held in intangibles (eg. brand, image, reputation). If reputation factors are not properly managed (and disclosed), returns are exposed to greater volatility and risk.'²⁷

The pursuit of emissions reductions may act to safeguard or promote the reputation and brand value of the firm - thereby safeguarding or promoting company value.

2.5 Broader market risks

In addition to these direct impacts it is important to recognise the exposure of trusts to the broader market risks of climate change. The Stern Review on the economics of climate change estimated that the onset of unabated climate change could present social and economic disruptions on the order of the Great Depression and the World Wars²⁸. Furthermore, models that seek to predict the impact of emissions reductions on the macro economy have found that the later that emissions reductions are implemented, the greater the risk of severe industrial disruption- as nations are forced to accept increasingly onerous annual emissions reductions to achieve required cuts.²⁹ Property trusts are clear stakeholders in such outcomes and those that pursue emissions reductions are simultaneously contributing to broader efforts to manage the likelihood of climate-induced downturns.

2.6 Risk of extreme weather events

As previously discussed, climate change is predicted to bring with it an increase in extreme weather events. Property trusts will not only face increasing insurance costs as a result but will also face the increased likelihood of direct property damage from the elements. Property trusts acting to reduce their emissions are simultaneously contributing to broader efforts to manage the likelihood of such outcomes.

2.7 Growing investor demands

The financial materiality of climate change has laid the groundwork for the growth of investor pressure witnessed in recent years. Internationally the Institutional Investors Group on Climate Change (IIGCC), whose members collectively account for USD \$41 trillion in funds under management, administers the Carbon Disclosure Project (CDP)

²⁷ Finsia. Submission to ASX Corporate Governance Council Review of Principles. 14/02/07 p. 3

²⁸ Stern Review on the economics of Climate Change. 2006. p.iv.

²⁹ ABRCC, 2006, p.5

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which requests information from the world's leading companies on how they are addressing the climate change-related risks that they face. This pressure has been built upon by the Investors Group on Climate Change (IGCC), the US based Investor Network on Climate Risk (INCR) and, more locally, by the recent review into the ASX Corporate Governance Principles. Also ASX guidance is that listed companies will be required to disclose whether they have policies in place to manage material business risk. It is clear that there will be greater investor scrutiny of the measures that Australian companies are taking to manage their climate change-related risks.

03

It is clear that the most effective means to manage, and in some cases neutralise, the climate change related liabilities currently embedded within commercial property is to reduce the emissions profile of office buildings. The most cost effective means to achieve such reductions is through the pursuit of energy efficiency upgrades. As repeatedly demonstrated, the pursuit of energy efficiency upgrades in commercial property boasts the lowest marginal cost of greenhouse gas abatement - both locally and globally.³⁰ Indeed, the marginal cost of abatement is in fact negative - energy efficiency upgrades are profitable for building owners.

3.1 Steps that trusts can take to increase portfolio energy efficiency

There exist a wide range of measures available to commercial property trusts seeking to increase the energy efficiency of their portfolios and, as shown in Figure 5, the majority of these measures offer above market rates of return.

3.2 Alternative energy options - GreenPower™ and Microgeneration

An additional option available to trusts seeking to reduce the emissions profile of their buildings is to purchase GreenPower™ from accredited GreenPower™ providers. GreenPower™ is sourced from renewable energy sources and produces zero greenhouse gas emissions.

An increasingly common alternative to the purchase of GreenPower™ is the use of low emissions microgeneration plants which can deliver substantial greenhouse performance improvements for buildings.

³⁰ McKinsey, 2007, p.38; NEXTEnergy, 2004, p.1; Vatenfall, 2007, p.3

03 NEUTRALISING EMBEDDED LIABILITIES

Description	Rates of Return
Building Envelope	
Apply external shading to minimise solar heat gain	2 - 6%
Apply window tinting to minimise solar heat gain	6 - 20%
Apply light colours to external walls	
Use light colour internal partition and carpets to maximise daylighting effect	5%
Add internal shading devices to minimise/regulate solar heat gain	5 - 20%
Plant trees around the building for shading purposes	~
Upgrade insulation of building envelop, e.g. roof, walls, floor etc. to minimise heat gain/loss	2 - 20%
Change space layout to enhance daylight, ventilation and zone controls.	2 - 40%
Mechanical Services	
Use Variable speed drives for efficient system regulation and variable flow control	15 - 30%
Employ high efficiency chillers	2 - 15%
Employ high efficiency boilers	2 - 20%
Review operation and calibration of economy air cycles.	0 - 100%+
Employ combined heat and power generation.	2 - 15%
Insulation of equipment, ductwork and pipes.	2 - 20%
Investigate feasibility of 'hybrid' conditioning and openable windows for cross ventilation.	2 - 40%
Fine tune the building management system. Pay particular attention to - night purge - enthalpy control of economy air cycles - floating heating and chilled water setpoints - optimised start and stopping - CO2 control of outside air	5 - 100%+
Replace low efficiency motors with high efficiency motors	3 - 6%
Lighting Services	
Installation of occupancy sensors	6 - 15%
Installation of master reset control to switch lighting off	15 - 30%
Replace dichroic globes with IRCs / compact fluorescents'	30%/50%+
Employ daylight control	2 - 15%
Upgrade from T12 & T8 to T5	2 - 6%
Install fixed range dimmers on fluorescent circuits	20 - 30%
Install fixed range dimmers on HID circuits	10 - 30%
Building Management Systems	
Review room temperature Set points	100%+
Review plant operating time against occupancy pattern	100%+
Maintenance	
Review present mechanical services maintenance procedures and revise, such that they better embrace energy efficiency initiatives	25 - 100%+

Figure 5: Energy Efficiency Measures available to Commercial Property Trusts
SOURCE: Steensen Varming (Australia) Pty Ltd. 2007

04

The energy efficiency upgrading of commercial property portfolios is essentially a risk management exercise that boasts the rare quality of being ultimately profitable and eligible for third party subsidisation.

4.1 Energy efficiency projects offer trusts above market rates of return

As shown in Figure 5, the energy efficiency upgrading of commercial property assets offers commercial property trust positive returns that, in many cases, will be higher than market rates of return.

4.2 Third Party Subsidies

Despite the profitability of such energy efficiency projects there exist a variety of government and third party subsidisation mechanisms for such upgrades.

a) Greenhouse Friendly Abatement Projects

Under the Greenhouse Friendly scheme operated by the Australian Greenhouse Office (AGO) actions that can be shown to reduce greenhouse gas emissions such as energy efficiency upgrades can be potentially subsidised by those groups seeking to offset their own emissions in other sectors of the economy. The broad eligibility requirements for participation in the program is financial and compliance 'additionality.' That is, a trust must be able to show that it is not privately cost effective for such upgrades to be made and that such action will not be simply in accordance with what they are required to do by law.

b) Climate Change Fund

The NSW Climate Change Fund (CCF) may provide support for projects aimed at reducing energy consumption. The primary sector identified for potential energy savings by the previous Energy Savings Fund (which was absorbed into the CCF) was the Commercial/Industrial sector, which collectively accounts for 70% of energy consumption in NSW. A commercial property fund, through its aggregation of commercial property sites, may easily exceed the funds energy demand reduction minimum of 2,500 MWh of electricity and/or 500kw of peak electricity demand over a 'multi-year period.'

c) GGACS

Under the Greenhouse Gas Reduction Scheme organisations investing in energy efficiency gains may apply for Greenhouse Gas Abatement Certificates (GGACS) under the Demand Side Abatement (DSA)/ energy efficiency category of the scheme.³¹ Property trusts that reduce emissions will be paid for each tonne of CO₂e that is not emitted into the atmosphere.

d) Demand Management Funds

Under the *NSW Electricity Supply Act 1995*, power companies are required to pursue demand management options before increasing power capacity to an area that is experiencing an emerging capacity constraint. Commercial property trusts that hold assets in such areas can apply for funds from power companies to pursue energy efficiency upgrades so as to avoid the need to increase the power capacity of the area.

³¹ http://www.greenhousegas.nsw.gov.au/acp/energy_efficiency.asp

04 REALISING THE EMBEDDED VALUE LYING DORMANT WITHIN PROPERTY ASSETS

4.3 Alternative financing arrangements

If it is the case that conventional financing mechanisms for such energy efficiency upgrades are not palatable for particular trusts there exists alternative mechanisms by which trusts can seek to pursue energy efficiency upgrades so as to manage their various climate change-related risks.

a) Energy Performance Contracts

Under an Energy Performance Contract (EPC) a third party will identify energy efficiency improvement possibilities, finance those upgrades, and take as their return the energy cost savings that

will be achieved as a result. EPCs are an ideal way to circumvent the issue of 'split incentives' that some believe to exist in regard to tenancy upgrades, as well as providing a mechanism by which trusts without an appetite for particular forms of capital expenditure can manage their climate change-related risks.

05 THE CRUCIAL ROLE OF EXISTING BUILDINGS IN AUSTRALIA'S CLIMATE POLICY

05

In response to the burgeoning emissions profile of commercial property recent years have witnessed the rise of the 'green building' movement. This is to be commended but the focus of industry movement has so far been upon the development of new buildings. Where needed, new 'green buildings' will help to mitigate the predicted growth in emissions but the fact that up to 98% of existing floor space is accounted for by retrograde property stock, ensures that any real attempt to reduce emissions from the sector will require upgrading the greenhouse performance of existing stock.

Replacing Australia's retrograde commercial property stock with new energy efficient buildings is not the solution. Upon some estimates a new building designed to achieve a 5 Star ABGR will not repay its embodied emissions for 290 years and if the ABGR of that building falls below 5 Stars over its lifetime it may never repay its embodied emissions.³²

TEC recognises that the most climate friendly buildings are not new buildings designed for maximum energy efficiency but existing buildings³³ that have been upgraded to achieve substantial greenhouse performance gains. The embodied emissions of existing buildings are a sunk cost that needs to be capitalised upon in order to optimise environmental outcomes.

Organisations genuinely looking to reduce their carbon footprint need to recognise that the most climate friendly buildings are not new buildings designed for maximum efficiency but existing buildings that have been upgraded to achieve substantial greenhouse performance gains.

³² Roussac, 2006, p.84

³³ The term 'existing building' is used here to refer to buildings that were built without sustainability considerations in mind

06

The Total Environment Centre's (TEC) Existing Buildings Project seeks to:

- Communicate the climate change-related risks facing the sector
- Provide information on the means by which energy efficiency improvements can be made to neutralise embedded liabilities whilst realising embedded value
- Suggest profitable and innovative ways to finance such upgrades
- Communicate zero and low emissions energy options
- Celebrate Industry leaders seeking to achieve cross portfolio emissions reductions

The project will also provide an independent framework that will allow third parties to differentiate

between genuine attempts by property trusts seeking to promote the sustainability of their portfolios from those trusts seeking to 'greenwash' their operations by making only superficial improvements.

TEC welcomes the opportunity to collaborate with property trusts on this project. The following components of the scheme have been developed after discussions with a range of property trusts.

6.1 Project Tiers

The TEC Existing Buildings Project invites property trusts with exposure to commercial property to join one of three project tiers. Two of the three project tiers will require a public commitment to the achievement and maintenance of long-term portfolio ABGR targets. The final tier will allow trusts not yet

TEC Existing Buildings Project Tiers

Time Period	Base Building		Tenancy
	Short Term	Long term	
		January 2012	January 2008
First Tier	Discretionary	4.5 Portfolio ABGR or better	Begin actively engaging tenancy framework
Second Tier	Discretionary	4.0 Portfolio ABGR or better	Begin actively engaging tenancy framework
Third Tier	Active consideration over 12 months. Participation in workshop series	Active consideration over 12 months. Participation in workshop series	Active consideration over 12 months. Participation in workshop series

Figure 6: TEC Existing Buildings Project Tiers

06 TEC EXISTING BUILDINGS PROJECT – BENEFITS AND COMMITMENTS

willing to make a public commitment to either portfolio energy efficiency target to consider the information presented by the project and at the end of 1 year choose to either leave the project or make a public commitment to either target.

6.2 Project Guidelines

a) ABGR targets relate to office buildings only

The ABGR targets relate only to office buildings. This simply reflects the fact that at this stage ABGR exists only for office buildings. Diversified trusts that enjoy an exposure to commercial property, and that have made a public commitment to either of the targets, will be asked to only report upon the commercial property portion of their trust.

b) Portfolio ABGR calculation guidelines

- i) The portfolio ABGR average will be calculated on a weighted by floor space basis.
- ii) In the case that a participating trust jointly owned a particular building only their proportion of floor space would be included in the portfolio calculation.
- iii) Buildings that reach completion after the project launch date will be excluded from the portfolio calculation.
- iv) 'Existing Buildings' purchased by the Trust after the launch date will be excluded from the portfolio calculation for a period of two years. This is designed to allow trusts to undertake operations to improve the ABGR of the building without suffering an unrepresentative decrease in portfolio ABGR. Whether such a building will be included in the portfolio calculation within this two year period will be left at the discretion of the trust.
- v) Buildings firmly earmarked for sale or demolition within 1 year of the project launch will be excluded from the portfolio calculation.
- vi) Where a building is jointly held with an entity that is not a participant in the project, and where that building is not controlled by the participating group, and the joint owner fails to agree to upgrade the building in a manner consistent with project goals, the participating group will be able to nominate that building for exclusion from the portfolio calculation. In the case that the building is brought into the portfolio at a later date that building will be excluded from the portfolio calculation for a period of two more years. This is designed to allow the group to undertake upgrades to that building without suffering an unrepresentative decrease in portfolio

ABGR whilst work is being undertaken.

vii) Trusts are given the option to exclude those buildings where the base building is controlled by tenants and where those tenants do not agree to required upgrades. If a building falls out of such an arrangement that building will be excluded from the portfolio calculation for a period of two more years. This is designed to allow trusts to undertake operations to improve the ABGR of the building without suffering an unrepresentative decrease in portfolio ABGR. Whether such a building will be included in the portfolio calculation within this two year period will be left at the discretion of the trust.

viii) An exclusion clause for buildings earmarked for refurbishment can't be granted without compromising the integrity of the project. Refurbishments scheduled to take place before 2012 will be reflected in the achievement of the 2012 target and buildings that are earmarked for post 2012 refurbishment could still undergo works with paybacks of over five years. This was one of the primary reasons that the interim ABGR target would remain discretionary- allowing sufficient flexibility to respect the different refurbishment schedules of participating groups.

c) Flexibility mechanisms within the Existing Buildings Project

There are 5 flexibility mechanisms in the TEC Existing Buildings Project. These are designed to give due regard to the diversity of building stock and the individual objectives of different trusts.

- i) Portfolio ABGR average - By calculating the portfolio average on a 'weighted by floor space' basis there exists scope for efficiently designed buildings to compensate for less efficient buildings.
- ii) ABGR - ABGR is non-prescriptive. In seeking to achieve their respective targets, trusts are free to decide the path that best suits the individual characteristics of their portfolio.
- ii) GreenPower™ - Given that ABGR recognises the use of GreenPower™, trusts fearing that they would not be able to achieve ABGR targets on the basis of operational efficiency alone would have the option of purchasing GreenPower™. The costs savings made on more efficiently designed buildings could be used to purchase GreenPower™ chosen for other buildings. This would allow trusts to meet their ABGR target on a cost-neutral basis.
- iv) Discretionary interim target - In recognition of the varied trajectories that different trusts would need to

meet their relevant ABGR targets the interim ABGR target will be left at the discretion of individual trusts.

v) Broader sustainability aspects of commercial property - The focus of the TEC Existing Buildings Project will be on the greenhouse performance of office buildings as measured by ABGR. However, given that ABGR is embedded in both NABERS and Greenstar, movement on ABGR would be entirely consistent with movement on broader sustainability parameters. Movement on broader sustainability parameters will be actively encouraged but will be left at the discretion of individual trusts.

d) Progress monitoring

TEC seeks an undertaking with participating trusts that ABGR monitoring will occur on an annual basis. In addition, a half-yearly meeting is sought between TEC and participating trusts in which challenges, lessons, and project developments will be discussed.

e) What is required of trusts in regard to their tenants?

The ultimate form of the tenancy engagement process will be left to the creativity of participating trusts. Ultimately the tenancy engagement program would seek to secure the commitment of individual tenants to match the ABGR commitment of the trust. As a minimum the tenancy engagement program would communicate:

- The nature of existing rating schemes (ABGR, NABERS, Greenstar)
- The energy efficiency options available to tenants
- Financing options for such energy efficiency upgrades
- GreenPower™ and low emissions energy options

If a trust wanted to go beyond ABGR and promote broader sustainability issues such as water, waste, and indoor air quality it would be encouraged to do so. The engagement mechanism will be left to the trust's judgement but would need a form of effective interaction between the trust and decision makers on the tenancy side. This may include commending a guidance document during meetings and following that up with subsequent engagement or may entail a workshop series for tenants.

If a tenant was in one of the three CBDs captured by the 3CBDs™ project then the process would include a commendation of the program. Given that tenant actions will also influence base building demands, tenancy engagement would also aid in the achievement of base building targets. Upon

refurbishment of tenancies the trusts will seek to maximise the energy efficiency of tenancy services.

f) Disclosure

An undertaking is sought with participating trusts to publicly disclose their participation in the project, their respective portfolio ABGR target, their current portfolio ABGR, and the activities that they are undertaking with tenants. Further information such as the progress that a participating trust had made before their participation in the project would be left at the discretion of participating trusts. It is requested that this information be published on the websites of participating trusts and in their relevant publications.

g) Benefits to project participants

There exists a host of benefits for those that choose to participate in the TEC Existing Buildings Project.

i) Workshop series for project participants

The Existing Buildings Project will provide project participants with a series of workshops that will supply the information about whether greenhouse performance upgrades are a priority for trusts and the means by which such upgrades can be structured, financed, and achieved.

ii) Safeguard against criticism of greenwash

As 'green becomes the new black' it is only natural that many firms will attempt to capitalise upon such movements by 'green washing' their operations. It is equally natural that many will respond to such claims by cynically considering such movement as an insincere PR exercise. Participation in a project run by an established and credible environmental organisation will safeguard participating commercial trusts from such criticism and highlight their leadership on the issue.

iii) Provides highly visible platform to showcase leadership on climate action

Participation in the TEC Existing Buildings Project will send a powerful message of commitment to regulators, investors, prospective tenants and the community.

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