

'Building Better Returns'

A Study of the Financial Performance of Green Office Buildings in Australia



Research by the University of Western Sydney Australia and the University of Maastricht Netherlands in conjunction with Jones Lang LaSalle and CBRE

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'Building Better Returns'

A Study of the Financial Performance of Green Office Buildings in Australia



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“Investors need material evidence that proves the financial performance of sustainable investments. This report provides the economic rationale for sustainable property investment and development, encouraging investors to pursue green building opportunities which support economic growth for future generations while also preserving our ecological heritage. “

Steering Committee
Building Better Returns

This research would not have been possible without the support of our generous Sponsors – we thank you once again for your contribution, which has ensured the success of this research, the first of its kind in Australia.

API & PFA Comments



Australian Property Institute
National President
Philip Western

I would firstly like to thank the Building Better Returns Steering Committee for their commitment and hard work on this project. Thanks must also go to the Australian Property Institute's (API) NSW Division for the administration coordination involved in completing this important research. The industry and government collaboration accomplished for this report, as well as international research cooperation has been an excellent achievement and we can commend the report to industry with confidence.

I would especially like to thank Jones Lang LaSalle and CBRE for their collaboration and sharing of information, which demonstrates the importance now placed on sustainability and climate change action, even in our often compact and competitive markets.

The valuation sector works on legal precedents and must reflect market transactions which are comparable in nature to ascertain a nominated property's value. A valuer very often does not have all market evidence and full detail of all transactions available to them. As such, they must assess valuation from the information they have at hand at the time of determining the valuation. Research projects such as the US' "Doing Well By Doing Good" and this report on the Australian market are important catalysts to providing the detailed market analysis to inform stakeholders.

The API will ensure that the outcomes of this exciting project are communicated extensively across the valuation industry to provide valuers with a detailed analysis as evidence in their valuation process. Reports such as Building Better Returns which go into the detail of removing variable factors to determine the impact of 'green' issues on rents and value determinates allow improved education in the industry and better informed decision making on investment and risk management for investors and financiers, directly in property and indirectly in energy and other resource efficiency sectors.

The impact of climate change on the property sector has companies moving to asset protection strategies in light of climate extremes which properties must physically withstand. This report demonstrates the demand for 'green' properties, in light of improved returns for investors and also continuing government regulation and consumer concerns in the area of climate change.

The API is proud to be associated with the Building Better Returns project and is confident of the positive and important role that this research will play in the property industry's future.

Philip Western
API National President



Property Funds Association
President
Robert Olde

The Property Funds Association of Australia (PFA) is pleased to be supporting the Building Better Returns initiative in conjunction with the Australian Property Institute.

Recently I attended an ATO Roundtable on the Tax Breaks for Green Buildings as the President of the PFA representing the wholesale and retail property fund members. This Government initiative to provide \$1 Billion in tax breaks to buildings brought into sharp focus the importance of financial and taxation implications which are involved in the decision making process of property owners and managers.

Sustainable property is a sector which clearly requires greater research, and I am delighted that on behalf of our wholesale and retail fund manager members we have been able to positively contribute in this regard. The current lack of information available on the financial outcomes of sustainable property investment has been a major impediment to capital investment in the sector and we hope this research report will go some way to addressing this issue.

As such, this report will be invaluable in the Australian property market and has been eagerly anticipated by investors and fund managers alike. Being able to measure and quantify the investment return of sustainable buildings is vital for our members when planning property investments and future strategies for existing buildings. The boundaries between green and traditional stock are increasingly blurred and we hope this report will bring into focus the financial implications for differentiating properties in the sustainable space.

I would like to personally thank the PFA Sustainability Committee for their efforts in conjunction with the API to provide our respective members with this additional resource and improved clarity in this sector. Thanks must also go to the Building Better Returns Steering Committee who have put in a significant amount of work to see this project through to completion.

Robert Olde
President PFA of Australia

Building Better Returns Steering Committee



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Walker EcoStrategies



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NAB is at the forefront of market leading property transactions and, in 2011, NAB was voted No.1 Bank of Choice for Property Finance². NAB recently launched an innovative finance solution for environmental property upgrades to benefit Australian commercial property owners and their tenants. The NAB Environmental Upgrade Funding is a fixed interest model administered by local councils that finances environmental retrofits of commercial buildings, enhancing cost savings and energy performance. Developed by NAB, it supports the City of Melbourne's "1200 Buildings Programme" and will provide capital for the energy efficiency retrofit of commercial buildings over the next decade.

1. APRA, June 2011

2. Peter Lee Associates 2011 Large Corporate and Institutional Relationship Banking Survey – Australia

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Building Efficiency delivers products, services and solutions that increase energy efficiency and lower operating costs in buildings for more than one million customers. Operating from 500 branch offices globally, we are a leading provider of equipment, controls and services for HVAC, refrigeration and security systems. We have delivered more than 500 renewable energy projects including solar, wind and geothermal technologies. Our solutions have reduced CO₂-e by 13.6 million tons and generated savings of US\$7.5B since 2000. Many of the world's largest companies rely on us to manage 140,000,000 m² of their facilities.



Verdigris Capital was established by Napier & Blakeley to arrange finance and project manage the execution of environmental retrofits of existing buildings. Finance can range from operating leases for energy saving equipment, assistance with obtaining government grants, capturing and selling carbon credits and in facilitating Environmental Upgrade Agreements (EUAs). Verdigris

Capital has participated in the development of EUAs in Melbourne and NSW and is currently managing the EUA establishment for a Melbourne building. The EUA is a tri-partite arrangement between building owner, council and financier, enabling a sustainable retrofit to be funded via building outgoings which are paid by the tenants. The link to Napier & Blakeley provides Verdigris Capital with access to their environmental engineers, cost consultants, project managers, capex and opex managers, tax depreciation assessors etc.

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community and our environment. And that's why we were named the Sustainable Super Fund of the Year.*

* Ethical Investor, December 2010.

Building Better Returns Researchers



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Graeme Newell is Professor of Property Investment at the University of Western Sydney. Graeme is a Fellow of the Australian Property Institute and a Fellow of the RICS. He has been actively involved in property research for over 30 years and has published widely in various areas of property research, including property risk and the strategic role of property in institutional investment portfolios. Through his applied property research, Graeme has strong links to the property industry in Australia and internationally; being a regular presenter at major professional conferences. Graeme has done extensive property research in the area of sustainability in the property industry, including identifying strategic best practice in CSR by property companies and developing sustainable property indices.

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Building Better Returns Data Providers



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Jones Lang LaSalle is proud of the recognition we receive. Our recent accolades include Best Property Consultancy in Australia and Asia Pacific at The Asia Pacific Property Awards 2011 in association with Bloomberg Television, and being recognised as the highest ranking real estate services firm in the Leaders category for The 2010 Global Outsourcing 100.

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CBRE delivers holistic sustainability solutions across all stages of the property life cycle. From acquisition and development to leasing, through all phases of property and project management, CBRE works with clients to reduce waste, improve business efficiencies and build greater value into their asset, their portfolio and their brand.

CBRE is committed to helping the property industry reduce its resource impacts and greenhouse gas emissions. We have specialists across our business lines that can provide detailed advice on a wide variety of sustainability issues as they apply to your business and your property.

We help clients achieve sizable reductions in energy and water use through operational, capital, and behavioural interventions to improve efficiency and long term profit margins. We assist clients to meet changing legal requirements and take advantage of increasing funding and innovation opportunities. We seek to raise awareness of sustainability initiatives and build a better understanding of the impacts for owners, investors and occupiers.

At CBRE we deliver a practical, business focussed approach to sustainability allowing you to improve the quality of the built environment, achieve efficiency improvements, operational savings and add value to your property and portfolio.

“Understanding the impacts of sustainability-related investments on long-term asset values holds catalytic power to scale the building refurbishment market not only in Australia, but throughout the world.”

Robin Ried
Real Estate & Urban Development
World Economic Forum

'Building Better Returns'

A Study of the Financial Performance of Green Office Buildings in Australia



Graeme Newell: University of Western Sydney
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September 2011

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Executive Summary

Sustainability has taken on increased importance in the property industry in recent years at all levels of stakeholders, including governments, tenants, investors, developers, owners and the community. This has seen green office buildings become a key feature of the commercial property landscape.

While the broader benefits of sustainability are well known, the key challenge from a property industry and property investor perspective is the justification of the economic rationale and business case for green buildings, that is do green office buildings add value? Recent US research has identified rental, sale price and occupancy premiums for green office buildings.

Using the National Australian Built Environment Rating Scheme (NABERS) energy and Green Star environmental rating schemes, this project seeks to empirically investigate the financial performance of green office buildings in Australia. This is the first rigorous empirical analysis done in this important area for Australian office property. The research sees a significant portfolio of green office buildings in Sydney and Canberra benchmarked against a portfolio of non-green office buildings, and the property financial performance premiums attached to green office buildings empirically assessed, including rent, value, outgoings, yield and occupancy rate premiums. The added-value of green office buildings is clearly highlighted, with major insights regarding their financial performance.

Key findings in this report include:

1. A green premium in value for office buildings was evident for the NABERS energy rating. This saw the 5 star NABERS energy rating delivering a 9% green premium in value and the 3-4.5 star NABERS energy ratings delivering a 2-3% green premium in value.
2. A clear link between enhanced green premiums in value with the higher rated NABERS energy rating categories.
3. Green premiums in value differed in specific office markets, being most evident in the Sydney suburban office market (8% green premium) and the Canberra office market (21% green premium) in the 5 star NABERS energy rating category. This compares with the lesser impact in the Sydney CBD office market (4% green premium).
4. Evidence of major discounts in value in the lower NABERS energy rating categories (less than 3 stars) for the Sydney CBD (10% discount in value) and Canberra (13% discount in value).
5. In the 5 star NABERS energy rating, the Canberra office market showed the largest green premium in value (21%), as well as the largest discount in value (13%) in the lowest NABERS energy ratings.
6. The Green Star rating showed a green premium in value of 12%.
7. Lesser impact was seen in the green premiums in rents for the NABERS energy ratings, with a 5% green premium in rents evident for the Green Star rating.
8. Major discounts in rents were evident in the lower NABERS energy ratings for the Sydney CBD (9% discount in rents) and Canberra (6% discount in rents).
9. In the 5 star NABERS energy rating, the Sydney CBD office market showed the largest green premium in rents (3%), as well as the largest discount in rents (9%) in the lowest NABERS energy rating.
10. Green premiums were also evident in reduced vacancy, reduced outgoings, reduced incentives and reduced yields, particularly at the higher rated NABERS energy categories.
11. These office market green premiums in values and rents for Green Star and the top 5 star NABERS energy rating are generally comparable to that seen in recent US green office building studies (eg: Eichholtz et al, 2010b).

Fuller details are given in the body of this report.

Overall, the results clearly highlight the added value of green office buildings in Australia, particularly at the higher levels of the NABERS energy ratings and Green Star.

The property industry implications and future challenges for green office buildings in Australia are also identified.

1. Importance of Sustainability and Green Office Buildings

Sustainability has taken on increased importance in recent years at all levels of stakeholders, including governments, tenants, investors, developers, owners and the community. This has seen increased awareness internationally that sustainability is a high priority. In particular, the property industry has a major impact on the environment, with buildings contributing up to 23% of CO₂ emissions, 40% of energy requirements, 16% of water usage, 30% of solid landfill waste, 40% of raw materials and 71% of electricity consumption (CIE, 2007).

Legislation regarding sustainability has also been introduced at the international, national and local levels, including the Kyoto Protocol, UN Principles of Responsible Investment and the EU Directive on Energy Performance of Buildings. In Australia, the introduction of the Federal Government's Building Energy Efficiency Disclosure Bill 2010 has seen the mandatory disclosure of greenhouse performance for commercial buildings upon lease or sale impacting on both new and existing properties from November 2010, with Building Energy Efficiency Certificates required from November 2011. Similarly, government policy will require minimum energy ratings for government tenants from 2011. This is also seen in the broader context of the proposed carbon price to be introduced by the Federal Government as part of the Clean Energy Future package.

This focus on sustainability has seen key groups established to champion the sustainability agenda. At an international level this includes the UN Environment Program Finance Initiative, World Green Building Council, Carbon Disclosure Project and the Institutional Investors Group on Climate Change, with these groups often having a strong property mandate. At an Australian level, this includes the Green Building Council of Australia and the Investor Group on Climate Change; as well as active support from the professional property organisations, including the Australian Property Institute (API), Property Funds Association of Australia (PFA) and Property Council of Australia (PCA). Superannuation funds in Australia have also actively supported the sustainability agenda by prioritising sustainable commercial property.

Importantly, the property industry in Australia has actively contributed to this sustainability agenda in the context of their corporate social responsibility strategies. This has seen a large number of property investors effectively integrate sustainability into their business platform at all levels of their commercial activities, this including both the larger property players as well as the smaller property players. The original focus on risk reduction and future proofing, driven by the sustainability legislation, has also been expanded to a fuller articulation of the business case in the context of corporate social responsibility. This has resulted in the language of sustainability becoming a fundamental part of the language of the property industry, including responsible property investing and socially responsible property investing. Importantly, many Australian property companies and A-REITs are amongst the leading property players globally in championing the sustainability agenda for property. The establishment of the green building rating schemes in Australia, Green Star and NABERS, are also key ingredients for advancing the sustainability agenda in the property industry in Australia.

With CBD office buildings being the key focus and engine room of economic and financial activity in Australia, the Australian office sector accounts for over 23.8 million square metres of office space, across the various CBDs (over 16 million square metres) and non-CBDs (over 7.5 million square metres) in July 2011 (PCA, 2011). Many of the new office buildings have been green office buildings, with the major property investors actively involved in this area. While the broader benefits of sustainability for commercial property are well known (see Table 1), the key challenge from a property industry and property investor perspective is the justification of the economic rationale and business case for green office buildings. That is, do green office buildings add value? Recent US research has analysed a major portfolio of US green office buildings, identifying rental, sale price and occupancy premiums for green office buildings, with this key issue yet to be rigorously assessed in an Australian green office building context.

Table 1. Benefits of sustainable commercial property

Energy and water cost savings	Eligible to SRI/ESG fund mandates
Company brand differentiation	Reduced liability/risk
Capital cost savings	Future proofing
Enhanced value	Eligible for government tenants
Improved marketability	Compliance with office grading schemes
Faster lease-up period	Relevance to non-government tenants
Higher tenant retention	Personal commitment to ESD and CSR
Improved reputation/profile	Compliance with government regulations
Enhanced work environment	Property brand differentiation

Source: Authors' compilation

As such, this project seeks to examine the financial performance of green office buildings in Australia. Subsequent sections of this report examine the significance of green office buildings in Australia, as well as empirically assessing the added value of green office buildings for their financial performance benchmarked against a non-green office building portfolio. The ongoing implications and challenges for the Australian property industry are also highlighted.

“Resource constraints and sustainability drivers mean the asset valuation game is changing. Reports such as Building Better Returns will inform more robust valuations in future and are critically important if institutional investors are to navigate a changing investment environment.”

Nathan Fabian
Chief Executive
Investor Group on Climate Change

2. Significance of Green Office Buildings in Australia

The sustainability agenda in the property industry and green office buildings in Australia have been significant developments in recent years. This has been driven at all levels; the individual property level, corporate level and external environment level (eg: legislation, standards, government incentives, environmental costs, consumer demands).

In particular, at the Federal Government level the Building Energy Efficiency Disclosure Act 2010 has seen the introduction of the mandatory disclosure of NABERS ratings and Building Energy Efficiency Certificates for the selling and leasing of office space of 2000 square metres or more. This has been further supported by the Green Building Fund for green retrofitting of existing office buildings and the proposed Tax Breaks for Green Buildings scheme. At the local level, this agenda has also been supported by various initiatives including the Sustainable Melbourne Fund and the “1200 Buildings” program in Victoria.

The establishment of green building rating schemes in Australia have also been key ingredients in the success of the green building agenda in recent years. This has seen the Green Star and NABERS rating schemes as key initiatives to evaluate the environmental design and environmental performance of office buildings. NABERS and Green Star encompass a range of office building criteria, cover the various property types and are comparable to the international green building benchmarks in the US and UK, for example LEED (Leadership in Energy and Environmental Design), Energy Star) and the BREEAM (Building Research Establishment Environmental Assessment Method), respectively. Importantly, both the NABERS and Green Star rating schemes have been actively supported by the property industry in Australia and have transformed Australia’s property and construction markets.

Green Star is a comprehensive, national, voluntary environmental rating scheme that evaluates the environmental design and construction of buildings. Table 2 highlights the key features of the Green Star rating scheme, with Table 3 highlighting selected major office buildings throughout Australia that have achieved the 6-star Green Star rating.

NABERS is a performance-based rating scheme for existing buildings, using measured annual operational impacts on the environment, including greenhouse gas emissions and water consumption. General details of the NABERS rating scheme are given in Table 4. Major office buildings that have received the top level NABERS energy ratings are also given in Table 5.

The establishment of the quarterly IPD/PCA Green Property Investment Index in 2011 has also expanded the performance analysis perspective of the benefits of green office buildings in Australia.

Importantly, the property industry in Australia has actively supported the green building agenda at all levels. This has seen Australian property companies and REITs figure prominently in the various global corporate social responsibility (CSR) performance measures, including the FTSE4Good Index, Dow Jones World Sustainability Index and Global 100. These Australian property players are also rated highly in independent assessments in specific aspects of CSR, for example the Environmental Real Estate Index (Kok et al, 2010) and Carbon Disclosure Leadership Index, as well as being regular recipients of various major property industry CSR awards and government CSR awards. Overall, this reflects strong local and global leadership by the property industry in Australia in championing the green office building agenda.

Table 2. Green Star rating scheme: profile: 2011

Established 2003 by Green Building Council of Australia

Categories assessed

- management
- indoor environment quality
- energy
- transport
- water
- materials
- land use and ecology
- emissions
- innovation

Certified ratings

6 star: World leadership (score: 75-100)

5 star: Australian excellence (score: 60-74)

4 star: Best practice (score: 45-59)

Rating tools

- Office as built (V2)
- Office interiors (V1)
- Retail
- Education
- Multi-unit residential
- Office design (V2)
- Office (V3)
- Industrial
- Healthcare
- Public buildings

Number of certified projects: 357, with 96 projects certified in the last 12 months

Number of certified office projects: 314

Over 5 million square metres of Green Star-certified space across Australia and over 8 million square metres of Green Star-registered space across Australia

Number of registered projects: 407

Certified project ratings (# = 321)

- 6 star: 49
- 5 star: 152
- 4 star: 120

Certified projects (# = 357): by state

- NSW: 24%
- Victoria: 28%
- Queensland: 23%
- South Australia: 11%
- ACT: 7%
- Western Australia: 6%
- Northern Territory: 1%
- Tasmania: 1%

Certified projects (# = 306): by rating tool (major)

- Office design: 195
- Office interior: 62
- Office as built: 7
- Education: 24

Source: GBCA website

Table 3. 6-star Green Star ratings: selected office buildings

Sydney:

1 Shelley Street	Darling Quarter, 1-25 Harbour Street
1 Bligh Street	The Ark, 16-40 Mount Street
39 Hunter Street	Workplace6, 44 Pirrama Road
100 Market Street	

Melbourne:

200 Victoria Street	The Gauge, 825 Bourke Street
ANZ, 833 Collins Street	Pixel, Building 9, The Brewery
Council House 2, 218-242 Little Collins Street	
Szencorp Building, 40 Albert Street	

Brisbane:

123 Albert Street	Green Square North Tower, 515 St Paul's Terrace
33 Breakfast Creek Road	Santos Place, 32 Turbot Street
512 Wickham Street	
King George Central, 145 Ann Street	

Perth:

2 Victoria Street

Canberra:

9/31 City West Offices	AEI Office, Trevor Pearcey House, 34 Thynne Street
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Adelaide:

SA Water House, 250 Victoria Square

Source: GBCA website

Table 4. NABERS rating scheme: profile: 2011

Established in 1999 and managed nationally by the NSW Office of Environment and Heritage

Goal of the NABERS rating scheme is to encourage innovation and market best practice to achieve positive environmental outcomes, including lower greenhouse gas emissions, reduced water consumption, less waste and healthier working environments

Rating scheme

5 star: excellent	2.5 star: median
4 star: very good	2 star: below average
3 star: good	1 star: poor

Ratings

Energy	Indoor environment
Water	Commuter transport
Waste	

NABERS rating scheme was extended to 6 stars in August 2011, adding 6 star market leading. 6 star is calculated as 50% of the emissions or resource use of 5 star performance for Energy and Water ratings. 5.5 star is calculated as 75% of the emissions or resource use of 5 star performance.

Rating type

Tenancy	Base building	Whole building
---------	---------------	----------------

Rating sectors

Office	Hotel
Retail	Residential

Number of office buildings rated: 962

Source: NABERS website

Table 5. 5.5-6 star NABERS energy rated offices : Office Base Building*

NSW:

76 Berry Street, North Sydney	Legion House, 161 Castlereagh Street, Sydney
60 Burelli Street, Wollongong	Quad 4, 8 Parkview Drive, Homebush

Victoria:

Centrelink Office, 69 Heygarth Street, Echuca	Nexus Corporate, 37 Dunlop Road, Mulgrave
2 Nexus Court, Mulgrave	

Queensland:

Police Barracks Building 1, 61 Petrie Terrace, Brisbane	158 Hume Street, Toowoomba
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Western Australia:

100 St Georges Terrace, Perth

Northern Territory:

Darwin Plaza, 41 The Mall, Darwin	Jacana House, 39 Woods Street, Darwin
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An additional 50 office buildings across NSW, Victoria, Queensland, Western Australia, South Australia, ACT, Tasmania and Northern Territory have also achieved a 5 star NABERS energy rating

* This table is the current NABERS list using the August 2011 data which includes the update to a 6 star NABERS energy rating system. All analyses completed in this report used the previous 5 star NABERS energy rating categories

Source: NABERS website

3. Current Research on Green Office Buildings

Much of the earlier property research on sustainability was descriptive and focused on issues such as the valuation implications, green leases, energy performance certificates, energy savings and benefits, and the cost premium of LEED-certification. Critically, the original focus by property players on risk reduction and future proofing, driven by sustainability legislation, has now been expanded to a fuller assessment of the return advantage of green office buildings. While the return advantage was initially based on anecdotal evidence and case studies, this has changed considerably since 2008, with the rigorous empirical assessment of this business case for green office buildings using extensive commercial property portfolios. The report by Eichholtz et al (2010a) was a key ingredient in systematically justifying the economic rationale and business case for green office buildings by rigorously analysing a major portfolio of US green office buildings from the CoStar database, regarding rent, sale price and occupancy premiums.

This key research was subsequently supported by other US green building research that empirically assessed a range of office property performance measures, including rent, sale price, vacancy and productivity, to demonstrate the business case and premium for green office buildings (eg: Dermisi, 2009; Eichholtz et al, 2010b; Fuerst, 2009; Fuerst and McAllister, 2009, 2011; Miller et al, 2008, 2009; Wiley et al, 2010). This empirical research focused on US green office buildings and compared portfolios of green office properties (eg: LEED, Energy Star) with non-green office property portfolios. Control variables were used where possible to account for differences in the office properties - this typically included age, size, building quality, number of stories, amenities and location. This was to ensure a “pure” green effect in identifying price and rental premiums for green office buildings.

Table 6 provides a summary of the results of this previous US green office building research to give a sense of the scale of the premiums seen for green office buildings for the various property performance parameters in these studies. While analyses were done at different times and using different models, the consensus view from this US green building research is the presence of rental, sale price and occupancy premiums for green office buildings.

The following sections will assess this green premium issue for office buildings in Australia for a range of property financial performance measures.

Table 6. Summary of previous US green office building results

Report	Rental premium	Sale price premium	Occupancy rate premium
Miller et al (2008)	9%	No premium	2-4%
Eichholtz et al (2010a)	Energy Star: 3.3% LEED: No premium	Energy Star: 19% LEED: No premium	NA
Eichholtz et al (2010b)	Energy Star: 2.1% LEED: 5.8%	Energy Star: 13% LEED: 11.1%	NA
Pivo and Fisher (2010)	2.7%	8.5%	NA
Wiley et al (2010)	Energy Star: 7-9% LEED: 15-17%	NA	Energy Star: 10-11% LEED: 16-18%
Fuerst and McAllister (2011)	4-5%	25-26%	Energy Star: 1-3% LEED: No premium

4. Project Description

Office building portfolio²

Using a portfolio of Green Star and NABERS rated office buildings in Sydney and Canberra, these green office buildings were benchmarked against a portfolio of non-green office buildings in similar markets, and the property performance premium attached to green office buildings empirically assessed. The financial performance measures included were rent, value, outgoings, yields, incentives and occupancy rate premiums. The property-specific data was provided by Jones Lang LaSalle and CBRE. The green building features for these office buildings were provided by the NSW Office of Environment and Heritage (NABERS) and the Green Building Council of Australia (Green Star).

This saw a portfolio of 206 NABERS rated office buildings and 160 non-NABERS rated office buildings in Sydney and Canberra assessed as at the March Quarter 2011. Green office buildings were those classified with a NABERS energy rating of 3 stars or higher and those that have achieved a Green Star rating (4, 5, 6 stars). Overall, this sees 40% of office buildings in Sydney/Canberra assessed, representing 51% of the Sydney/Canberra total office market floor area. This floor area market coverage included Sydney CBD (59% coverage), Sydney suburban (45% coverage) and Canberra (43% coverage). Over 97% of the office properties analysed had an area exceeding 2000 square metres. Similarly, this analysis sees 54% of NABERS rated office properties included in this analysis, including Sydney CBD (68% coverage), Sydney suburban (49% coverage) and Canberra (38% coverage).

For Green Star, an analysis using 23 4-6 Green Star rated office buildings for the office design and office as built categories was used, with this Green Star portfolio limited by the amount of rental information available. This Green Star portfolio comprised the Sydney CBD (22%), Sydney suburban (39%) and Canberra (39%), with Green Star ratings of 4 star (43%), 5 star (48%) and 6 star (9%).

This coverage of both NABERS rated and Green Star rated office buildings is considered sufficient to enable a reliable analysis to be conducted to assess the extent of the green premium in these office markets.

A key ingredient in this research is to ensure that the green premium is not just a reflection of the green office buildings being newer buildings. As such, differences in specific office building characteristics were included in the analyses to control for these office building differences. This included differences in size, quality and location. By accounting for these factors in this analysis, pure green premiums in these office property performance characteristics can be explicitly identified for green office buildings.

Table 7 provides details of a comparison of the current NABERS rated office building portfolio and the non-NABERS rated office building portfolio used in this study. Of the 206 NABERS rated office buildings, Sydney CBD accounted for 90, Sydney suburban accounted for 91 and Canberra accounted for 25 NABERS rated office buildings. Representation was also evident across the office building quality levels of premium/A, B and C grades.

1. Some office buildings are NABERS rated, but specify that their NABERS rating not be publically disclosed; they were treated as non-NABERS rated office buildings if included in this study as they can not be explicitly identified as NABERS rated office buildings.

Table 7. Profile of green and non-green office building portfolios*

Profile	Number of green office buildings (NABERS)	Number of non-green office buildings (non-NABERS)	Total number of office buildings
Region			
Sydney CBD	90	58	148
A	55	10	65
B	27	26	53
C	8	22	30
Sydney suburban**	91	69	160
A	50	27	77
B	26	19	45
C	15	23	38
Canberra	25	33	58
A	17	15	32
B	7	9	16
C	1	9	10
Grade			
A	122	52	174
B	60	54	114
C	24	54	78
TOTAL	206	160	366

* Premium and A grade are grouped for purposes of analysis

** Sydney suburban comprises North Sydney, Parramatta, Chatswood, St. Leonards, South Sydney, Norwest, Macquarie Park, Rhodes and Homebush Bay

Method of analysis

Hedonic regression analysis is the methodology used in this study. It is the standard method for examining price determinants in property, by controlling for other factors that are reflected in differences in specific office buildings. These office building factors included size, building quality and location. It also explicitly incorporated whether the office building had a Green Star and/or NABERS energy rating. This regression procedure was typically done by including quantitative variables (eg: size) and qualitative dummy variables (eg: Green Star rating: 1=yes, 0=no) in the hedonic regression model as independent variables to assess the property performance (eg: rent, value) as the dependent variable. Property performance variables assessed for the presence of a green premium were gross rent, value, vacancy, incentives, yields and outgoings. Overall, this hedonic regression process enabled the explicit identification of a pure green office building premium, after controlling for these other office building factors. It is also consistent overall with the methodology used in the various previous US green office building studies.

Table 8 provides details regarding these various office building characteristics and the specific office property characteristics assessed, and how they are incorporated into the various models to assess the extent of the green office building premium.²

² Sydney suburban comprises North Sydney, Parramatta, Chatswood, St. Leonards, South Sydney, Norwest, Macquarie Park, Rhodes and Homebush Bay. They were aggregated into Sydney suburban to ensure sufficient properties were available for a rigorous analysis.

Table 8. Office building characteristics in regression models

Gross rent:	\$ per square metre; log value analysed
Value:	\$ per square metre; log value analysed; using a constructed proxy which incorporates gross rent, vacancy, incentives, outgoings and yields
Vacancy:	%
Incentives:	number of months on 10-year lease; log value analysed
Yield:	%
Area:	square metres; net lettable office space
Grade:	Premium/A, B, C
Location:	Sydney CBD, Canberra, North Sydney, Parramatta, Chatswood, St. Leonards, South Sydney, Norwest, Macquarie Park, Rhodes, Homebush Bay
NABERS energy:	0 to 5 stars; classified as no rating or respective NABERS energy rating
Green Star:	yes, no

This process gives the following general hedonic regression model (eg: for rent premium) for this study:

$$\text{Log Rent} = b_0 + b_1X_1 + \dots + b_nX_n + c_1\text{NABERS} + c_2\text{AREA}$$

where: Rent=rent per square metre (log transformation used for data stability issues)

X_1, X_2, \dots, X_n = office building characteristics (eg: grade, location); a location by grade cross-classification was used for a fuller and more precise identification of the green premiums

NABERS= NABERS energy rating

$b_1, b_2, \dots, b_n, c_1, c_2$ = estimated regression coefficients.

In addition to the NABERS energy rating, an equivalent model for the Green Star ratings was also applied. This sees separate analyses done for the NABERS energy ratings and Green Star ratings.

The resulting regression coefficients for the Green Star rating and NABERS energy rating give the percentage premiums attached to these rating schemes in a green office building compared to the benchmark office buildings without green building rating schemes.

Overall, this statistical analysis process has enabled the rigorous empirical assessment of green office building premiums and has assessed the financial performance of green office buildings in Australia to demonstrate and quantify their added-value financial performance. Importantly, the signs of these regression coefficients obtained were generally in accord with practical expectations, further adding to the robustness of the analysis in this study.

5. Financial Performance of Green Office Buildings in Australia

5.1 NABERS energy rating: overall office market analysis

This section examines the significance of the added value of green office buildings for various property financial performance characteristics using the NABERS energy ratings. Table 9 presents the correlations between the various characteristics, particularly highlighting the role of area and the need to explicitly control for area differences for a comprehensive and incisive analysis.

Table 9. Correlations between office building characteristics

Panel A: All office buildings (366 office buildings)

	Area	Rent	Incentives	Outgoings	Vacancy	Value	NABERS
Area	1.00						
Rent	0.66	1.00					
Incentives	-0.00	0.29	1.00				
Outgoings	0.48	0.84	0.45	1.00			
Vacancy	-0.18	-0.08	0.04	-0.05	1.00		
Value	0.70	0.93	0.02	0.65	-0.21	1.00	
NABERS	0.26	0.13	-0.09	-0.03	-0.39	0.24	1.00

Panel B: NABERS rated office buildings (206 office buildings)

	Area	Rent	Incentives	Outgoings	Vacancy	Value	NABERS
Area	1.00						
Rent	0.69	1.00					
Incentives	0.02	0.26	1.00				
Outgoings	0.58	0.88	0.40	1.00			
Vacancy	-0.16	0.01	0.27	0.09	1.00		
Value	0.72	0.94	-0.00	0.73	-0.13	1.00	
NABERS	0.26	0.13	-0.09	-0.03	-0.39	0.24	1.00

Panel C: Non-NABERS rated office buildings (160 office buildings)

	Area	Rent	Incentives	Outgoings	Vacancy	Value
Area	1.00					
Rent	0.41	1.00				
Incentives	-0.15	0.30	1.00			
Outgoings	0.11	0.73	0.51	1.00		
Vacancy	-0.17	-0.12	-0.09	-0.13	1.00	
Value	0.47	0.87	-0.05	0.40	-0.30	1.00

To assess the added value of green office buildings, the office building portfolios were classified as no NABERS energy rating (benchmark non-green office building portfolio), NABERS energy rating of 2.5 stars or less and NABERS energy rating of 3 stars or more. Similarly, to assess the impact of a higher NABERS energy rating, the NABERS ratings were separately analysed for ratings of 2-2.5 stars, 3-3.5 stars, 4-4.5 stars and 5 stars. All green office building premiums are expressed as a percentage relative to the benchmark non-green office buildings.

To determine the added value of green office buildings, Table 10 presents the green office building premiums for the NABERS energy ratings across the Sydney/Canberra office markets for the six property performance characteristics. Panel B provides the fuller analysis as it determines these green premiums after controlling for the size (net lettable area) of the office buildings. Key features include:

1. A premium of approximately 2% in value is seen for the higher NABERS rated office buildings (3 stars or higher), with a discount of approximately 4% seen for the lower NABERS rated office buildings (2.5 stars or less).
2. Lesser impact is evident in rental premiums for green office buildings; less than 1%.
3. Higher NABERS rated office buildings see green premiums for reduced vacancy (4%), reduced outgoings and reduced yields; this is not seen in the lower NABERS rated office buildings which typically see a discount for these property performance factors.

Overall, these results are positive for a consensus view regarding premiums shown for green office buildings, with the impact of green premiums being most evident in the higher NABERS energy rating categories of 3 stars or more. These results also highlight the presence of a discount for those office buildings with low NABERS energy ratings.

Table 10. Green office building premiums: NABERS*

Panel A: NABERS energy rating

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	2.0%	2.1%
Value	-2.5%	5.5%
Vacancy	2.5%	-4.9%
Incentives	5.1%	1.3%
Yield	0.1%	-0.1%
Outgoings	5.0%	0.9%

Panel B: NABERS rating (adjusting for area)

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	1.4%	0.3%
Value	-3.8%	1.9%
Vacancy	2.8%	-3.9%
Incentives	5.7%	2.8%
Yield	0.1%	-0.1%
Outgoings	4.1%	-1.3%

* green premiums given are relative to the benchmark non-green office buildings

To more fully assess the added value impact of higher NABERS energy ratings on the financial performance of green office buildings, it is necessary to segment the analysis into the various NABERS energy rating levels. As such, Table 11 presents the impact of a higher NABERS energy rating on financial performance. Key features include:

1. The green premium impacts in value are most evident in the higher NABERS energy ratings, particularly in the 5 star NABERS energy rating category. This sees a 9% premium in value for the 5 star NABERS energy rating, compared to premiums of 1-3% in the lesser NABERS energy rating categories. NABERS energy ratings of 3-4.5 showed similar green premiums of 2-3% in value, with the major green premium in value (9%) seen in the NABERS 5 star energy rating category. See Figure 1.
2. Green premiums in the top NABERS energy rating categories also apply for reduced vacancies (Figure 2), reduced incentives (Figure 3), reduced outgoings (Figure 4) and reduced yields (Figure 5). In most cases, the green premium was clearly most evident in the 5 star NABERS energy rating category. While the NABERS energy 5 star yield premium may be small (-0.15%), this converts to a substantive change in value.
3. Lesser impact is seen for the rent premiums, being less than 1% in all NABERS energy categories; see Figure 6.

Table 11. Green office building premiums: impact of NABERS energy rating*

Panel A: NABERS energy rating

	2/2.5	3/3.5	4/4.5	5
Gross rent	1.3%	1.3%	1.7%	2.4%
Value	2.2%	4.4%	6.4%	12.8%
Vacancy	-4.4%	-5.1%	-7.8%	-6.8%
Incentives	5.3%	1.6%	0.6%	-1.5%
Yield	0.00%	-0.08%	-0.13%	-0.22%
Outgoings	5.5%	3.2%	-0.3%	-4.3%

Panel B: NABERS rating (adjusting for area)

	2/2.5	3/3.5	4/4.5	5
Gross rent	0.9%	0.2%	-0.3%	0.6%
Value	1.1%	2.5%	2.6%	8.7%
Vacancy	-4.1%	-4.7%	-6.7%	-5.7%
Incentives	5.8%	2.4%	2.1%	0.2%
Yield	0.00%	-0.04%	-0.05%	-0.15%
Outgoings	5.3%	1.7%	-2.7%	-6.5%

* green premiums given are relative to the benchmark non-green office buildings

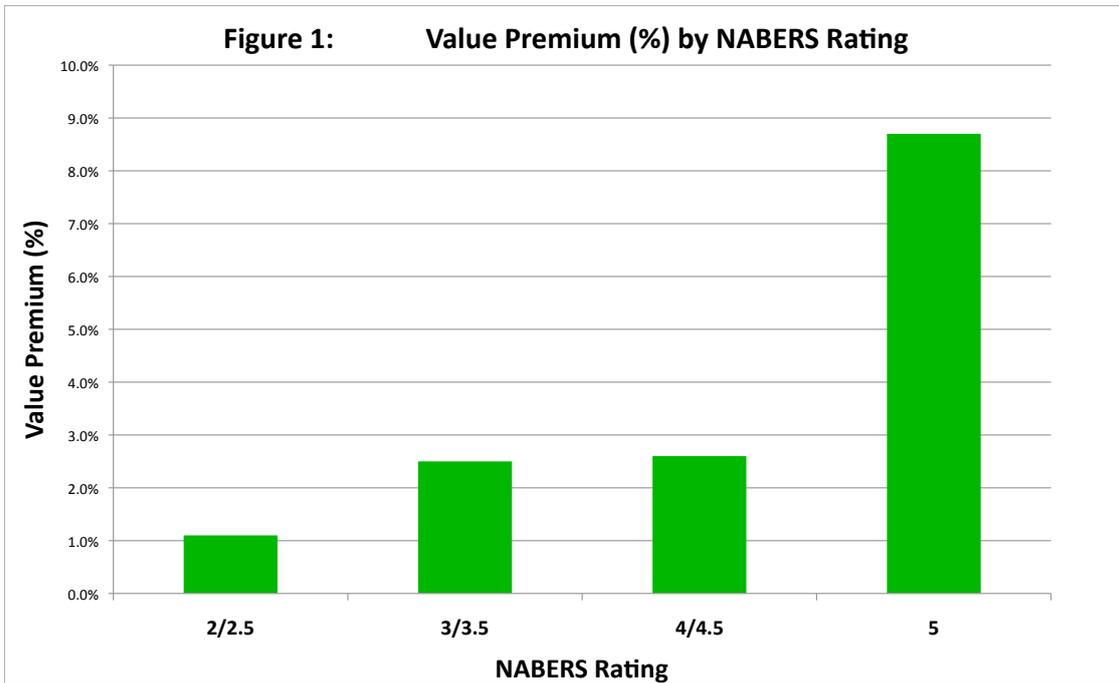


Figure 1 shows the increasing green premiums in value with increasing NABERS energy rating.

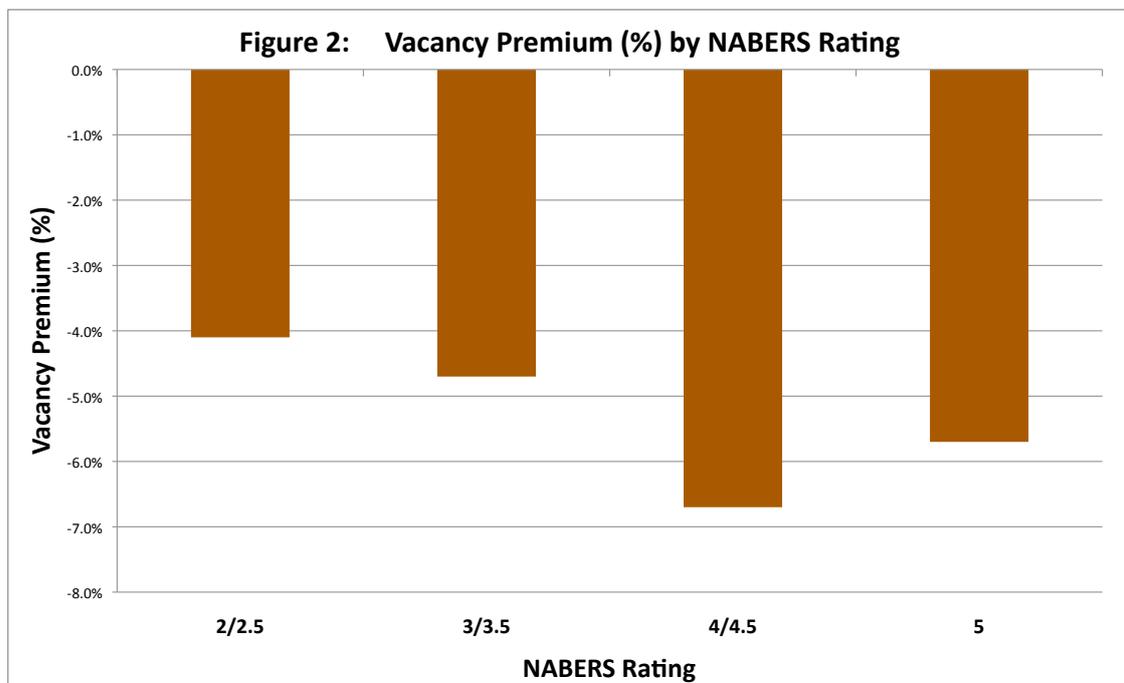


Figure 2 shows the reduced vacancy rates with increased NABERS energy rating.

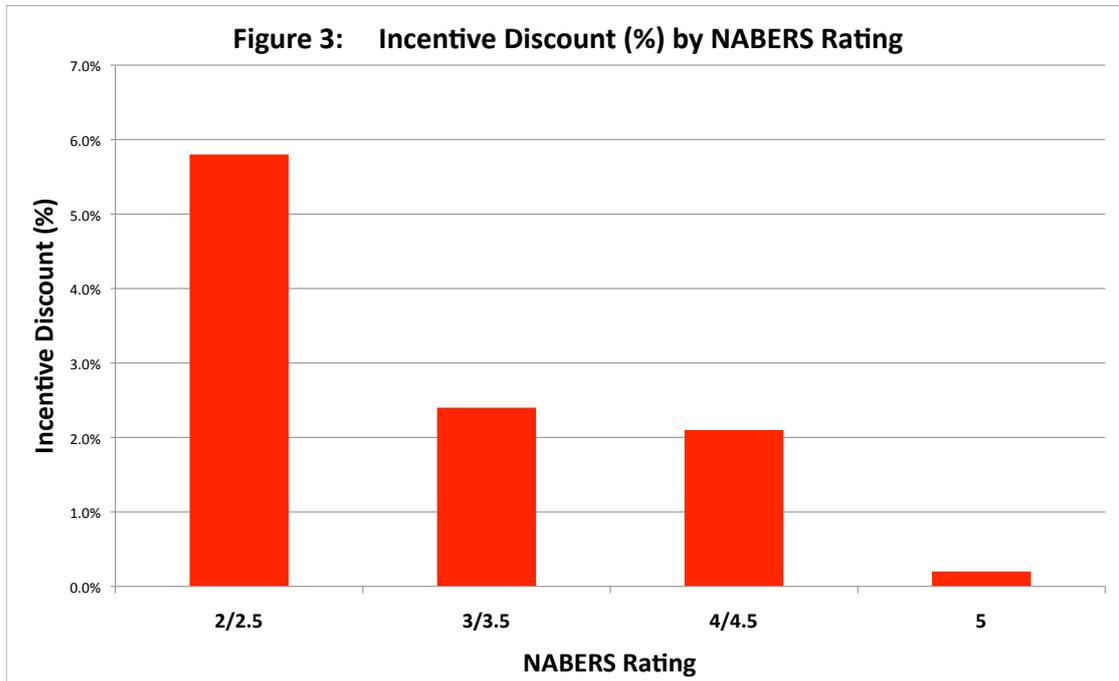


Figure 3 shows the reduced incentives with increased NABERS energy rating.

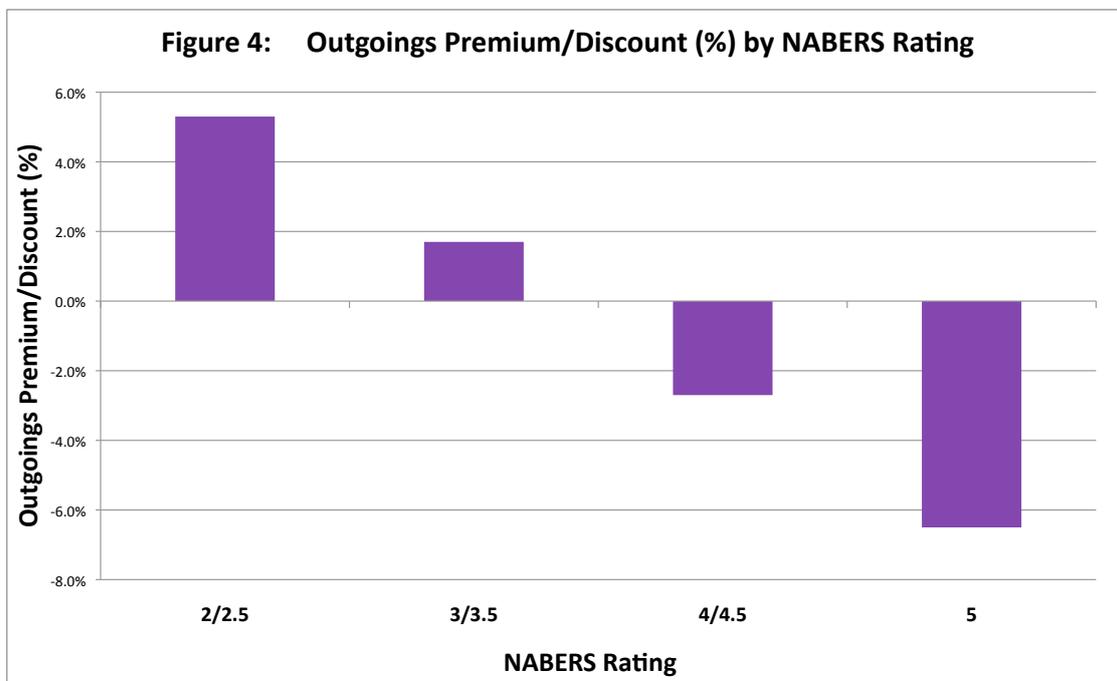


Figure 4 shows the reduced outgoings with increased NABERS energy rating.

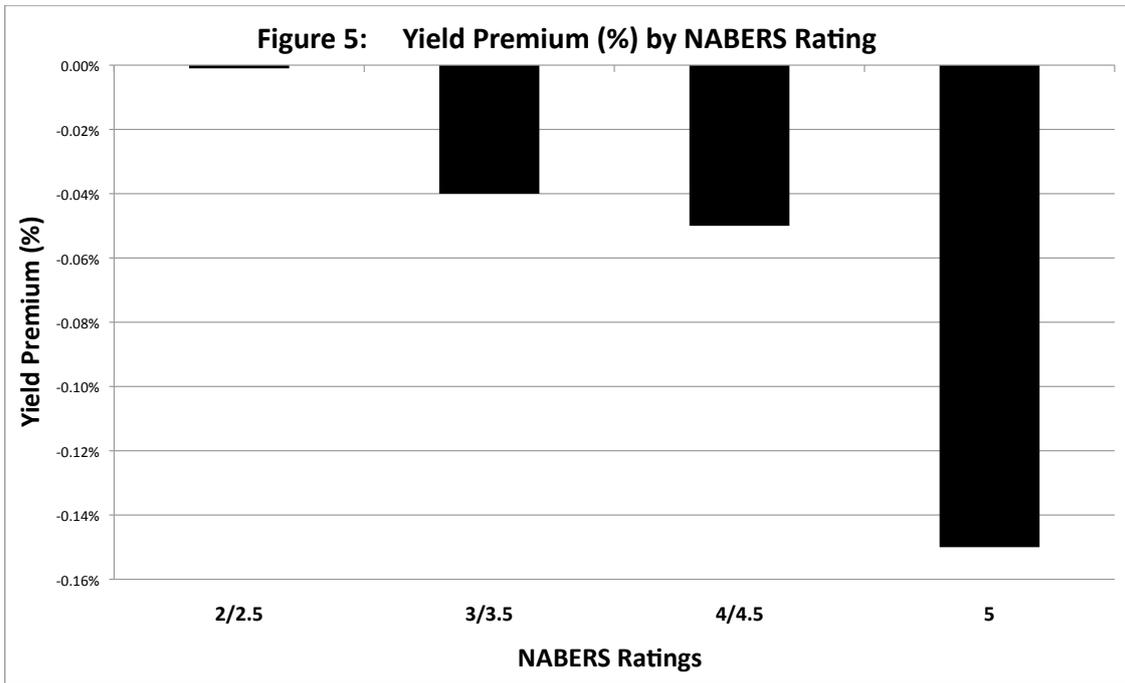


Figure 5 shows the reduced yields with increasing NABERS energy rating.

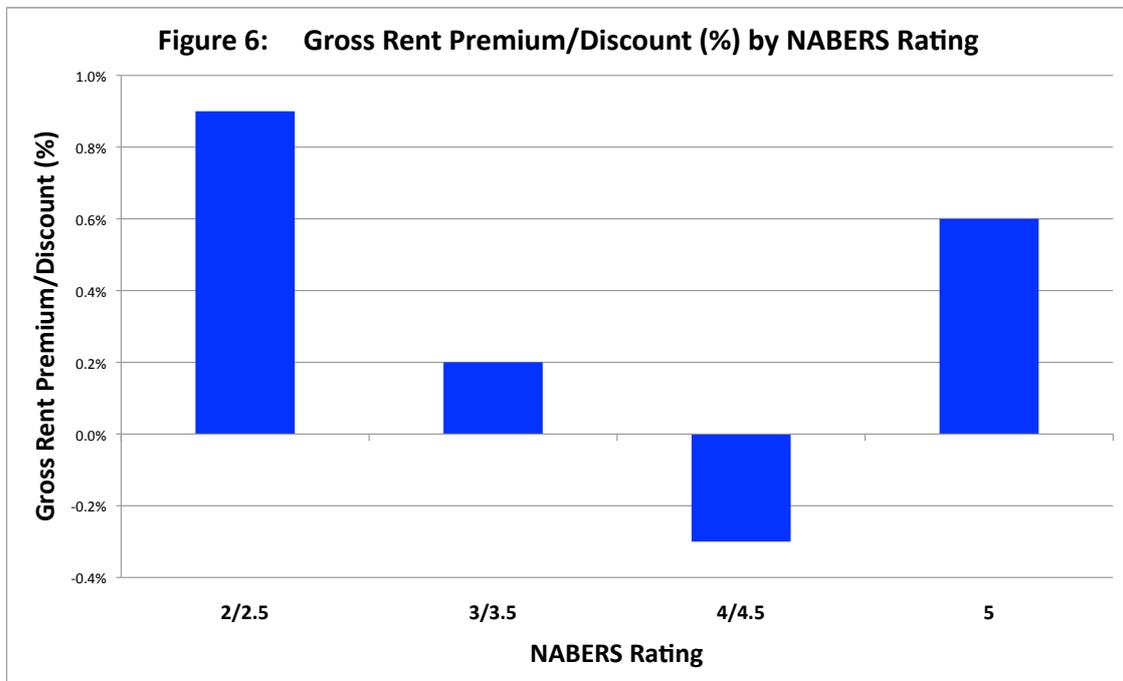


Figure 6 shows the impact of increased NABERS energy rating on gross rents.

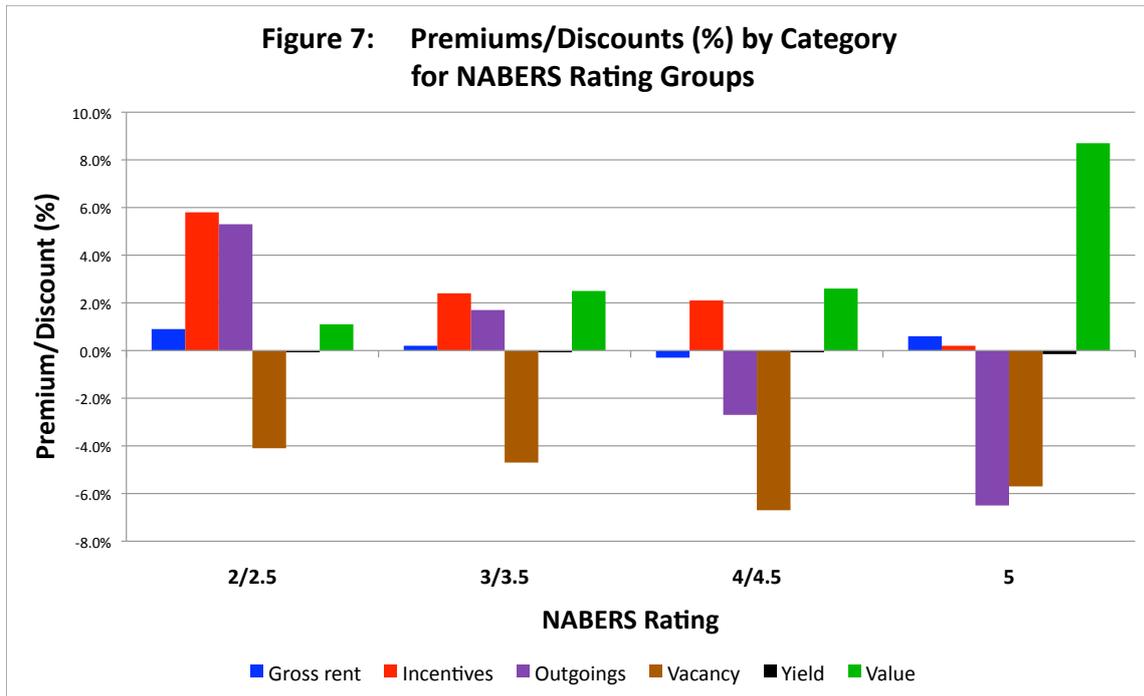


Figure 7 shows the premiums or discounts attached to the various NABERS energy ratings.

Overall, this analysis has highlighted the presence of green premiums for NABERS energy-rated office buildings. This impact is most evident in the higher NABERS energy rating categories, particularly with increased values, more so than for increased rent premiums. The significant green premiums were particularly highlighted in the NABERS 5 star energy rating, with the low NABERS energy ratings often seeing the presence of a discount to the overall office market. The impact is generally smaller than that seen in equivalent US studies (see Table 6), except at the higher level of NABERS energy rating where the green premiums are comparable to those seen in recent US green office building studies (eg: Eichholtz et al, 2010b). Importantly, based on this NABERS energy rating analysis, the consensus view is that of green premiums across a number of key property financial performance factors, particularly at the higher NABERS energy ratings. It also highlights the important issue of discounts for office buildings with low NABERS energy ratings.

5.2 NABERS energy rating: specific office market analysis

As well as the overall analysis, it is important to also assess the green office building premiums in specific office markets. This was conducted for the Sydney CBD, Sydney suburban and Canberra office markets.

Table 12 presents the analysis of green office building premiums for the Sydney CBD office market. Key features include:

1. Less evidence of green premiums is seen in the Sydney CBD office market. This largely reflects the fuller incorporation of NABERS, green buildings and the sustainability legislation in the Sydney CBD compared to benchmarking against a lesser sized comparable non-green office building portfolio (see Table 7).
2. A marginal green premium is seen in values for the higher NABERS energy categories.
3. The main green premium is seen in reduced outgoings (3.4%) for the higher NABERS energy categories.
4. The lower rated NABERS categories see a major discount in value (8.4%).

Table 12. Green office building premiums: Sydney CBD*

Panel A: NABERS energy rating

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	-3.9%	-0.2%
Value	-8.6%	4.6%
Vacancy	1.4%	-1.2%
Incentives	3.0%	2.2%
Yield	0.1%	0.0%
Outgoings	-1.1%	-3.2%

Panel B: NABERS energy rating (adjusting for area)

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	-3.9%	-1.9%
Value	-8.4%	0.3%
Vacancy	1.4%	-0.2%
Incentives	3.1%	3.1%
Yield	0.1%	0.0%
Outgoings	0.3%	-3.4%

* green premiums given are relative to the benchmark non-green office buildings

Table 13 presents the impact of a higher NABERS energy rating on the financial performance for green office buildings in the Sydney CBD office market. Key features include:

1. Evidence of green premiums in value for higher NABERS energy categories, for example over a 4% premium in values in the 5 star NABERS energy category, with discounts in the lower NABERS energy categories (eg: 10% discount in values in the lowest category of 2-2.5 stars).
2. A rental premium is seen in the 5 star NABERS energy category (3%); with a major rental discount in the lowest NABERS energy category (9%). The extent of these rental premiums and discounts for the Sydney CBD office market were more significant than those seen for the Sydney suburban and Canberra office markets.
3. An overall consistent trend of improved green premiums with increased NABERS energy ratings, particularly for values and rents. This particularly highlights the more significant green premiums seen in the 5 star NABERS energy category across the various property financial performance characteristics.

Table 13. Green office building premiums: impact of NABERS energy rating: Sydney CBD*

Panel A: NABERS energy rating

	2/2.5	3/3.5	4/4.5	5
Gross rent	-9.2%	-5.4%	1.0%	4.9%
Value	-10.4%	0.9%	6.2%	12.3%
Vacancy	-1.0%	-2.8%	-2.6%	4.8%
Incentives	6.2%	3.2%	2.7%	-0.5%
Yield	0.0%	0.0%	-0.1%	-0.2%
Outgoings	-5.2%	-4.9%	-3.1%	-4.5%

Panel B: NABERS energy rating (adjusting for area)

	2/2.5	3/3.5	4/4.5	5
Gross rent	-8.5%	-5.7%	-0.5%	2.7%
Value	-9.8%	-1.9%	2.0%	4.2%
Vacancy	-1.2%	-2.2%	-1.3%	7.3%
Incentives	6.0%	3.5%	3.5%	1.1%
Yield	0.0%	0.0%	0.0%	-0.1%
Outgoings	-2.7%	-4.5%	-3.5%	-5.3%

* green premiums given are relative to the benchmark non-green office buildings

Table 14 presents the analysis of green office building premiums for the Sydney suburban office market. Key features include:

1. A clearer separation of green premiums between the higher and lower NABERS energy categories.
2. A 3% premium in values for the higher rated NABERS energy category, compared to a 5% discount in values in the lower NABERS energy category.
3. A 3.2% green premium in rents is seen in the higher NABERS energy category.
4. Similarly, green premiums are seen for reduced vacancy and reduced yields in the higher NABERS energy category.

Table 14. Green office building premiums: Sydney suburban*

Panel A: NABERS energy rating

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	2.5%	3.5%
Value	-4.3%	4.0%
Vacancy	4.8%	-4.8%
Incentives	3.2%	0.8%
Yield	0.1%	-0.1%
Outgoings	2.4%	2.0%

Panel B: NABERS energy rating (adjusting for area)

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	2.3%	3.2%
Value	-4.7%	3.0%
Vacancy	5.2%	-3.9%
Incentives	3.5%	1.5%
Yield	0.1%	-0.1%
Outgoings	2.2%	1.5%

* green premiums given are relative to the benchmark non-green office buildings

Table 15 presents the impact of a higher NABERS energy rating on the financial performance for green office buildings in the Sydney suburban office market. Key features include:

1. Clear evidence of an increased green premium in values for the higher NABERS energy categories, for example a 8% green premium for the 5 star NABERS energy category. This was also evident in other NABERS categories to a lesser but still important degree, for example a 6% green premium in the 4/4.5 star NABERS energy category.
2. Major premiums for the higher NABERS energy categories for reduced vacancy, reduced yields and reduced outgoings.
3. Evidence of rent premiums in all of the NABERS energy categories, but being less evident at the 5 star level.

Table 15. Green office building premiums: impact of NABERS energy rating: Sydney suburban*

Panel A: NABERS energy rating

	2/2.5	3/3.5	4/4.5	5
Gross rent	3.6%	4.4%	3.7%	0.6%
Value	3.8%	4.7%	6.8%	8.7%
Vacancy	-6.0%	-3.2%	-11.3%	-9.9%
Incentives	0.2%	-1.5%	1.6%	-2.3%
Yield	0.0%	-0.1%	0.1%	-0.2%
Outgoings	3.8%	5.5%	1.5%	-3.3%

Panel B: NABERS energy rating (adjusting for area)

	2/2.5	3/3.5	4/4.5	5
Gross rent	3.4%	4.2%	3.3%	0.2%
Value	3.7%	4.2%	5.9%	7.7%
Vacancy	-5.8%	-2.7%	-10.5%	-9.1%
Incentives	0.5%	-1.1%	2.2%	-1.7%
Yield	0.0%	-0.1%	-0.1%	-0.2%
Outgoings	3.5%	5.2%	0.9%	-3.9%

* green premiums given are relative to the benchmark non-green office buildings

Table 16 presents the analysis of green office building premiums for the Canberra office market. Key features include:

1. Clear evidence of an increased green premium in values for the higher NABERS energy category, that is a 9% premium, compared to a 6% discount in values for the lower NABERS energy ratings.
2. Less evidence of a rent premium, with evidence of a rent discount in the lower NABERS energy ratings.
3. Green premiums were seen for reduced vacancy (12%) and reduced yields for the higher NABERS energy category.

Table 16. Green office building premiums: Canberra*

Panel A: NABERS energy rating

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	-3.5%	0.8%
Value	-6.6%	9.8%
Vacancy	-15.9%	-14.0%
Incentives	16.3%	-1.2%
Yield	0.5%	-0.2%
Outgoings	8.1%	5.6%

Panel B: NABERS energy rating (adjusting for area)

	NABERS rating (2.5 stars or less)	NABERS rating (3 stars or more)
Gross rent	-3.1%	0.2%
Value	-5.7%	8.7%
Vacancy	-17.8%	-11.5%
Incentives	17.2%	2.6%
Yield	0.5%	-0.1%
Outgoings	7.9%	2.4%

* green premiums given are relative to the benchmark non-green office buildings

Table 17 presents the impact of a higher NABERS energy rating on the financial performance for green office buildings in the Canberra office market. Key features include:

1. Strong evidence of a green premium in values in the top two NABERS energy categories (9% and 21% respectively) with a discount in the lower NABERS energy categories (13% discount in the 2/2.5 stars).
2. An increasing rent premium was evident with the higher NABERS energy categories (eg: a premium of 2.4% for the top NABERS energy category). Again, a discount was evident at the lower NABERS energy categories (eg: 6% discount at 2/2.5 stars).
3. Increasing premiums were seen for reduced vacancy, reduced yields and reduced outgoings in the higher NABERS energy categories.

Overall, the Canberra office market has seen clear evidence of green premiums in the top NABERS energy rating categories, particularly for values and for rents. This highlights the added value of the 5 stars NABERS energy rating and the discounts often seen for the lower NABERS energy ratings. Compared to the Sydney CBD and Sydney suburban office markets, the Canberra office market had the largest green premium in values in the 5 stars NABERS energy category and the largest discount in values for the less than 3 stars NABERS energy ratings.

Table 17. Green office building premiums: impact of NABERS energy rating: Canberra*

Panel A: NABERS energy rating

	2/2.5	3/3.5	4/4.5	5
Gross rent	-6.4%	-1.1%	1.6%	2.5%
Value	-12.6%	3.4%	10.2%	22.5%
Vacancy	-11.7%	-17.8%	-11.3%	-17.0%
Incentives	24.6%	5.4%	-5.9%	4.4%
Yield	0.7%	0.2%	-0.4%	-0.9%
Outgoings	9.7%	9.5%	3.7%	-6.1%

Panel B: NABERS energy rating (adjusted for area)

	2/2.5	3/3.5	4/4.5	5
Gross rent	-6.2%	-1.7%	1.0%	2.4%
Value	-12.5%	3.6%	8.7%	20.9%
Vacancy	-12.0%	-18.2%	-8.0%	-13.2%
Incentives	29.8%	7.1%	-0.8%	7.2%
Yield	1.0%	0.2%	-0.3%	-0.8%
Outgoings	9.3%	7.2%	0.0%	-9.6%

* green premiums given are relative to the benchmark non-green office buildings

While differences have emerged regarding the extent of the green premiums in these three office markets, the consensus view in these three office markets is the clear extra added value green premium in the 5 star NABERS energy rating category, increasing green premiums with increasing NABERS energy ratings and the presence of discounts in some of the lower NABERS energy ratings. These top end green premiums and lower end discounts in values were most evident in the Canberra office market. Similarly, these top end green premiums and lower end discounts in rents were most evident in the Sydney CBD office market.

“For the past decade, much of the Australian property market has moved towards a sustainable model of doing business, increasingly focussing on the measured performance of their portfolios. Evidence is emerging that demonstrates just how effective this has been, reflected in the recent extension of the NABERS rating scale to six stars. Ten years ago, a five star rating was considered beyond best practice and yet leaders in the property market have continued to improve and push into levels of efficiency previously not considered possible.

The property market places high importance on transparent and credible information. Research such as this makes a critical contribution to our understanding of the value industry places on building performance and the importance of NABERS ratings as the benchmark in the process. This research shows the market benefits obtained by businesses that have already shifted towards sustainability and provides direction to those who are yet to begin the journey.”

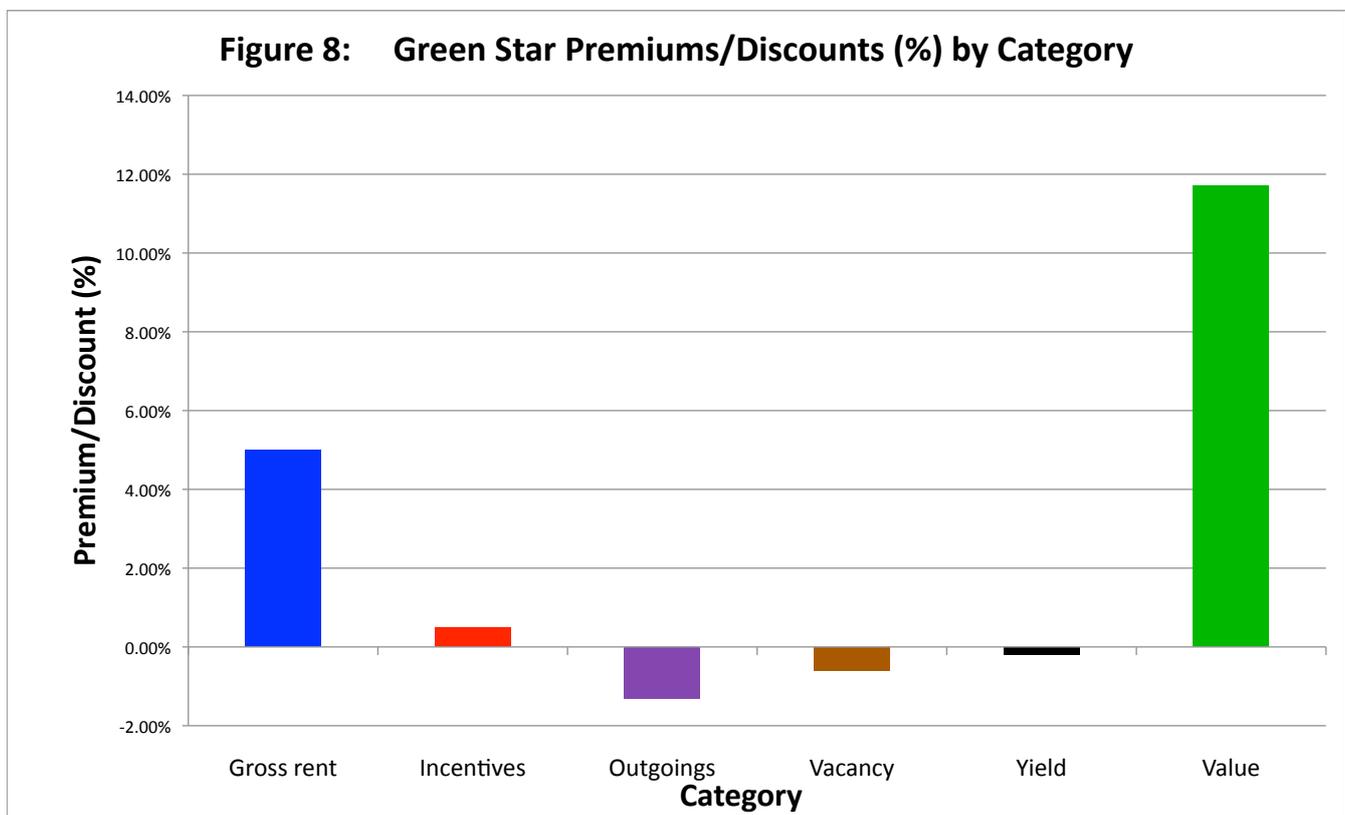
Bernard Carlon
Divisional Director Sustainability Programs
NSW Office of Environment and Heritage

5.3 Green Star rating: overall office market analysis

Table 18 presents the analysis of the green office building premiums using the Green Star rating office building portfolio. Key features include:

1. A 5% green premium in rents for Green Star rated office buildings.
2. A 12% green premium in values for Green Star rated office buildings.
3. Green premiums are also seen for reduced vacancy, reduced yields and reduced outgoings.

Figure 8 presents a summary of these various Green Star premiums.



Overall, this analysis clearly highlights the added value of the Green Star rating scheme for office buildings, seeing a 5% green premium in rents and a 12% green premium in values. These Green Star green premiums for values and rents are comparable to those seen in recent US green office building studies (eg: Eichholtz et al, 2010b). Specific Green Star analyses for the Sydney CBD, Sydney suburban and Canberra office markets were not possible due to the small number of Green Star properties available in each of these office markets.

Table 18. Green office building premiums: Green Star rating

	Green Star	Green Star (adjusting for area)
Gross rent	6.0%	5.0%
Value	13.6%	11.7%
Vacancy	-1.3%	-0.6%
Incentives	-1.1%	0.5%
Yield	-0.3%	-0.2%
Outgoings	-0.2%	-1.3%

“The global green building market is evolving at a rapid rate. More than half of the world’s construction firms predict they’ll be fully committed to green building by 2013 – up 37 per cent in a decade. In Australia, the body of evidence confirming the financial, social and environmental benefits of greening our built environment continues to grow. The direct economic benefits of green building include reductions in energy and water costs and higher returns on investment. When combined with indirect benefits such as increased productivity and reputational equity, staff acquisition and retention and decreased absenteeism, green buildings clearly deliver a ‘triple bottom line’ benefit. Rating tools such as Green Star and NABERS have been instrumental in driving the shift to sustainability. With the right policies and supporting programs, green buildings in Australia have the potential to reduce the nation’s carbon footprint while creating jobs and improving the productivity, health and wellbeing of all Australians.”

Romilly Madew
Chief Executive
Green Building Council of Australia

5.4 Summary of analysis of green office buildings

In summary, the key findings from these green office building analyses are:

1. A green premium in values for office buildings was evident for the NABERS energy rating. This saw the 5 star NABERS energy rating delivering a 9% green premium in value and the 3-4.5 star NABERS energy ratings delivering a 2-3% green premium in value.
2. A clear link between enhanced green premiums in values with the higher rated NABERS energy rating categories.
3. Green premiums in values differed in specific office markets; being most evident in the Sydney suburban office market (8% green premium) and the Canberra office market (21% green premium) in the 5 star NABERS energy rating category. This compares with the lesser impact in values in the Sydney CBD office market (4% green premium).
4. Evidence of major discounts in values in the lower NABERS energy rating categories (less than 3 stars) for the Sydney CBD (10% discount in value) and Canberra (13% discount in value).
5. In the 5 star NABERS energy rating, the Canberra office market showed the largest green premium in value (21%), as well as the largest discount in value (13%) in the lowest NABERS energy ratings.
6. The Green Star rating showed a green premium in values of 12%.
7. Lesser impact was seen in the green premiums in rents for the NABERS energy ratings, with a 5% green premium in rents evident for the Green Star rating.
8. Major discounts in rents were evident in the lower NABERS energy ratings for the Sydney CBD (9% discount in rents) and Canberra (6% discount in rents).
9. In the 5 star NABERS energy rating, the Sydney CBD office market showed the largest green premium in rents (3%), as well as the largest discount in rents (9%) in the lowest NABERS energy rating category.
10. Green premiums were also evident in reduced vacancy, reduced outgoings, reduced incentives and reduced yields; particularly at the higher rated NABERS energy categories.
11. These office market green premiums in values and rents for Green Star and the top 5 star NABERS energy rating are generally comparable to that seen in recent US green building studies (eg: Eichholtz et al, 2010b).

Overall, the results clearly show the added value premium of the 5 star NABERS energy rating and the Green Star rating, as well as the discounts often seen for the lower NABERS energy ratings.

6. Property Industry Implications and Challenges

This report has clearly highlighted the added value of green office buildings in Australia, and the differences in property financial performance green premiums across the NABERS energy rating and Green Star rating categories. This was particularly evident in the substantial green premium in values in the higher NABERS and Green Star categories, as well as across most of the other property performance parameters assessed, with differences in green premiums seen between the Sydney CBD, Sydney suburban and Canberra office markets. The extra added value of the top NABERS energy rating (5 star) and the Green Star rating was clearly evident in most green premium analyses, as was the presence of discounts in the lower NABERS energy ratings.

Given the continued significance and importance of sustainability in the property industry, future challenges for the property industry in this key area include:

- The need to see green office building priorities more fully extended to existing office buildings via retrofit strategies - this will see a more comprehensive green office buildings agenda across both new office buildings and existing office buildings.
- The need to assess other key Australian office markets (eg: Melbourne) and introduce cost data for a fuller business case assessment of the amount of investment needed to produce these green premiums.
- The need for valuers to fully understand sustainability issues when valuing green office buildings. This particularly presents an opportunity for the API to provide strong industry guidance to valuers in this area via practice standards and guidance notes for the valuation of green office buildings.
- The need for improved sustainability data in property databases - this is a key ingredient for the rigorous identification of green premiums for office buildings.
- The need for ongoing analysis of green office buildings on a regular basis to assess the ongoing impact. This is essential to ensure up-to-date analyses are done; particularly as more green office buildings come on-line via NABERS and Green Star ratings.
- The need for ongoing active promotion of green office buildings by the API, PFA, Property Council of Australia (PCA), Royal Institution of Chartered Surveyors (RICS) and Urban Development Institute of Australia (UDIA) - this should be a key ingredient in their professional mandates to ensure the property industry and their members are up-to-date with this increasingly important area. For example, expanded sustainability websites and relevant links are essential; both at a local and international level.
- The need to assess whether these green premiums will soon reflect office market norms, subsequently resulting in discounts for non-green office buildings. This will soon see green office buildings as the benchmark market rather than non-green office buildings. This feature has already become evident in some of the analyses in this report.

Final comment

Green office buildings are a key element in the office property landscapes in Australia, supported strongly by all stakeholders in the sustainability agenda.

This research has been the first key step in trying to explicitly articulate and assess the premium attached to green office buildings in Australia in a rigorous manner, using internationally-accepted methodologies. The results are very positive and also identify significant opportunities for further research into this increasingly important area.

The research team would like to commend the API and PFA for driving and leading this important property research agenda of sustainability. Also, for the strong support from Jones Lang LaSalle and CBRE in providing the property-specific information and the Office of Environment and Heritage and the Green Building Council of Australia for the green office building rating information.

Overall, this project has been an excellent example of a high level of positive cooperation between all stakeholders, pooling their high quality corporate resources to enable the full and rigorous assessment of the financial performance of green office buildings in Australia.

“With the business case for green commercial buildings now deeply rooted in a growing body of evidence, it should be crystal clear to property investors that there are significant performance gains to be made from competitively pricing green assets, and by the same token, a unique opportunity to be in the driving seat of the current shift to a low-carbon and resource-efficient economy.”

Paul Clements-Hunt

Head of United Nations Environment Programme Finance Initiative

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Key Websites

The following websites have key information and reports regarding sustainability and green office buildings in Australia:

National Australian Built Environment Rating Scheme (NABERS): www.nabers.com.au

Green Building Council of Australia (GBCA): www.gbca.org.au

Australian Property Institute (API): www.nsw.api.org.au

Property Funds Association of Australia (PFA): www.propertyfunds.org.au

Jones Lang LaSalle: www.joneslanglasalle.com.au

CBRE: www.cbre.com.au

Investment Property Databank (IPD): www.ipd.com

Property Council of Australia (PCA): www.propertyoz.com.au

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All of the above groups provided essential data and support to ensure a comprehensive empirical analysis of the financial performance of green office buildings in Australia. This is the first such rigorous analysis concerning green office buildings in Australia and is expected to be the catalyst of further significant research into this key area of sustainability for the ongoing benefit of the Australian property industry.



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