

## Who needs a Green Star?

Clive M J Warren  
UQ Business School  
The University of Queensland  
Brisbane QLD 4072 Australia  
email c.warren@uq.edu.au

### Abstract

The market for sustainable buildings is growing, albeit from a slow start, as awareness of the consequences of climate change begin to influence the corporate decision makers seeking new office accommodation. Research has shown that a circle of blame has prevailed in recent times resulting in few sustainable buildings being developed. The recent growth of the Green Star and NABERS rating schemes is testament to the need to establish market recognisable measures of environmentally sustainable development (ESD) against which developers, occupiers, and owners can benchmark their sustainability credentials. The developer's and owner's dilemma that has emerged from the uncertainty as to what a sustainable building is, has been one of; can I afford the added cost of ESD or, more particularly, can I afford not to build ESD? A more precise question that is being asked is how many green stars do I actually need?

This paper will examine the growth of the rating systems in Australia and the issues facing developers, owners and valuers in establishing the viability of ESD. It will also explore the occupiers' / corporate real estate perspective looking at workplace and triple bottom line performance as well as issues relating to green leases in ESD premises.

### Keywords

Sustainable development, Green Star, valuation, Australia.

### Introduction

The world has changed over the past decade with an ever increasing recognition that we can no longer continue to use natural resources without facing environmental consequences. Business and the property industry has been slow to react to this changing view of the world, even though there has been awareness of the growing environmental consequences of our actions since the Industrial Revolution. As Engles (1876, p. 5) at the time pointed out; *'Let us not, however, flatter ourselves overmuch on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory, it is true, in the first place brings about the results we expected, but in the second and third places it has quite different, unforeseen effects which only too often cancel the first.'* So in the twenty first century we must address the consequences of our past actions. We face a world in which the potential effects of climate change are very significant: *'The future of our economy and way of life, the future of our farmlands, our rich tourist areas, from our cities to Australia's Antarctic Territory, are at risk, for simply put, the consequences of climate change inaction are potentially devastating'* (Garrett 2008).

The single minded pursuit of short term profitability by business and the development industry, with a 'couldn't care less' approach to the environment, can no longer be justified, the cancer like ideology

of unlimited and unending growth can no longer be sustained (Dunphy, Griffiths & Benn 2007, p. 5). The property industry has reacted to the changing environment with a rapid growth in the recognition that as stewards of the built environment environmentally sustainable development must be embraced. What constitutes a sustainable development, however, has been a challenge which this paper seeks to address.

There has been much debate as to what the word 'sustainability' actually means with, at last count, over 500 definitions which has led to much confusion (Phillips 2003). The widely accepted definition of sustainability is that proffered in the Brundtland Report which states; *'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'* (Brundtland Commission 1987). This simple shortened definition taken from a wide ranging report has in some author's view been unhelpful, leading to vagueness about the concept of sustainable development. Indeed the all encompassing character of the word has rendered 'it virtually ineffectual as its meaning has seemingly grown to include almost everything' (Phillips 2003).

The Brundtland Commission Report became a catalyst for change and its definition of sustainability was endorsed by the 1992 UN Earth Summit in Rio which culminated in the global agreement within the Rio Declaration and Agenda 21 requiring all member states to develop a national sustainability development strategy (UN 1992). The practical application of these stated sustainability objectives has been a particular challenge for the development industry, resulting in what has widely been reported as a 'circle of blame' leading to a lack of a business case for sustainable development (Ellison & Sayce 2007; RICS 2008). The blame centres around a perception by developers and owners that the market does not value the extra costs and risk associated with building a sustainable property. There is, however, willingness by occupiers and owners to move toward the occupation of sustainable buildings, and indeed studies have shown a preparedness by occupiers to pay a premium for such buildings, while State and Federal Governments have set mandatory sustainability requirements for the commercial space that they occupy. The financial dilemma facing developers is, as always, one of risk and return. Developers and some research points to a reduced risk in developing sustainable buildings based on the notion that, due to demand and increasing awareness of climate change, sustainable buildings will more readily attract and retain tenants and thus reduce the development risk. In addition good sustainable design can result in significant long term reductions in operating costs, all for a modest increase in development costs of 0%-2% (Green Building Council of Australia 2006, p. 48) or 0%-3% (Miller, Spivey & Florence 2009).

The 'circle of blame' in delivering financially viable sustainable development has led to much criticism of the valuation profession, citing the backward looking, traditional valuation approach as the root cause for these discrepancies, rather than any market based cause for the imbalance (Green Building Council of Australia 2008c; Lorenz, Truck & Lutzkendorf 2007). Others identify the cause of the circle of blame and the lack of a clear financial benefit to sustainable development on the absence of hard market comparable evidence to support any enhancement in value (Ellison & Sayce 2007; Levy & De Francesco 2008). There are a number of possible causes for this lack of market direction. Firstly, the limited size of the market, coupled with the current global financial crisis, makes it very difficult to identify any value aspects that can be directly attributed to sustainable building. The highly variable additional costs of sustainable development and the range of potential operating cost savings also make it difficult to identify specific value elements within individual buildings (Miller, Spivey & Florence 2009). The one aspect which becomes clear as a possible cause for this lack of market direction is the fact that the; *'...market has not found a reliable, mutually acceptable way of identifying sustainability within the existing building stock. Lacking such a basic pre-requisite for developing an understanding of value risk or return that might be attached to*

*sustainability means the sector stumbles at the first hurdle in trying to engage with the sustainability debate.*' (Ellison & Sayce 2007).

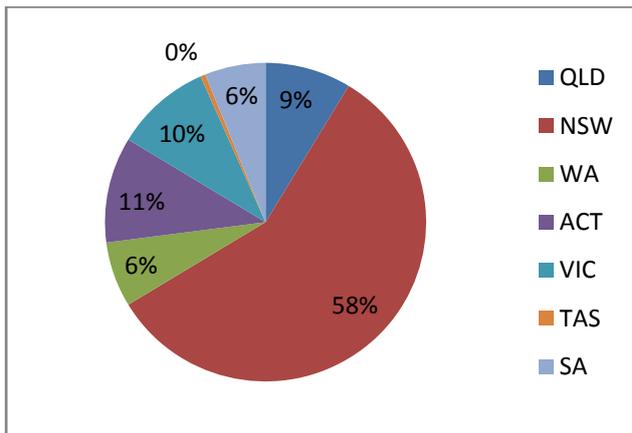
There have, over the past decade, been a plethora of sustainability assessment tools developed around the world, each of which seeks to assess a property development against a range of 'sustainability criteria'. These tools have been developed by governments and private organisations, both those established by the industry on a not-for-profit basis and those seeking to establish commercial measures of sustainability. Internationally the tools most widely recognised include BREEAM in the UK and the LEED in the USA. In an Australian context there are a range of measures commonly applied to new and existing developments. These measures range from those which focus just on building energy, such as the Australian Building Greenhouse Rating tool (ABGR) which has been recently rebadged as NABERS (energy), to those which seek to provide a more holistic approach, such as the National Australian Built Environment Rating System (NABERS), a tool developed by government to assess the environmental impact of existing buildings, and the Green Building Council of Australia Green Star rating tools for new and refurbished buildings. Each of the rating tools seeks to measure different criteria in order to award a star rating. The number of available stars varies between the schemes, with NABERS awarding up to five stars and the Green Building Council six stars. The assessment criteria include the obvious energy consumption measures but also incorporate a range of other metrics from the size of car parking spaces to the level of waste recycling. A detailed tabulated analysis of the metrics used is provided in Levy & De Francesco (2008).

### **Star Rating Analysis**

Some insight into the confusion caused by multiple sustainable building rating systems can be gained by taking a closer look at the data available on the buildings within Australia that have achieved either a NABERS, or former ABGR, rating and those with a Green Star rating from the Green Building Council. Each of these rating schemes has been expanded over recent years to incorporate a wider range of property types, including inter alia retail, education, hotels and fit-outs. The initial focus of these rating schemes and this paper, however, is in the measurement of commercial office property and so analysis of the data is restricted to that published by the relevant organisations in relation to office premises.

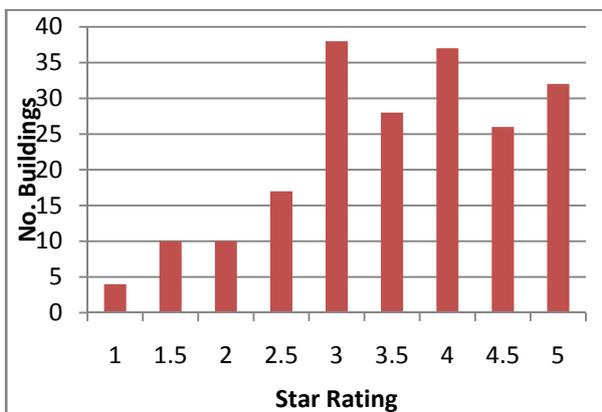
The NABERS scheme is administered by the NSW Government and it is, therefore, not surprising to find that over half (55%) of the buildings that have been assessed are located in NSW. The rating scheme applies to existing buildings and measures energy, water, indoor environment and waste against a series of benchmark criteria. While the scheme has been running for several years, the total number of office buildings reported as having achieved a NABERS rating is only 208. The distribution of these offices is not typical of the general office market as 113, or 56%, are located in NSW and a further 21, or 10.5%, are in the ACT, thus showing the strong NSW and public sector bias in the buildings assessed. The distribution of NABERS rated offices throughout Australia is shown in Figure 1 below.

**Figure 1 NABERS Rated Office Buildings**

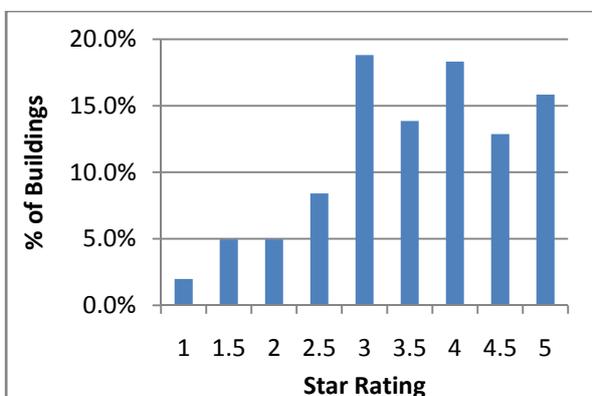


The NABERS rating tool incorporates the energy rating scheme operated by the Australian Building Greenhouse Rating (ABGR) and, thus, the majority of buildings are rated with respect to energy. Indeed of the 208 buildings rated, 202 have achieved an energy star rating. This figure contrasts with those achieving a water use star rating, which only comprises 128 buildings. In all but 6 cases, buildings with water star ratings also have an energy rating, while 37% of those buildings with an energy rating do not also hold a water rating. The distribution of the star ratings is shown in Figure 2 and Figure 3 below, both in terms of building numbers and their percentage of the total buildings in the scheme.

**Figure 2 Number of Buildings with Energy Star Rating**



**Figure 3 Percentage of Buildings with Energy Star Rating**

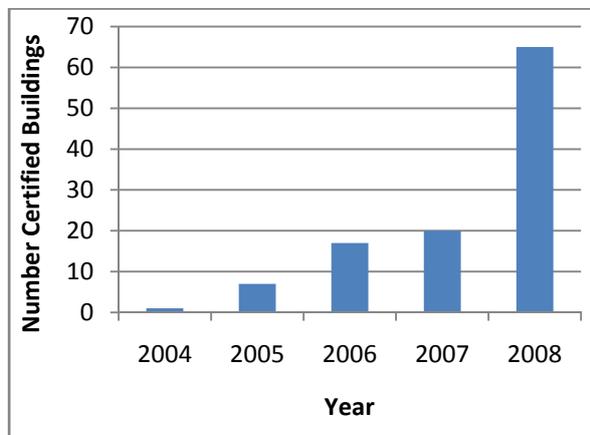


It can be seen from this data analysis that nearly half, 47%, of all buildings assessed have achieved a four star rating or higher, while only 22% of those measured achieved a 4 star or above water rating.

Analysis of the published star rated buildings under the Green Building Council of Australia's tool also provides some interesting insight into the operation of these rating tools. The data analysis is restricted to those buildings which allow the rating to be publically noted, however, given the financial benefits associated with achieving a star rating, it is unlikely that many owners or developers would not want to maximise the positive publicity flowing from achieving a star rating.

The Green Building Council of Australia commenced its office rating tool in 2004 and has experienced considerable growth in demand from developers and owners to rate their new developments. While there has been considerable growth, the total number of certified buildings is still just 109, from just one certified building in 2004, the number has increased to 65 receiving a rating in 2008. The steep increase in the number of rated buildings is illustrated in Figure 4 below. The total number of certified buildings includes 14 from categories other than offices and, therefore, only 95 office projects are currently certified (Green Building Council of Australia 2008b).

**Figure 4 Green Star Certified Buildings**



The reported total number of certified properties does, however, hide one important statistic which is only revealed by detailed scrutiny of the listed projects. The number of buildings which have received a star rating for 'as built' is very much lower than those seeking a Green Star rating by design. The difference in figures and the distribution by state is shown in Table 1. This reveals that only eight buildings, (8.5%), out of the 95 currently certified are 'As Built', while 87, or 91.5%, are evaluated on a design basis.

**Table 1 Green Star Certified Office Buildings**

| State / Star Rating | Office Design |           |           | Office As Built |          |          |
|---------------------|---------------|-----------|-----------|-----------------|----------|----------|
|                     | 4             | 5         | 6         | 4               | 5        | 6        |
| VIC                 | 5             | 16        | 3         |                 |          |          |
| NSW                 | 8             | 6         | 3         |                 | 3        |          |
| SA                  | 2             | 7         | 1         | 2               | 2        |          |
| QLD                 | 10            | 10        | 2         |                 | 1        |          |
| ACT                 | 2             | 2         | 1         |                 |          |          |
| TAS                 | 1             | 1         | 0         |                 |          |          |
| NT                  | 0             | 0         | 0         |                 |          |          |
| WA                  | 4             | 2         | 1         |                 |          |          |
| <b>Total</b>        | <b>32</b>     | <b>44</b> | <b>11</b> | <b>2</b>        | <b>6</b> | <b>0</b> |

The developer's choice to pursue a design rating has obvious benefits as it allows for buildings to be marketed as having achieved a Green Star rating before construction is commenced, thus attracting tenants seeking to occupy sustainable buildings. This ability to rate a building by design is not available in other rating systems either in Australia or within the LEED or BREEAM tools in the UK and USA. The importance of marketing green building credentials early in the development process is recognised by the Green Building Council in that they strictly regulate the use of the Green Star rating, only allowing buildings seeking certification to identify themselves as 'registered to achieve a Green Star rating' before actually obtaining a registration (Green Building Council of Australia 2008a, p. 44). The value of free publicity developers achieve as a result of the Green Star certification process was estimated to be in the region of \$1.1 million in 2008 (Green Building Council of Australia 2008a, p. 46). Thus it is clear that this rating tool has a significant part to play in the marketing of new buildings.

The low level of buildings seeking 'As Built' Certification, either following on from a Design Rating or as a standalone rating, as indicated above is only 8.5% of the total certified buildings and is perhaps indicative of the importance placed on the actual performance of a building over its design performance.

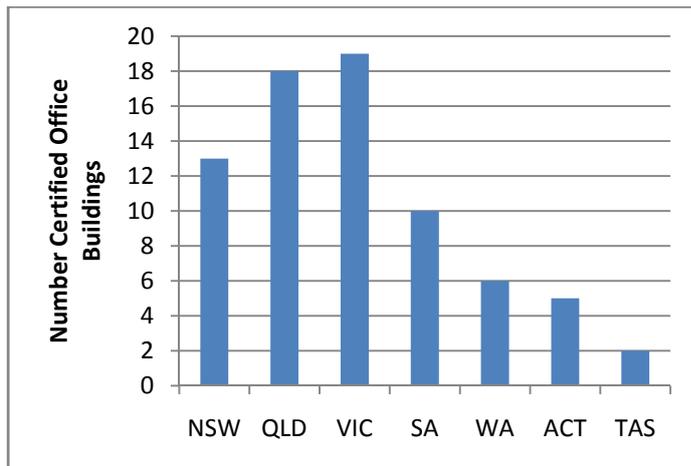
Analysis of the seventy three certified office buildings for which information is publically available from the Green Building Council provides some interesting insight into the nature of the certification process. The certification process awards Green Star rating categories of 4 Star Best Practice, 5 Star Australian Excellence and 6 Star World Leader. The breakup of the current building ratings is shown in Figure 5 and illustrates that half of the certified buildings have achieved a five star certification of Australian Excellence.

**Figure 5 Green Star Ratings - Office Buildings**



The distribution of certified buildings throughout the states is shown in Figure 6, which indicates a reasonable spread across all states. Of the six star buildings there are two in each of QLD and NSW with three in Vic and one each in ACT and SA, again showing a reasonable spread of world leading sustainable buildings throughout Australia. There is, perhaps not surprisingly, among the certified buildings a large number of owner occupied buildings, perhaps reflecting the longer term nature of owner occupation and the ability to benefit from any additional costs of construction over a period of time. Similarly 17, or 23%, of the Green Star rated buildings are owned and occupied by public sector agencies reflecting the leadership role which governments in Australia are taking in promoting the development of sustainable buildings.

Figure 6 Green Star Ratings - by State



One issue which arises regarding the recognition of buildings as being excellent or world leading is that the world moves on and what was perceived as innovative and world leading yesterday soon becomes the norm. To address this issue, the Green Building Council continually monitors its rating process and, in order to maintain a ‘world leading’ status, periodically revises its rating tools for buildings. Currently the most recent release office rating tool is version three, which was introduced in late 2008. Obviously given the time required to prepare a submission and to achieve a Green Star certification, there are currently no version three certified buildings included in the published data. Of the certified buildings, 19% achieved their rating under version one of the tool and 80% under version two. While this updating process maintains a high standard and a mark of quality for the Green Building Council, it does raise the question for investors and valuers as to how to differentiate between the value of four, five or six stars, and how does this differ from version one through to version three and potentially beyond?

The total net lettable area calculated from the published building data equates to approximately 830,000 m<sup>2</sup> which, based on an estimated CBD office stock of circa 17.6 million square meters, equates to 4.6% of the office stock (Warren 2004). This indicates that a reasonably high proportion of all new buildings are now seeking to achieve a Green Star rating. With current CBD office stock additions ranging from plus 1.6% in Brisbane in 2008 to minus 1.5% in Sydney, a figure which reflects the number of buildings being withdrawn from the market for refurbishment (Colliers International 2008), the time it will take for Green Star rated buildings to be the norm in the market, rather than the exception, is still relatively long. Although with historically low vacancies and, until the credit crunch, an office market in Australia which was booming, the incentives for developers to build sustainable buildings is greater than ever before. Similarly the recognition by investors that existing buildings that lack the energy saving and other sustainable attributes of Green Star rated buildings will more rapidly become obsolete is leading the push to undertake major refurbishments to upgrade existing stock to meet the sustainability and efficiency demands of the market.

### Who needs a Green Star

So, what can be concluded from the analysis of the sustainable building rating tools currently utilised in Australia and the views of the valuation profession? What is evident is that there are a number of tools available and that these tools are rapidly developing as the market matures. The merging of

ABGR and NABERS to form a single tool is perhaps a positive move in reducing the number of tools, but even as this occurs, new players enter the market.

In conclusion it can be seen that our office market has come a long way in a few years and has embraced the sustainable building agenda. The ongoing development of tools to evaluate and promote sustainable buildings is a very important element in the process of deciding who needs a green star. The first movers in clearly identifying a need for a star rating system has been the developers, in order to add a marketing edge to their new developments.

There is considerable ongoing debate relating to the valuation profession and recognition of ESD buildings and the added value associated with those building. Considerable research is required to identify the the methods of valuation being used and the reasons that value is not being expressed in ESD building. It is clear from the data on accredited buildings that there are few direct comparable buildings that have achieved an 'As Built' rating and this is likely to be one factor in the limited added value associated with these rating tools.

The market has, however, moved on considerably and larger corporations and governments have embraced their corporate social responsibilities and increasingly demand sustainable building, thus seeking a green star rating before investing in a new building or entering into a lease to occupy a building. Finally there is a growing awareness among corporate real estate managers that building occupiers, the employees, are becoming much more aware of their work environment in which they work and are lobbying employers for more sustainable workplaces, a demand many are happy to meet given the increased levels of productivity widely associated with environmentally sustainable building.

So in short we all need a green star; developers, investors, occupiers and employees. What needs to be addressed now is the circle of blame discussed above and a move made toward a greater body of research which develops robust measures of sustainable buildings that are designed, built and operated to achieve the sustainability objectives of all parties. These measures need to provide an open and clear demonstration of the buildings credentials such that investors and valuers can take full cognisance of the decreased risk profile that such buildings are clearly capable of achieving.

## References

- Brundtland Commission 1987, *Report of the World Commission on Environment and Development: Our Common Future*, Transmitted to the General Assembly as an Annex to document A/42/427 - Development and International Co-operation: Environment, UN General Assembly.
- Colliers International 2008, *Market Indicators Report - Autumn 2008*, Sydney.
- Dunphy, D, Griffiths, A & Benn, S 2007, *Organizational change for corporate sustainability - A guide for leaders and change agents of the future*, 2 edn, Routledge, Abingdon.
- Ellison, L & Sayce, S 2007, 'Assessing sustainability in the existing commercial property stock', *Property Management*, vol. 25, no. 3, pp. 287-304.
- Engles, F 1876, *The Part Played by Labor in the Transition from Ape to Man*
- Garrett, P 2008, *Speech to the Appropriate Technology Retailers Association of Australia, Melbourne, Aug 2008 by Hon Peter Garrett Minister for the Environment*, .
- Green Building Council of Australia 2006, *The dollars and sense of green buildings 2006*, GBCA, Sydney.
- 2008a, *The dollars and sense of green buildings 2008*, GBCA, Sydney.
- 2008b, 'Green Star Certified Projects', viewed Jan 2008, <<http://www.gbca.org.au/green-star/certified-projects/>>.
- 2008c, *Valuing Green - How green buildings affect property values and getting the valuation method right.*, Sydney.

- Levy, D & De Francesco, A 2008, 'The impact of sustainability on the investment environment: A case study of Australia', *FiBRE - Findings in the Built and Rural Environment*.
- Lorenz, D, Truck, S & Lutzkendorf, T 2007, 'Exploring the relationship between the sustainability of construction and market value; Theoretical basics and initial empirical results from the residential property sector', *Property Management*, vol. 25, no. 2, pp. 119-49.
- Miller, N, Spivey, J & Florence, A 2009, 'Does Green Pay Off', Preliminary draft paper for ARES 2009 unpublished'.
- Phillips, C 2003, *Sustainable Place*, Wiley-Academic, UK.
- RICS 2008, *Breaking the Vicious Circle of Blame – Making the Business Case for Sustainable Buildings*, <<http://www.rics.org/NR/rdonlyres/BDE6C481-B03A-4D47-8F13-D9199772431C/0/BreakingtheViciousCircleofBlameRICSFibre.pdf>>.
- UN 1992, 'Earth Summit - Agenda 21', viewed Jan 2009, <<http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21chapter10.htm>>.
- Warren, CMJ 2004, 'Wasted opportunities - corporate property investment in Australia', paper presented to Asian Real Estate Society, New Delhi, 8-13 August 2004.