SUBMISSION TO THE
SENATE STANDING COMMITTEE ON ENVIRONMENT, COMMUNICATIONS & THE ARTS INQUIRY INTO

The provisions of the
Building Energy Efficiency Disclosure Bill 2010

prepared by:

Lend Lease Corporation
WSP Lincolne Scott
Built Ecology

April 2010

Contents

1. Introduction

This submission has been prepared jointly by Lend Lease Corporation, WSP Lincolne Scott and Built Ecology ('the Respondents') in response to the Inquiry by the Senate Standing Committee on Environment, Communication and the Arts into the provisions of the Building Energy Efficiency Disclosure Bill 2010 ('the Bill').

2. Executive Summary

The Respondents strongly support the Government's aim of ensuring the availability of credible and meaningful energy efficiency information about non-residential buildings.

We believe Australia should be at the forefront of global action to mitigate greenhouse gas emissions from the built environment.

A robust disclosure scheme should establish a set of credible and meaningful year-on-year energy performance data by building type and urban centre, that will complement existing policies and schemes, improve market information, and inform future policymaking. It should be a simple, fair, efficient Scheme. Ultimately, it should provide a meaningful incentive for businesses to operate buildings efficiently and help to transition the market to a low carbon future.

However the Building Energy Efficiency Disclosure Bill 2010 fails on all of the above criteria, because of its proposed "methods and standards of assessment", which were recommended by the Regulation Impact Statement. As such, the Bill does not represent leading policy and does not place Australia at the forefront.

We have seven primary concerns about the Bill as it stands:

- **Lack of credible data.** The 'methods and standards of assessment' fail to report accurate greenhouse gas emissions, the rating is significantly impacted by tenant operation and behaviour, and 'climate corrections' and therefore provide ratings that are heavily normalised. This results in a high risk of assessments that unfairly reward or disadvantage those obliged by the scheme.;

- **No meaningful market intelligence.** By failing to provide credible data, and by failing to provide any aggregation of reporting or analytics, the Bill will fail to provide any meaningful market information, such as a national comparative database of average consumption.;

- **Potential confusion of key audience.** The significant differences in ratings between states, through normalised correction of building use factors and due to the strong subjective influence of assessors have the potential to confuse and mislead the market.;

- **Expensive & administratively cumbersome.** The reliance on assessment by accredited assessors, and the need therefore to recruit, train, register and audit assessors, makes it expensive and administratively cumbersome.;

- **No complementarity.** The nature of disclosure and record-keeping proposed by the Bill does not provide any opportunity to collect credible and meaningful information either for existing policies and schemes, including the National Greenhouse and Energy Reporting Scheme (NGERS) and the Energy Efficiency Opportunities (EEO) program, for market information or for the benefit of future policy making.;

- **Built-in obsolescence.** By failing to set a framework for the presentation of data in a format that would be compatible with future carbon trading or tradable energy certificate schemes, the Bill proposes a scheme that falls short of best practice and therefore represents a missed opportunity.; and

- **Inappropriate governance structure.** While the scheme and its metrics are both Federal Government initiatives, the fact that the metrics are administered by a single State Government (NSW) makes its inappropriate for national use.

In summary, the Bill will introduce an expensive, technically flawed scheme that will not provide 'credible and meaningful information', nor complement existing policies and schemes, nor improve market information, nor inform future policymaking. As such, it will fail to provide a meaningful incentive for businesses to operate buildings efficiently and help to transition the market to a low carbon future.

The Bill as presented is significantly compromised in seeking to use operational rating tools that have not been enhanced technically since 1999. A legislative mechanism of this significance should be designed for greater efficacy and provide better value to those obliged, the government and industry as a whole, by complementing other legislation such as NGERS and attaining compatibility with international reporting standards for greenhouse gas emissions. We argue that the Bill should describe the rules and process, not a proprietary tool. The current proposal is akin to Tax law requiring the use of a certain accounting software package rather than describing the rules by which someone can calculate their liability under the law.

A simple, inexpensive methodology is required that ensures data is collected in the simplest and most useful way, and discloses transparent, undistorted, nationally consistent and useful information to be used across all current legislative requirements be they market disclosure, corporate and sector reporting, or a monitoring and verification protocol for providing a cost of carbon or allocation of funding to the sector for carbon abatement. It should also be useful for future policy making.

Such methodology is both possible and available. The collection and reporting of credible and meaningful energy efficiency information is possible for all non-residential buildings and at very low cost. Benchmarks can be set for each building type in each climatic/ commercial region without 'correction factors' and approximations. It can complement existing policies and schemes, and be future-proof for future policies and schemes, including potential monetisation of carbon in the non-residential building sector.

Australia is in the fortunate position to learn from other countries, as well as from the growing research and analysis, and to chart a better, more effective way forward.

For example, the Tokyo Metropolitan Government has trialled mandatory disclosure, low-cost energy plans and white certificates for buildings. They achieved a 2 percent reduction in greenhouse gas emissions over a 3 year period. In April 2010 they are introducing the world's first cap-and-trade scheme for buildings.

Australia's mandatory disclosure scheme need not be as severely compromised and administratively inefficient as proposed by the Bill.

We urge the Committee, and through it the Government, to urgently re-consider the Bill to ensure it makes 'credible and meaningful information' available and therefore achieves the maximum impact, yet in a more simple, accurate, and low-cost manner.

3. Best practice mandatory disclosure

Mandatory disclosure of building energy efficiency is an important component of any attempts at greenhouse gas abatement in the built environment.

Unless and until we understand a building's carbon footprint, it is difficult to address it.

If we are to reduce carbon emissions in the real estate and construction sector, we need to enable reporting for two primary purposes:

- Market benchmarking and decision-making through robust labelling: Policymakers need benchmarking for setting building codes and for development planning. Shareholders need it for investment decisions. Organisations need it for leasing and purchasing decisions.; and

- Accurate reporting for carbon accounting – whether this is for voluntary reporting indices such as Global Reporting Initiative, Dow Jones Sustainability Index, or the Carbon Disclosure Project, or for national inventory reporting under the Kyoto Protocol and its successor.

Best practice mandatory disclosure will provide normalisation of market benchmarks to ensure fairness in market appraisal whilst providing undistorted emissions reporting for accurate carbon accounting.

To effectively play its part, mandatory disclosure in Australia must:

- Provide accurate data which rates a building's *actual* greenhouse gas emissions per metre squared of building floor-space (or NLA);
- Provide a normalised benchmark for each building type in each climatic region, against which to transparently and fairly compare the data for each individual building;
- Enable the fair comparison of ratings of buildings across each region and country-wide, if not world-wide;
- Allow buildings to be transparently and usefully compared to the market at the point of sale, lease or sub-lease;

- Provide accurate carbon reporting that meets other reporting requirements, including for:
    - The Carbon Pollution Reduction Scheme (CPRS);
    - The National Greenhouse and Energy Reporting Scheme (NGERS); and
    - State based energy efficiency schemes (such as NEET and VEET).

- Be based on a single simple transparent methodology that ensures data is collected in the simplest and most useful way, and discloses transparent, undistorted and useful information to be used across all current legislative requirements.

Like all good policy, the assessment and reporting of carbon outputs under a mandatory disclosure scheme should also be administratively simple and at least cost.

International experience

- As part of European legislation - the Energy Performance of Buildings Directive - which all member states must adopt – since October 2008 all properties in England and Wales - homes, commercial and public buildings - when bought, sold, built or rented need an Energy Performance Certificate (EPC), providing A-G efficiency ratings and recommendations for improvement. Larger public buildings also need to display an energy certificate.

  We note that the Concept Report (February 2008) for the Australian Government's mandatory reporting and disclosure scheme describes the EPC scheme as "the most rigorous mandatory disclosure scheme" (page 74).

  Importantly, the EPC must show the 'asset rating' of the building, which removes all the outside influences upon a building's energy use. (The alternative is 'operational reporting', which includes factors related to tenant operation and behavior.) The EPC consciously avoided operational reporting as it feared the tenant impacts could not be accurately isolated.

  As the Bill proposes to rely on operation energy for its certificates, it is very important that the methodology for isolating non-builder owner influences upon operational energy performance is robust.

- In 2002 the Tokyo Metropolitan Government introduced the 'Tokyo CO2 emission reduction program' – essentially a mandatory reporting and disclosure scheme for commercial buildings.

  In 2005 the Tokyo Metropolitan Government tried to introduce a mandatory program but were unable due to stakeholder opposition.

  Reportedly, "industry associations (were) strongly against" the scheme's introduction, preferring voluntary measures. (Noriaki YAMASHITA, Institute for Sustainable Energy Policies)

  Instead, they introduced a voluntary 'white certificate' program along with a framework of guidance and advice on low-cost measures, evaluations, and public announcements.

  In the 3 years from 2005 to 2008 this delivered only 2% reduction in emissions.

  According to analysis by Deloitte:

  - Most reduction targets and plans remain at a basic level.; and
  - Planning in-depth measures to achieve significant greenhouse gas emission reductions under a voluntary system is exceedingly difficult.

4. Failures of the Bill & recommended solutions

4.1 **Lack of credible data.** The 'methods and standards of assessment' fail to report accurate greenhouse gas emissions, the rating is significantly impacted by tenant operation and behaviour, and 'climate corrections' and therefore provide ratings that are heavily normalised. This results in a high risk of assessments that unfairly reward or disadvantage those obliged by the scheme.;

The base building rating recommended by the Regulation Impact Statement (RIS) does not report *actual* greenhouse gas emissions, but data that has been 'corrected' or 'distorted' for hours of use and tenant head count, climatic correction and variations introduced by governments in different states, thereby giving only an adjusted assessment of the base building's energy efficiency.

While it makes sense to factor in climatic variations, the current methodology is technically questionable, creates state by state distortions and undermines the intent of the bill by providing potentially misleading ratings.

Further, in calculating a building's greenhouse gas emissions the rating recommended by the RIS does not use the true greenhouse intensity of the fuels (electricity or gas) supplied to the building according to the official greenhouse gas co-efficients provided by the Federal Department of Climate Change & Energy Efficiency. In summary, the co-efficients used by the rating *under*estimate associated electricity greenhouse gas emissions and *over*estimate associated natural gas greenhouse gas emissions and, depending on what state it's in, a base building rating can vary from 1.3 stars to 5.6 stars – for the same building.

Please see more technical information in the Technical Appendix.

Recommended solution

Mandatory disclosure reporting that will provide 'uncorrected' and accurate carbon intensity data on a building.

Any 'normalisation' of externalities for market benchmarking should only be made to the reference benchmark against which the rating is assessed, while the carbon reporting for the building should be left unadjusted and undistorted.

Climate adjustments to the benchmarks should reference local market average carbon intensity, rather than a calculation adjustment based on theoretical differences and assumptions on technology used in the building.

Any adjustment to the benchmarks for tenant impact should be achieved by reference to corresponding tenant energy use rather than the subjective opinion of assessors.

Official figures for carbon intensity provided by the Federal Department of Climate Change & Energy Efficiency for fuel sources should be used rather than the inaccurate and misleading figures that are embedded in the current proposal.

4.2 **No meaningful market intelligence.** By failing to provide credible data, and by failing to provide any aggregation of reporting or analytics, the Bill will fail to provide any meaningful market information, such as a national comparative database of average consumption.

Under the methods and standards of assessment recommended by the RIS, there is no national comparative or consistent assignment of ratings for buildings, which greatly reduces the value that should be realised by the Bill.

A common data set collected through mandatory reporting obligations should provide an understanding of the average carbon intensity for different building types in different locations, and enable a benchmark to be set for each marketplace.

A benchmark is needed as a reference point from which to measure carbon abatement, enabling building owners and Government alike to accurately measure a building's performance in relation to the benchmark and use the process of accurate verification to attach to capital or grant applications against performance based outcomes.

Without a market benchmark against which to analyse a building's performances, the energy consumption and greenhouse gas emission data has little meaning or value for the sector or government policy makers.

Please see more technical information in the Technical Appendix.

Recommended solution:

Provide inclusions in the Bill for data collection and analysis to provide market intelligence on the greenhouse performance of commercial buildings. Provisions for database disclosure within the Bill to be enhanced to provide comparison to local market average, etc

Consideration should be given to standardising the reporting period for mandatory disclosure to allow an 'apples versus apples' comparison.

4.3 Potential confusion of key audience. The significant differences in ratings between states, through normalised correction of building use factors, and the strong subjective influence of assessors, have the potential to confuse and mislead the market.

Given all the deficiencies in the technical solution proposed by the Bill it is highly likely that the Bill will create much confusion about the carbon footprint of commercial buildings in Australia.

At the simplest level, the figure that is proposed to be published for a building to allow market comparison will rarely if ever bear resemblance to the actual operational carbon footprint for the building in question.

When concerns around the technical process for correcting for climate and the subjective influence of oocupancy adjustments are considered, it is likely that the reporting will have little to no value outside satisfying one's obligations under the Bill, which is a real wasted opportunity when the enormous potential for carbon abatement in the sector is considered.

Recommended Solution

Develop a technical solution befitting the ambitions of the Bill and in consideration of the need to maintain both accurate reporting of a building's operational carbon impact and provide smart market benchmarks for buyer/lessee appraisal.

We recommend that the technical solution is abandoned and disclosure rules are developed that fully support the ambitions of the Bill.

4.4 Expensive & administratively cumbersome. The reliance on assessment by accredited assessors, and the need therefore to recruit, train, register and audit assessors, makes it expensive and administratively cumbersome.

The requirement of Accredited Assessors to survey each building makes it more costly than needed.

Further, it adds a requirement for the recruitment, training, accreditation, registration and auditing of assessors.

While this might be appropriate for a voluntary scheme, it would appear inappropriate for a mandated scheme, which should be simple and least cost.

The unnecessary cost burden also raises issues of equity and distortions and rorting through the high levels of subjective opinion provided by the assessors..

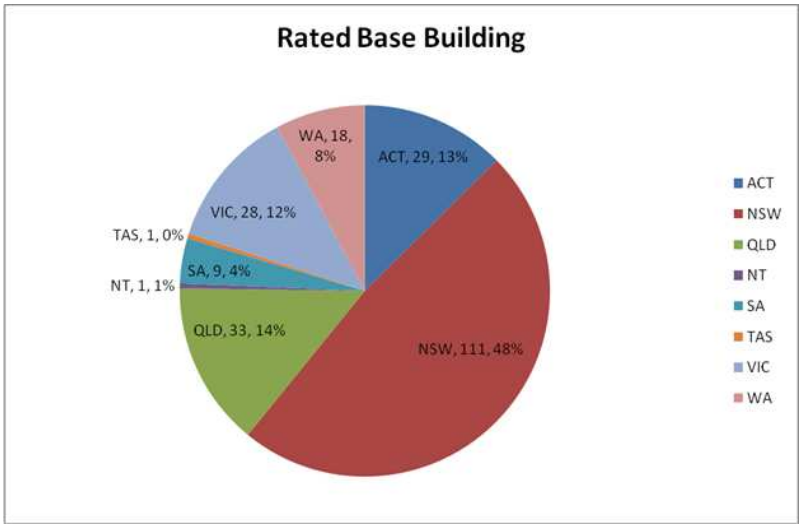
Page 2 of the Explanatory memoranda states: The NABERS Energy assessment tool is the most extensively used rating tool in the commercial office property market in Australia.

However, the number of certified ratings does not support this representation.

According to the official NABERS website on 15 February 2010, there were just 230 base building ratings under NABERS Energy across the country.

Of this total, 111 – or 48% - are in NSW, with extremely poor numbers of ratings in other states.

For a tool that has been in the market for 8 years, this equates to about 30 new ratings each year - a very poor penetration.



Despite the Northern Territory Government being responsible for leasing an estimated 65% of the commercial office space in the Territory. There are only 3 buildings with NABERS (Energy) ratings.

Recommended solution:

A credible data set and mandatory disclosure regime based on fuel bills and market by market benchmarking, should not require accredited assessors or subjective influence on reported results.

The Respondents recommend a system which can operate without bespoke accreditation of assessors.

4.5 **No complementarity.** The nature of disclosure and record-keeping proposed by the Bill does not provide any opportunity to collect meaningful information either for existing policies and schemes, including the National Greenhouse and Energy Reporting Scheme (NGERS) and the Energy Efficiency Opportunities (EEO) program, for market information or for the benefit of future policy making.

The Respondents note that the Bill is "for an Act to promote the disclosure of information about the energy efficiency of buildings, ***and for related purposes***".(our emphasis)

The Explanatory memoranda (page viii) notes: "An information-based scheme such as mandatory disclosure can complement price-based policy tools where information works to address market failures."

We agree that mandatory disclosure must be seen as part of the bigger picture, and that the data and reporting requirements must complement other schemes, both existing and future.

However, we note that the "methods and standards of assessment" will not achieve this outcome and the Bill is fundamentally incompatible with the aim of the Explanatory memoranda..

The figures below show how NABERS Energy fails to achieve the desired outcome of each of the Solution compared to a well designed Carbon Disclosure Tool (CDT):

Mandatory Disclosure

→Transparent and useful comparison at **point of sale**
→ Improve understanding of Australia's carbon footprint
→ Provide a basis for energy efficiency to be included in an emissions trading scheme

Required outputs	NABERS	CDT
Simple comparison between buildings	×	✓
Undistorted measurement tool	×	✓
Actual (undistorted) energy and carbon use	×	✓

CPRS

→To reduce Australia's greenhouse footprint, while protecting businesses and households[1].

Required Outputs	NABERS	CDT
Actual (undistorted) carbon use	×	✓
Able to validate actual carbon savings	×	✓
Use of DEWHA greenhouse gas co-efficients	×	✓

NGERS

→Reporting and public disclosure of greenhouse gas emissions and energy use by large corporations[2].
→ Improve understanding of Australia's carbon footprint

Required outputs	NABERS	CDT
Actual (undistorted) energy and carbon use	×	✓
Use of DEWHA greenhouse gas co-efficients	×	✓

EBS

→ Would create a cap and tradable permits for the property industry driving energy efficiency and greenhouse gas reductions.

Required outputs	NABERS	CDT
Actual (undistorted) carbon use	×	✓
Able to validate actual carbon savings	×	✓
Use of DEWHA greenhouse gas co-efficients	×	✓

[1] http://www.climatechange.gov.au/greenpaper/consultation/index.html
[2] http://www.climatechange.gov.au/reporting/index.html

Recommended solution:

The Bill must require reporting in metrics that are compatible with other government reporting obligations and for future policy making. This will require that the approach to normalisation and adjustments to the reported carbon intensity of a building under the proposed scheme is abandoned and undistorted carbon intensity data is used instead.

4.6 **Built-in obsolescence.** By failing to set a framework for the presentation of data in a format that would be compatible with future carbon trading or tradable energy certificate schemes, the Bill proposes a scheme that falls short of best practice and therefore represents a missed opportunity.

The normalisation methodology used in the tool nominated by the RIS does not provide compatability with the Greenhouse Gas Reporting Framework and is unsuitable for use within any white certificate or tradeable certificate regime that needs to meet the standards of the Kyoto Protocol. It is reasonable to assume that any post Kyoto Protocol will have similarly exacting requirements.

As the Bill proposes to use a tool that has been developed in isolation from international mechanisms and interoperability with federal and international greenhouse gas abatement agreements, it has built-in obsolescence and all effort to train accredited assessors in the techniques unique to the current proposed methodology will be abortive.

Recommended solution:

To future-proof the Bill, its methodology must be compatible with international mechanisms for carbon reporting.

4.7 **Inappropriate governance structure.** While the scheme and its metrics are both Federal Government initiatives, the fact that the metrics are administered by a single State Government (NSW) makes its inappropriate for national use.

The NABERS Energy (formerly ABGR) scheme was originially based upon 1996 data from a base building BOMA study and figues published by the Commonwealth on tenant light and power energy use (DISR, 1998).

The original NSW methodology was extended to become a national rating scheme with further data being obtained through BOMA and relevant State Governments for benchmarking. Limited data sets were available from Adelaide, Brisbane and Perth.

Nominal rating thresholds were established based upon a national average rating curve obtained from this data.

The scheme has had known technical flaws for many years. It has not been materially technically revised since its introduction in 1999. The scheme is also burdened with lack of clarity with respect to disparity of ratings in different states.

For such an important piece of legislation, it is inappropriate for the Bill to prescribe a tool rather than a methodology. The current proposal is akin to Tax law requiring the use of a certain accounting software package rather than describing the rules by which someone can calculate their liability under the law. We believe this approach is anti-competitive and is forcing a direction that is at odds with the desired outcome.

Recommended solution:

A truly national scheme, administered at the national level, is required for the accurate and consistent operation of a national mandatory disclosure scheme.

The Bill should describe the rules and process, not a proprietary tool. Such rules and processes would then open up a competitive market to solution providers rather than create a monopoly.

5 Personal biographies

MARIA ATKINSON

Maria Atkinson, Global Head of Sustainability, Lend Lease Corporation Limited.

Maria's industry leadership is internationally recognized, particularly as an advocate of a simple, cost-effective solution to drive deep, fast emissions reduction in the real estate and construction sector. This is reflected in her various Board and Committee appointments, as well as the numerous invitations for her to participate in influential forums, including: her election as Board member of the US Green Building Council, Chair of the United Nations Environment Programme - Sustainable Buildings & Climate Initiative and Co-Chair of the World Economic Forum's Global Agenda Council on the Future of Sustainable Construction; she was a delegate to Prime Minister Rudd's Australia 2020 Summit in the 'Sustainability and Climate Change' stream; in 2007 former US President Bill Clinton invited Maria to join a high-profile panel to discuss ways to accelerate green buildings, as part of the Annual General Meeting of the Clinton Global Initiative in New York; and she was also a Master Speaker at the US Green Building Council's 2007 Greenbuild Conference in Chicago.

Prior to re-joining Lend Lease in February 2006, Maria co-founded the Green Building Council of Australia and become the organisation's founding CEO, with the mission of driving the shift to a sustainable property industry in Australia. By the time she left in February 2006, to take up her global appointment at Lend Lease, Maria had firmly established the Green Star environmental rating system as the national industry standard for green buildings, and both the organisation and Maria were recognised as the country's leading authority on green buildings. Maria was a Director of the 'Green Building Council of Australia' until January 2009 and remains a Life Fellow of the organization.

From 1997 to 2002 Maria was responsible for environmental management at Bovis Lend Lease Australia; she was also the project Environment Manager for the Sydney 2000 Olympic Village and the Homebush Bay Hotel developments - projects which have received international recognition for setting new benchmarks in environmental best practice for the construction and real estate sector.

Directorships/Memberships:

- Chair of the 'UN Environment Programme Sustainable Buildings & Climate Initiative' and member of its 'Climate Change Think Tank'
- Co-Chair of the World Economic Forum's 'Global Agenda Council on the Future of Sustainable Construction'
- Member of the Singapore 'Building and Construction Authority's International Panel of Experts for Sustainability in the Built Environment'
- Member of the US Green Building Council Board
- Member of the 'Australian Building Codes Board' representing 'Industry'
- Director of the not-for-profit 'Banksia Environmental Foundation'
- Member of the City of Sydney 'Design Advisory Committee'
- Member of the New South Wales State Government Climate Change Council
- Member of the Australian Government's 'Department of Climate Change and Climate Adaptation Flagship Stakeholder Advisory Group'

www.lendlease.com/sustainability

CHÉ WALL

Managing Director
WSP Lincolne Scott Pty Ltd

Director
Built Ecology

Co-Founder
Green Building Council of Australia Ltd

Founding Chairman
World Green Building Council Incorporated

Chair
Common Carbon Metrics for global building sector – a joint project of the World Green Building Council and the Sustainable Building Alliance

Awards
2008 Green Building Council of Australia Life Fellow Award

2007 Building Services Journal (UK) Sustainability Champion of the Year

2006 Australian Financial Review BOSS True Leader

2004 Prime Minister's Environmentalist of the Year

2004 National Exemplar ING Real Estate YBE Towards Sustainable Communities

2002 RAIA President's Award for Outstanding Contribution to the Architectural Profession

Ché Wall is Managing Director of the WSP Lincolne Scott group of companies.

Ché is internationally recognised as one of the world's leading green building practitioners and advocates, with a raft of award winning projects to his name.

Ché was the founding Chairman of the World Green Building Council from 2002 to 2007, during which time he oversaw the formation of Green Building Councils in China, the United Arab Emirates, the United Kingdom, Mexico, Germany and New Zealand. Ché is also responsible for the formation of the Green Building Council of Australia.

Ché has proven expertise in the area of sustainable design and construction practice, including such award winning projects as:

Office

- 30 The Bond, Sydney NSW
  Property Council of Australia, Rider Hunt Award 2005
  RAIA Commercial Building Award 2005
  RAIA Energy Efficiency / ESD Award 2005
  Green Building Council of Australia, 5 Star Green Star – Office As Built Certified Rating 2005
- CH2, Melbourne VIC
  CIBSE Sustainable Building of the Year Award 2007
  Green Building Council of Australia, 6 Star Green Star- Office Design Certified Rating 2005
  CRC Construction Innovation, Year of the Built Environment 2004

Arts

- Scottsdale Forestry Centre, Launceston TAS
  RAIA Sustainability Award 2003
- NIDA Stage 2, Kensington NSW
  RAIA Sulman Medal 2002
  AIRAH NSW Excellence in HVAC 2004
- Pavillions, Sydney Showground, Moore Park NSW
  RAIA NSW Chapter ESD Award 1999
  RAIA Energy & ESD National 1999
  RAIA Sulman Medal 2002

Education

- Birabahn, University of Newcastle NSW
  RAIA Sir Zelman Cowen Award 2003
- Life Science Building, University of Newcastle NSW
  RAIA Sulman Medal 2001
  Francis Greenway Society Gold Medal 2001
- Nurses Faculty, University of Newcastle NSW
  RAIA NSW Chapter ESD Award 1998
  MBA National Energy Efficiency Award (Commercial) 1998
- Stage 1 buildings, Charles Sturt University Thurgoona NSW
  RAIA ESD Commendation 2000
  MBA National Energy Efficiency Award (Commercial) 2000
  Master Builders Ass National Resource Efficiency Award (Commercial <$20m)

Sport

- Dunc Gray Velodrome, Bankstown NSW
  RAIA NSW Energy Award 2001
  RAIA Energy & ESD National Award 2001

Other

- Southern Cross Station, Melbourne VIC
  Royal Institute of British Architects Lubetkin Prize 2007
- Hawaiian Energy Gateway Centre, NELHA, Hawaii
  US Green Building Council, LEED Platinum

Ché has authored many articles on the subject of sustainable design and policy for journals and frequently presents papers on the commercial application of sustainability at local and international forums including keynote and plenary addresses at:

- Think 08, London UK 2008
- Green Cities, Sydney NSW 2007
- 2nd International intelligent and Green Technologies Conference, Beijing, PRC 2006
- 1st International Congress + Expo 'Sustainable Building', Monterrey Mexico 2006
- Subtropical Green Building International Conference, Taipei Taiwan 2005
- Green Building Congress, Hyderabad India 2004

Technical Appendix

Section 4.1

The Bill would 'normalise' the raw data according to inaccurate co-efficients for the greenhouse intensity of fuels such that it would *under*estimate associated electricity greenhouse gas emissions and *over*estimate associated natural gas greenhouse gas emissions.

The State-wide co-efficients are influenced by the priorities of the individual State, with each State having devised its own co-efficients. In some cases, the difference in co-efficient is as much as 10%. NABERS Energy uses a greenhouse gas co-efficient of 1 kg CO2/kWh for Tasmanian electricity, instead of 0.13 kg CO2/kWh. Depending on what state it's in, a base building rating can vary from 1.3 stars to 5.6 stars – for the same building.)

In late 2006/ early 2007 a consultant investigated the discrepancies and concluded that "*the significant discrepancy between the ABGR and DEH's published Natural Gas coefficients is probably a misunderstanding in the units – DEH's figures are kgCO2/**GJ**, whereas the ABGR are kgCO2/**kWh** – and therefore a conversion factor of 3.6 needs to be applied!*"[1]

In other words, the greenhouse gas coefficients for natural gas in ABGR (now NABERS Energy) are out by a factor of 3.6x. This disadvantages natural gas, which has a low GHG coefficient, and favours electricity, which has a high GHG coefficient. It is therefore encouraging and rewarding misdirected environmental outcomes.

While this study was undertaken in 2006/2007 we can confirm that the same greenhouse gas coefficients for natural gas still apply; that the mistake has not been fixed, nor has the error been disclosed.

[1] Sustainable FX report

State	Greenhouse Gas Coefficient for Fuel Type – Grid Electricity ($kgCO_2/kWh$)	Natural Gas (kg CO_2^e /GJ) <100,000 / >100000 GJ/yr
NSW + ACT	1.054 (ABGR uses 0.94)	0.0713 / 0.0680 (ABGR uses 0.23)
NT	0.742 (ABGR uses 0.69)	0.0536 / 0.0535 (ABGR uses 0.20)
QLD	1.058 (ABGR uses 1.02)	0.0688 / 0.0642 (ABGR uses 0.20)
SA	0.960 (ABGR uses 0.95	0.0738 / 0.0712 (ABGR uses 0.21)
TAS	0.006 (N/A – ABGR uses kWhr)	N/A (ABGR uses 0.75 ???)
VIC	1.392 (ABGR uses 1.34)	0.0636 / 0.0634 (ABGR uses 0.21)
WA	1.053 (ABGR uses 0.97)	0.0607 / 0.060 (ABGR uses 0.22)

Source: AGO Factors and Methods Workbook, August 2004, p27, 29 http://www.greenhouse.gov.au/workbook/

In Figure 1 below the raw carbon emissions data (carbon emissions before climate and location weighting factors are applied) per metre squared of base building is compared for each star rating in each state/territory. For a 4 star Base Building NABERS Energy (formerly ABGR) rating there is significant difference between the states with NT, QLD and NSW allowed more raw carbon emissions than SA, WA and ACT.

A NT 4 star benchmark allows over 60% more raw carbon emissions than ACT. NSW 4 star benchmark allows over 30% more raw carbon emissions than SA.

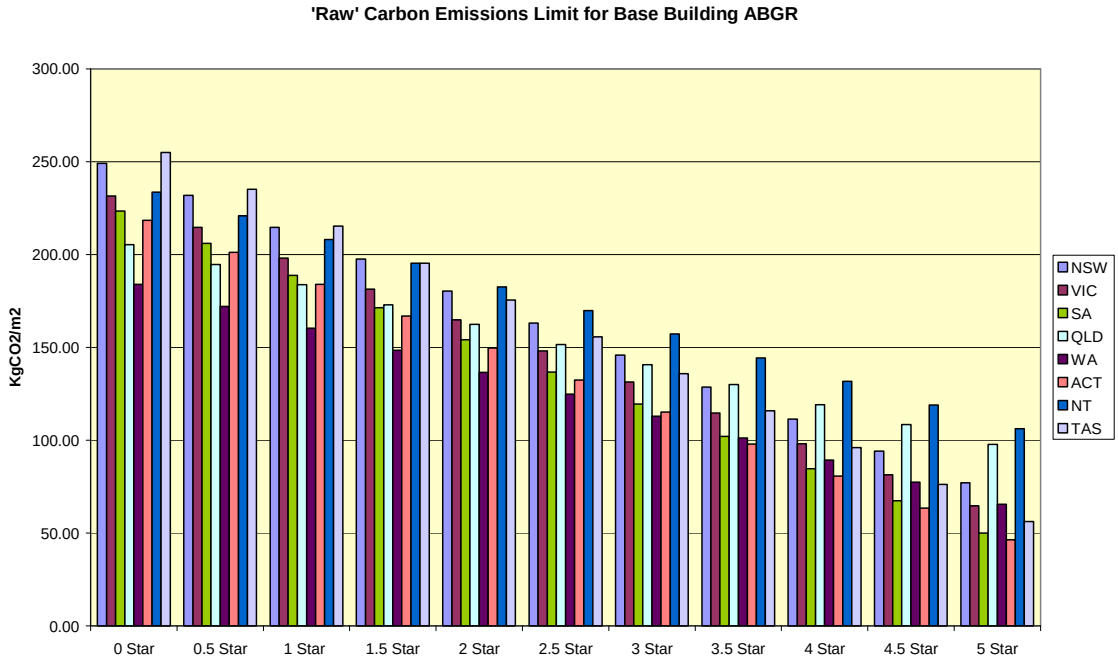


Figure 1: Base Building Raw Carbon Emissions Limit

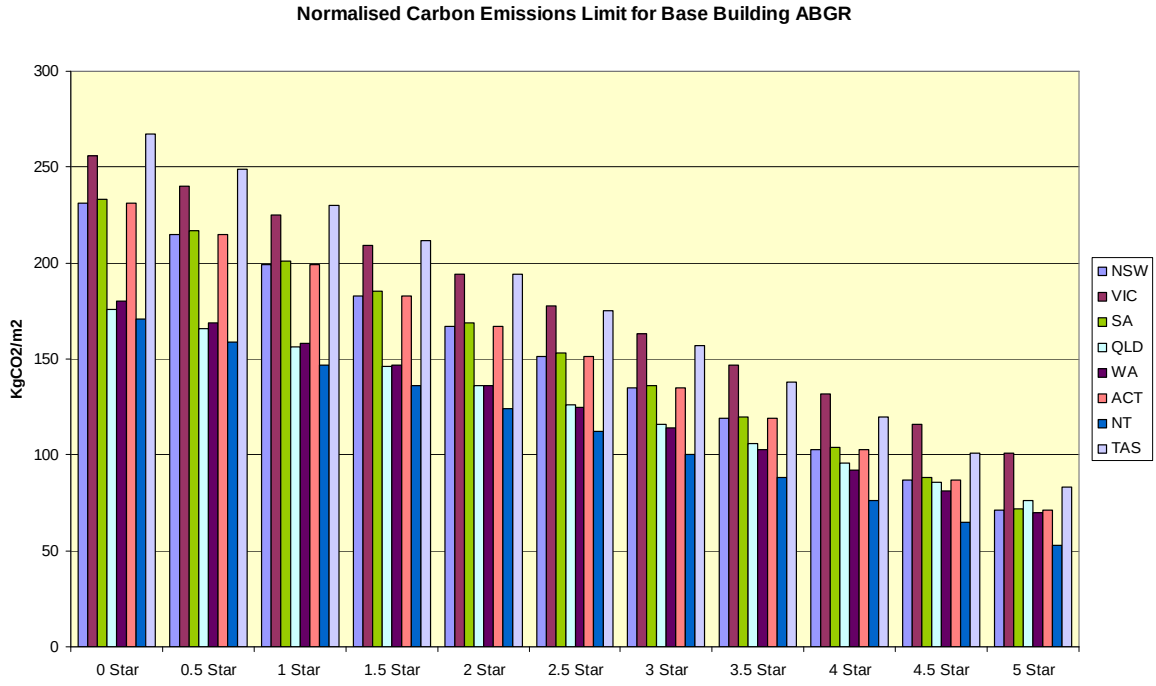


Figure 2: Base Building ABGR Normalised Carbon Emissions

On 14 December 2009 Matthew Clark from NSW DECCW – which is managing the NABERS Energy rating tool - provided an update on NABERS tools currently in use or under development, to the Property Council of Australia Sustainability Roundtable meeting. The meeting noted that (the Respondents' comments in red):

- consultants have suggested using more recent climate models to update statistics Climate models are limited due to inadequate records in Australia and the NABERS methodology is inherently reliant on these poor and unrepresentative data sets. This should:
  - have minimal impact in NSW, with no change for Sydney; NABERS Energy (and before it the Australian Building Greenhouse Rating (ABGR) scheme) was developed in and for Sydney, with Sydney as the default, so Sydney is not burdened by the complex and flawed climate adjustment algorithms.
  - deliver worse ratings for buildings in Queensland, particularly for those located North of Brisbane; and The current co-efficients used under NABERS Energy have been distorted so as to make ratings easier in Queensland. In addition, the administrators of NABERs decided in April 2003 to implement the judgment of the designer of the scheme for star ratings in North Queensland rather than rely on measured or statistic analysis on energy use in the region. The PCA amongst others communicated dissatisfaction with this approach but it proceeded regardless.
  - see improvements for buildings in Victoria; The current co-efficients used under NABERS Energy have been distorted so as to make ratings harder in Victoria. Once changed, Victorian buildings will score better.

Section 4.2

On 14 December 2009 Matthew Clark from NSW DECCW – which is managing the NABERS Energy rating tool - provided an update on NABERS tools currently in use or under development, to the Property Council of Australia Sustainability Roundtable meeting. The meeting noted that:

- *a national approach is being pursued, with the aim of creating greater consistency in ratings;*

In other words, there is currently no consistency in ratings, particularly at a national level.

To underscore the need for meaningful market information, in 2009 Lend Lease Corporation engaged a consultant to undertake carbon footprints of all Australian assets – across different states - within one investment portfolio.

The assets were studied as a total and also on a metre squared basis creating a method of comparing assets of different size. The assets were compared using both $kgCO_2$-e and kWh. This highlights any changes in trend that may occur due to the varying Electrical Emission Factors of different states across Australia.

As the tables below show quite clearly, without a benchmark against which to analyse the assets' performances, the data has little meaning or value.

Commercial asset comparison

Error! Reference source not found. charts the performance of the various Lend Lease commercial assets in terms of the amount of carbon dioxide equivalent emitted on an annual basis. **Error! Reference source not found.** charts the performance of these assets on an area basis to compare the assets in terms of energy efficiency.

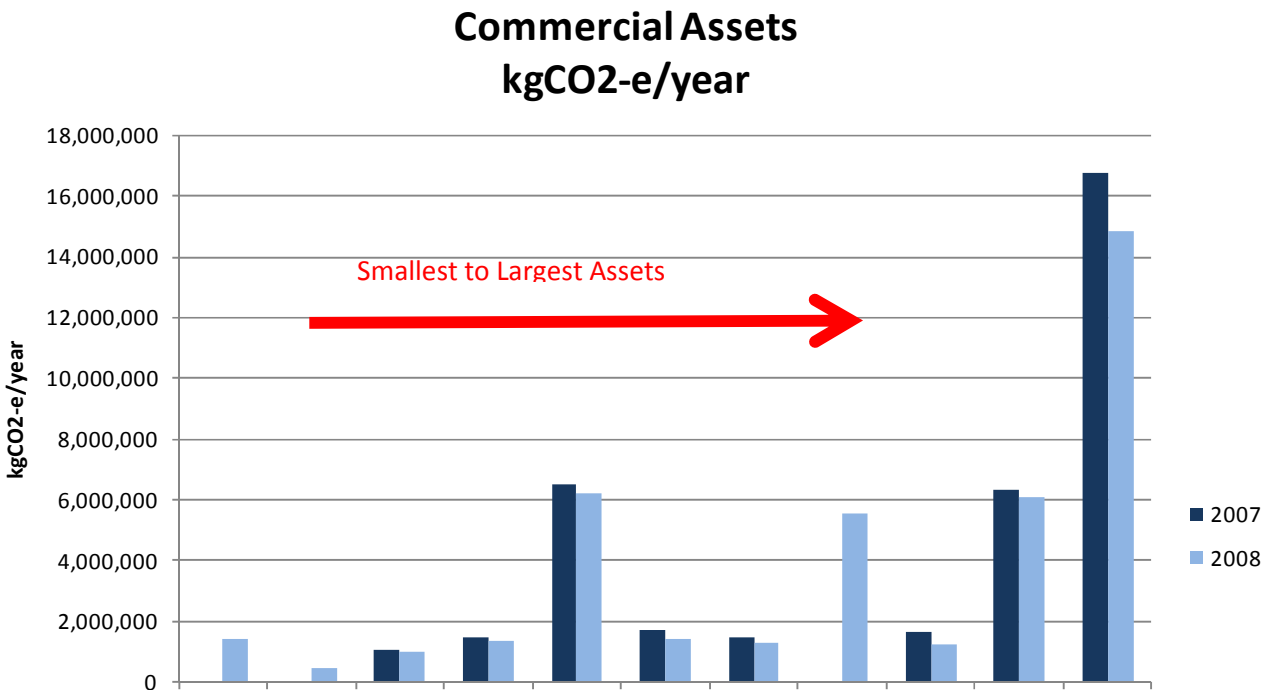


Figure 3: Total carbon emissions of commercial assets arranged from smallest to largest

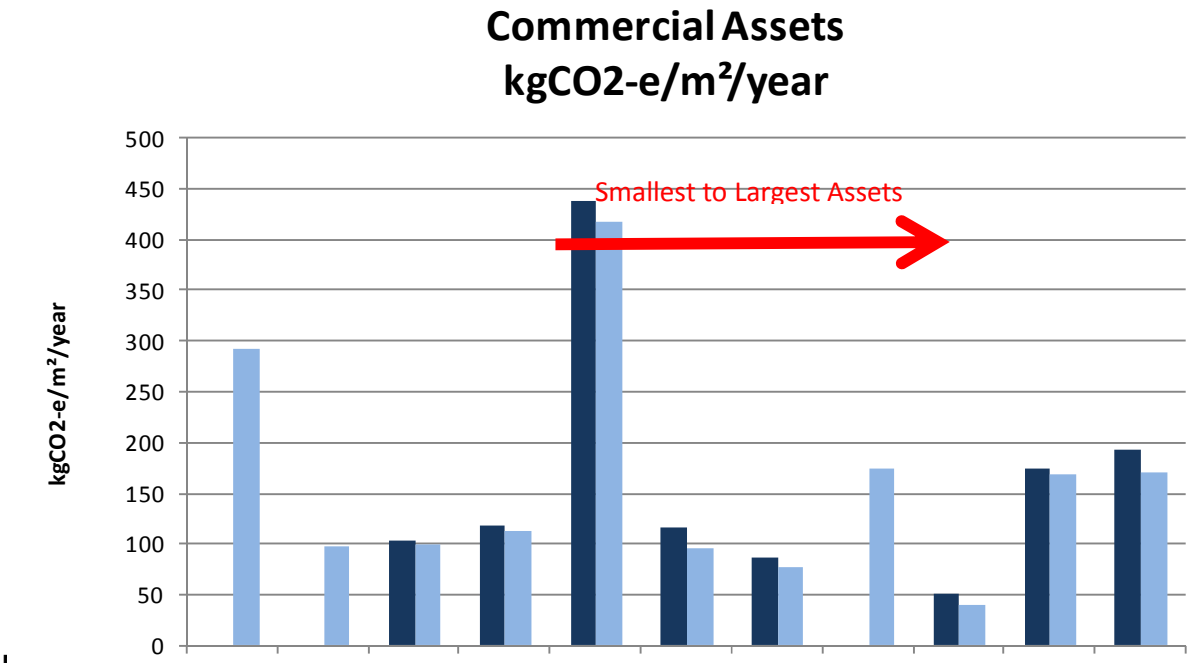


Figure 4: Carbon emissions per m² for commercial assets arranged from smallest to largest