green building council australia

11 April 2008

Garnaut Review Secretariat
Level 2, 1 Treasury Place
EAST MELBOURNE VIC 3002

Submission in response to the Issues Paper on *Transport, Planning and the Built Environment.*

This submission is made on behalf of members of the Green Building Council of Australia ("GBCA") in response to the release of the Issues Paper on Transport, Planning and the Built Environment.

Who we are

The Green Building Council of Australia was created in 2002.

- It is a national not for profit organisation.
- Its Mission is to develop a sustainable property industry for Australia and to drive the adoption of green building practices through market-based solutions.
- Its Objective is to promote sustainable development and the transition of the property industry to implementing green building programs, technologies, design practice and operations.
- It has developed a national suite of green building rating tools called 'Green Star' (see Appendix A for more details), and
- It is a member of the World Green Building Council (www.gbcaus.org).

Over 550 organisations are members, representing a diverse cross section of the property industry from developers and owners to sub contractors and manufacturers. The Federal Government is an active member as are several state and local governments. A full membership list is attached (Appendix B).

The GBCA takes its leadership role very seriously and hosts regular seminars, forums and conferences such as Green Cities, which provide an invaluable opportunity for the property industry to learn and share experiences and ideas.

Over 50 buildings in Australia are already Green Star certified and there is over 500 other projects registered to be certified.

Energy Efficiency and the Built Environment

Australia's built environment is a significant emitter of greenhouse gas emissions and represents an industry sector with an equally significant potential for sustainable emission reductions.[1]

Australians invest around $13 billion each year in new commercial and industrial buildings and renovations, and around $4.3 billion each year is spent on energy to operate buildings and the equipment in them[2].

[1] *Intergovernmental Panel of Climate Change (IPCC) "Working Group III contribution to the IPCC Fourth Assessment Report" (2007)*
[2] *Reducing greenhouse emissions from commercial and industrial buildings : what local government can do (AGO, February 2002)*

Energy intensive sectors such as the built environment have an ongoing commitment to recognise and reduce industry related emissions and their contribution to global climate change.

Buildings are significant users of energy. Globally, the built environment is responsible for 40% of total energy use. Emissions resulting from buildings include those associated with their construction, operation, maintenance and demolition. Embodied energy is an additional consideration as a proportion of whole-of-life energy consumption. There is considerable scope for emissions reduction or abatement resulting from energy efficiency improvements in the built environment.

Buildings, as diffuse emitters, already contribute to significant reductions in greenhouse gas emissions via energy efficiency and demand side abatement initiatives. There are a number of measures already being integrated by the property sector into the built environment. These include:

- Building fabric improvements;
- Lighting systems (& greater use of natural light);
- Heating and cooling systems and control improvements;
- Energy efficient motors;
- Energy efficiency equipment (copiers, computers, appliances etc.);
- Passive design;
- Onsite generation.

Buildings and Climate Change

Conventional buildings have a very significant impact on the environment. The building sector is responsible for 23% of Australia's total greenhouse gas emissions annually.

This represents 130 megatonnes of greenhouse gas put into the atmosphere each year.

The vast majority of the greenhouse gas attributable to buildings is as a result of the effects of energy generation to meet demand in the built environment.

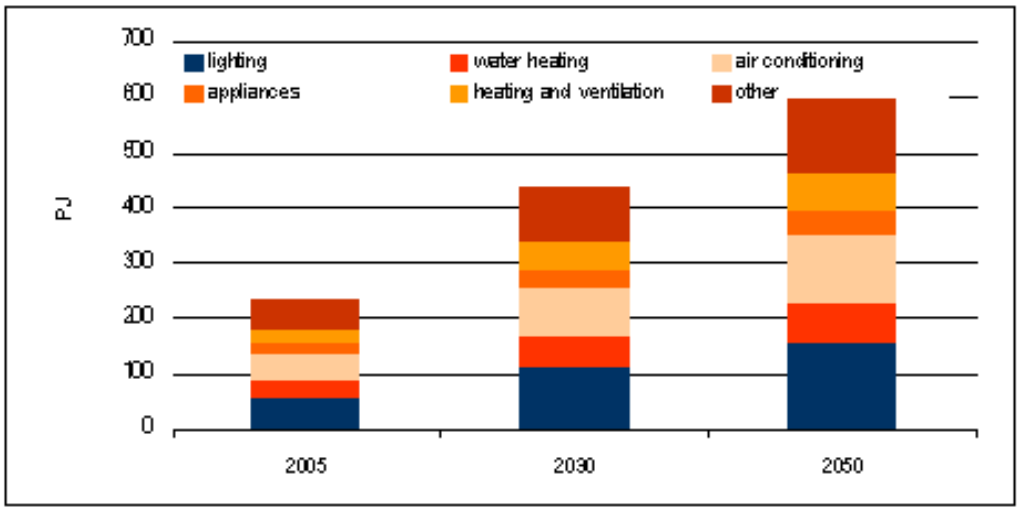
Around 40% of the amount of waste that goes into Australia's landfills is as a result of the construction and destruction of buildings.

Buildings also consume 40% of the national energy output and 12% of the fresh water resources in OECD countries.

One of the major concerns with respect to buildings and their impact on the environment is that without appropriate action, energy use in the commercial sector for example, is forecast to treble by 2050.[3]

[3] *Centre for International Economics, Capitalising on the Building Sector's Potential to Lessen the Costs of a Broad Based GHG Emissions Cut, p.16.*

2.9 **Commercial sector projected energy use by activity – no action**



Data source: Pears (2007) and CIE analysis

The figures are similar internationally. In the United States for example, buildings account for:

- 65% of electricity consumption;
- 36% of energy use;
- 30% of greenhouse gas emissions;
- 30% of raw materials use;
- 30% of waste output (136 million tonnes annually); and
- 12% of potable water consumption[4]

Built Environment – Abatement Opportunity?

A report released by the Australian Sustainable Built Environment Council (ASBEC) (of which GBCA is a member) *Capitalising on the building sector's potential to lessen the costs of a broad based GHG emissions cut* has illustrated how important the role of the built environment is in achieving Greenhouse Gas abatement.

The Centre for International Economics was commissioned by ASBEC to investigate the potential for the building sector to reduce greenhouse gas emissions. This research is the first detailed estimate of the energy efficiency potential across the built environment in Australia.

[4] *USGBC*

Key Research Findings:

- The building sector is responsible for 23 per cent of Australia's total greenhouse gas emissions, and energy use in buildings is rapidly growing.
- Electricity demand in residential and commercial buildings can be halved by 2030, and reduced by more than 70 per cent by 2050 through energy efficiency.
- Energy efficiency alone could deliver savings of 30-35 per cent across the whole building sector including the growth in the overall number of buildings out to 2050.
- Energy savings in the building sector (which accounts for 60 per cent of GDP and 23 per cent of greenhouse gas emissions) could reduce the costs of greenhouse gas abatement across the whole economy by $30 per tonne, or 14 per cent, by 2050.
- By 2050, GDP could be improved by around $38 billion per year if building sector energy efficiency is adopted, compared to previous economy-wide estimates of the 60 % deep cuts scenario.
- Australia's ability to achieve at least 60 per cent deep cuts in greenhouse gas emissions by 2050 will be significantly enhanced by transforming buildings to deliver energy savings.

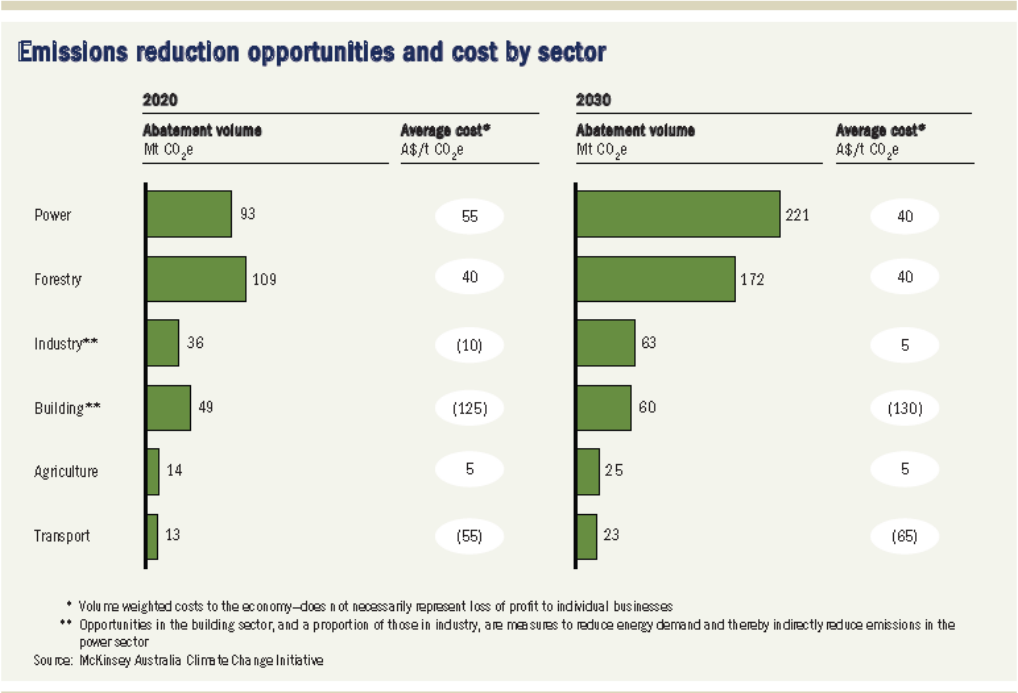
Please note - ASBEC is a coalition of industry and community leaders representing a cross section of the built environment, contributors to the report include ASBEC members the Green Building Council of Australia, Australian Conservation Foundation, Clean Energy Council, Chartered Institution of Building Services and Engineers, Property Council of Australia, Planning Institute of Australia and Royal Australian Institute of Architects.

There is a considerable body of evidence which all point to the very significant role buildings can play in global efforts to reduce greenhouse gas emissions and other impacts on the environment.

McKinsey and Company released a report in February 2008, *An Australian Cost Curve for Greenhouse Gas Reduction* which demonstrated:

- A significant reduction in Australian GHG emissions is achievable – 30% below 1990 levels by 2020 and 60% by 2030 without major technological breakthroughs or lifestyle changes;
- By 2030, a minimum of 60 mega tones of carbon-reduction opportunities can be found in the building sector, all at low or negative cost with most of the opportunities (50 Mt) being available by 2020;
- Australia can reduce emissions in 2020 by 20% below 1990 levels at **no net cost to the economy**.[5]

[5] *McKinsey and Company, An Australian Cost Curve for Greenhouse Gas Reduction, 2008.*



6

The report also highlights the fact that buildings offer a cheap form of abatement when compared to other industry sectors such as agriculture and power generation.

This information is supported by the work of the 4th International Panel on Climate Change (IPCC) which shows buildings offer the greatest potential for abatement, outstripping the energy, transport and industry sectors combined.

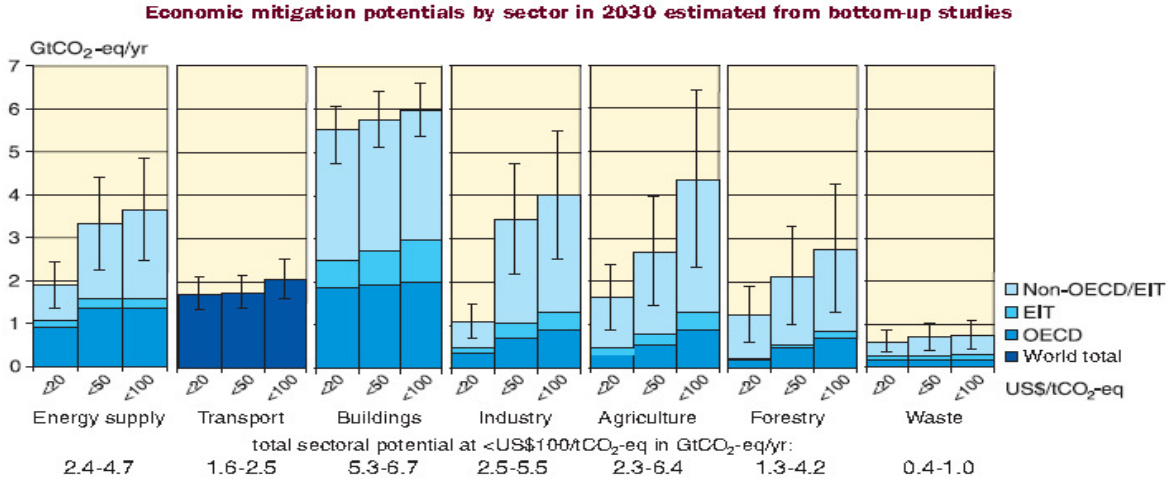


Figure 4.2. Estimated economic mitigation potential by sector and region using technologies and practices expected to be available in 2030. The potentials do not include non-technical options such as lifestyle changes. {WGIII Figure SPM.6}

Notes:

a) The ranges for global economic potentials as assessed in each sector are shown by vertical lines. The ranges are based on end-use allocations of emissions, meaning that emissions of electricity use are counted towards the end-use sectors and not to the energy supply sector.
b) The estimated potentials have been constrained by the availability of studies particularly at high carbon price levels.
c) Sectors used different baselines. For industry the SRES B2 baseline was taken, for energy supply and transport the World Energy Outlook (WEO) 2004 baseline was used; the building sector is based on a baseline in between SRES B2 and A1B; for waste, SRES A1B driving forces were used to construct a waste-specific baseline; agriculture and forestry used baselines that mostly used B2 driving forces.
d) Only global totals for transport are shown because international aviation is included.
e) Categories excluded are non-CO_2 emissions in buildings and transport, part of material efficiency options, heat production and cogeneration in energy supply, heavy duty vehicles, shipping and high-occupancy passenger transport, most high-cost options for buildings, wastewater treatment, emission reduction from coal mines and gas pipelines, and fluorinated gases from energy supply and transport. The underestimation of the total economic potential from these emissions is of the order of 10 to 15%.

7

[6] *McKinsey and Company, An Australian Cost Curve for Greenhouse Gas Reduction, 2008.*

The debate has clearly moved beyond the question of whether the built environment has a role to play in climate change. The focus of contemporary debate is how to unlock the potential of the built environment to have a very positive effect on climate change.

International Experience

There has been considerable progress overseas in terms of not only incentivising the greening of buildings but also in terms of the direct application of legislative measures.

In the United States for example, 12 federal agencies, 23 states and 85 local governments have adopted LEED[8] green building certification (Green Star equivalent in the USA).

Initiatives such as the following have also been introduced:

- The town of Babylon in New York, passed a law requiring all new construction of commercial building, office building, multiple residence or senior citizens multiple residence equal to or greater than 4000 square feet be LEED certified;
- By 2012, all commercial and city funded large residential construction in Washington DC will have to meet green standards

These are just two of many examples where jurisdictions in the United States have to decided to mandate for green outcomes within the built environment.

In the United Kingdom, the *Home Energy Conservation Act* requires local authorities to plan for a 30% reduction in CO2 emissions from new residential construction by 2011.

Substantial effort has been applied in the UK to improving the performance of old or existing buildings using subsidies, energy labeling and minimum standards, and building regulations, which are estimated to yield a total saving in carbon emissions of around 5Mt per year in 2001. The economically feasible energy saving potential for the existing housing stock is estimated at 17-21% for 2010 and 28-32% for 2020.

The British Government's *Climate Change Program 2006* includes initiatives such as:

- Provide £35m over four years for the development of carbon abatement technologies;
- Encourage the use of renewables;
- Introduce the Code for Sustainable Homes;
- Achieve 250,000 additional subsidized installations of home insulation.

International experience does provide a very useful resource for policy makers in this country when determining the best approach to greening buildings in Australia.

[7] *4th International Panel on Climate Change, 2007 Synthesis Report.*
[8] *LEED is the green building rating tool in the United States*

How to Unlock the Potential of Buildings

While general agreement exists that buildings can play a significant role in the fight against climate change, the question of how to unlock the potential that does exist within buildings is now the critical focus of debate.

A range of policy measures exist that the Green Building Council believes will be effective in encouraging the use of environmentally sustainable design principles in both new and existing buildings.

Federally, the most effective broad based measures that could be adopted include:

- Increased depreciation and amortization rates

  This would involve an increase in depreciation rates for building structures and building plant and equipment (Division 40 and 43).

- National Emissions Trading Scheme

  It is essential that the built environment feature in any National Emissions Trading Scheme. Given the role buildings can play in addressing climate change, this action would seem to be essential.

- Integrated approach

  Achieving results in the built environment will not be achieved unless there is a coordinated and integrated approach at every level of government. The Federal Government should use COAG and Ministerial Councils to ensure a national approach is undertaken. Making the Australian Building Code Board a Statutory Authority will assist in ensuring national consistency in this area.

- Application of accommodation policies

  The practice of Federal Government Departments setting minimum green standards for premises they occupy is valuable in demonstrating government commitment to ESD and acts as an example to the private sector.

- Research and development

  The Federal Government should build on the policy announcements made prior to the election and ensure funding is provided on an ongoing basis to encourage and incentivize research and development in key technologies to improve the environmental performance of buildings.

- Australian Building Code Board

  The ABCB should become a statutory authority as a necessary step to ensure minimum standards for Australia's buildings are raised to take account of ESD principles such as indoor environmental quality and carbon performance. This measure would also assist in achieving genuine national consistency and coordination with respect to standards.

At a state level, the following options are available:

- Rate reductions for Green Star rated buildings

  A sliding scale of rate reductions could be offered for buildings that achieve a Green Star rating (or equivalent). For example, a 4 star Green Star building could receive rate reductions of up to 15%, 5 star Green Star would receive a 20% rate reduction and a 6 star Green Star building could receive a 25% reduction. This would apply to new buildings as well as existing buildings that are either undertaking refurbishments to Green Star standard or an existing building which simply seeks and achieves a Green Star standard.

- Faster development application approval timelines

  While many jurisdictions have comparatively quick development application turnaround time, a mandatory period could be applied for 5 Star Green Star and above buildings which ensures DA approval occurs more swiftly.

- Fee waivers (DA Lodgment Fees)

  The range of fees associated with constructing new and redeveloping existing buildings, such as Development Application Lodgment Fees, could be waived for buildings achieving a Green Star standard.

- Land Tax abatement

  Land Tax should be reduced for Green Star rated buildings on a similar sliding scale to the proposed rate reductions.

- Gross floor area increases

  Buildings that achieve a 5 star or above Green Star rating should be allowed a 10-15% increase in the prevailing location limits.

- Stamp Duty waivers

  Stamp Duty relief should be examined on the same basis as rate relief measures for Green Star rated residential and commercial buildings.

The range of Green Star rating tools that exist and are being developed also provide an invaluable mechanism by which owners, tenants and builders can readily access information which enables them to design buildings using ESD principles.

As well as Green Star tools for office buildings, Green Star tools have been developed for the following sectors:

- Education – schools and universities;
- Retail – shopping centres;
- Health Care – hospitals and aged care;
- Residential – multi-unit residential;
- Industrial – warehouses.

This trend of providing purpose designed tools for specific building types will continue and is a key element in spreading the usage of ESD principles throughout Australia.

A Truly National Approach

Improving the environmental performance of Australia's buildings will require a coordinated, national approach involving local, state and federal government.

The range of incentives and policy options available to encourage the greening of buildings clearly spans every level of government.

The Council of Australian Governments (COAG) is well placed to ensure a degree of national consistency and coordination in approach. Maintaining a COAG focus on buildings will also facilitate information and experience exchange amongst jurisdictions.

The Commonwealth will also benefit from a strong COAG role in this area when it comes time to implement the Emissions Trading Scheme (ETS). If the ETS incorporates buildings to any degree, it will be vital for the Commonwealth to ensure the structure of any scheme integrates with existing measures where that may be appropriate.

ETS and Buildings

The firm position of the Green Building Council of Australia is that the Emissions Trading Scheme must include the built environment.

Given the wealth of accepted data which demonstrates the potential for buildings to achieve substantial abatement, more cheaply than any other industry sector, as borne out by McKinsey, IPCC, Stern, CIE and others, excluding buildings from the ETS would detrimental to the scheme's credibility and the nation's ability to meet its abatement targets.

Further, if buildings are not incorporated into the ETS, significant pressure will build on government to provide parallel measures to credit abatement in the built environment which will be costly and ultimately unnecessary.

The Green Building Council will shortly release a discussion paper being developed by Price Waterhouse Coopers which will provide genuine policy options for the Garnaut Review and government to incorporate the built environment into the ETS.

Barriers to Lower Emission Opportunities in Buildings

The Issues Paper identifies several 'possible barriers' to low emission opportunities that may need to be addressed. This submission will respond to each.

1. *Split Incentives – this can arise where one individual makes choices about building design and appliance selection while another individual is responsible for the operating costs of that building. The question this issue raises is why would a landlord pay the higher upfront cost of installing an energy efficient heating system when the benefits of that flow to the tenant in lower operating costs?*

   While the direct benefits of energy efficient appliances/building design may flow more to the tenant than landlord, there is still compelling incentive on the landlord to make those same decisions to install energy efficient plant and equipment.

   The incentive lies in the fact that the landlord still needs to tenant their building. If the landlord can offer a tenant a 'green' building which has by definition, lower operating costs, then the landlord benefits and the incentive is therefore effective.

   Indeed, green buildings are offering landlords a significant competitive advantage, particularly when you consider government departments are now instituting accommodation policies which prohibit them from occupying premises that do not meet strict and high environmental standards.

2. *Informational Barriers - if individuals and firms don't have information about the financial savings that would accrue to them from low emission options in buildings and appliances, they may choose options with lower upfront costs.*

   There will always be a requirement for a market or industry to be educated on the benefits of any new technology or approach. The building industry has proven itself to be extremely swift in becoming aware of the benefits of environmentally sustainable design practices and this has been flowing through to architects and product manufacturers and the like.

   There is considerable material available already for architects, engineers and builders to access both on the Green Building Council of Australia's website but also a Commonwealth Government initiative www.yourbuilding.com.au for example.

   Further, the various Green Star rating tools that exist provide easily accessible information in a format which can be readily applied to any building project.

   The Green Building Council also runs various education programs for industry which provide a valuable source of information. Up to three or more Green Star courses are run around Australia weekly, there are now nearly 2,200 Green Star Accredited Professionals in Australia.

   Further, the Green Building Council is very conscious of the importance of Education and research releasing a number of free downloadable reports for members and non members such as

   - The Dollars & Sense of Green Buildings: Building the Business Case for Green Commercial Buildings in Australia (2006) a 2008 edition is soon to be released;

- GBCA Clean up your business guide (2008);
- Green Building Market report (2006 & 2008);
- Valuing Green (2008); and
- Various case studies of green buildings.

Given this and the general community awareness regarding climate change and the environment, the level of knowledge within the industry, including tenants, will continue to rapidly increase.

The development of green building industries and professions will also have a secondary benefit of increasing the level of knowledge and understanding of the benefits of building to green standards.

3. *Risk – builders may avoid adopting products based on new technology if they cannot assess their reliability.*

Innovation needs to be strongly encouraged in the development and application of new technologies that improve the environmental performance of buildings.

However, builders will not incorporate wholly untested technology in buildings unless it specifically requested by the client. So the risk associated with untested technology is a factor in only a very few situations and in every one of these cases, the risk is known and accepted.

In the vast majority of green buildings, the high levels of environmental standards are achieved by using relatively simple design techniques which represent very low risk to tenants, builders and landlords.

4. *Local Impacts – nearby buildings, infrastructure and land-use can impact on the ability to passively heat and cool a building, such as by blocking sunlight and breezes and generating heat.*

To some degree, this barrier is something that cannot be removed in any situation. However, the important point to make is that one of the advantages of utilising green principles in building design is that you can take account of those local impacts and design accordingly.

To put it another way, a green building will deal with local impacts much more effectively than a standard, conventional building because the design options in a green building are more flexible.

This is also another reason why innovation in building design and technology needs to be encouraged so the ability of architects and engineers to manage issues like local impacts is improved.

There is also a need to ensure local planning regulations are supportive of and facilitate appropriate environmental and amenity outcomes.

5. *Access to Funding – individuals and firms, particularly low-income households, may not have access to the extra capital needed to pay the higher upfront costs of lower emission building and appliance options, even if these options are more cost-effective in the long term.*

   Equality of access to more environmentally sustainable products and facilities is an issue across a range of areas from green buildings and appliances to the application of feed-in-tariffs and the cost of solar panels.

   Short of direct subsidies, there is no easy mechanism by which new technology can be made available to low-income individuals and households.

   However, market forces will eventually mean that the cost of the technology will be lowered.

   It is certainly also valid to state that the new methods of achieving high levels of environmental quality in products and buildings do not always cost more.

6. *Consumer Preferences – as with passenger cars, consumers may have a range of preferences for buildings and appliances, such as location and size, which may affect their purchase decisions. As a result, consumers may end up purchasing buildings and appliances that are less energy efficient.*

   The preference of consumers for particular products will always prevail wherever consumers have a choice. Rather than being a barrier to lower emission opportunities, market forces and consumer preference will ensure a level of competition will exist that will drive innovation which can only benefit consumers in the long run.

   Certainly, experience shows that consumers will choose the more environmentally responsible option when it is offered to them. Growing levels of recycling in the home and office, the increased usage of energy saving light bulbs for example, all demonstrate that consumers are aware and will make informed choices.

   It is up to the industry to ensure consumers have a choice and are aware of the benefits of choosing environmentally sustainable products and buildings. Beyond that, if a consumer decides on an alternative, then no amount of policy or persuasion will change their mind.

Response to Specific Questions for Consideration

1. What are the key barriers to cost-effective low emission opportunities in the building sector?

   The key barriers have been identified and responded to in the body of this document.

2. What policies could be used to address the low uptake of energy efficiency opportunities, given that many of these opportunities already provide financial benefits for firms and households?

   There is a clear role for government to work with industry in this area. There needs to be a greater level of general understanding of the benefits of environmentally sustainable design principles. This will require a concerted effort to educate the general community firstly, about the impact buildings have on the environment and secondly, the potential for buildings to significantly reduce that impact.

   Increasing awareness of the secondary benefits of green buildings such as increased productivity through improved indoor environmental (air) quality, will also address the low uptake of energy efficiency opportunities.

   This education process needs to be coupled with the packaging up of various incentives so they can be more easily understood and accessed by tenants, landlords and builders.

   Over time, as knowledge of how beneficial buildings can be to their occupants spreads, the uptake of energy efficient options will naturally increase.

3. What policies would be appropriate to overcome barriers to low emission opportunities in the building sector, such as split incentives and information gaps?

   These have been dealt with above.

4. Are additional policies necessary to address barriers to low emission opportunities in existing buildings?

   Existing buildings represent perhaps the single biggest challenge in terms of greening the built environment. 98% of all buildings in Australia are existing stock and if the built environment is to play a significant role in achieving GHG abatement targets, then the issue of greening existing building stock will need to be addressed.

   Over time, the market will force many building owners to improve the environmental performance of their buildings simply in order to remain competitive in a market where tenants are demanding as a matter of course, space that meets high environmental standards. Any building owner that is seeking a government tenant will certainly struggle without a Green Star rating.

However, the need for substantial progress sooner rather than later dictates the need for policies which target existing buildings. Some incentives which could apply to existing buildings have been detailed above; however it is difficult to foresee any effective policy mix which does not include a combination of direct financial incentives for refurbishing an existing building and potential penalties for not doing so within a given time frame.

Conclusion

No industry sector other than the building sector, offers a more effective and efficient way of achieving the level of greenhouse gas abatement required by Kyoto and national policy without incurring significant cost to the economy.

The amount of credible, independent evidence which supports this is now overwhelming as is the data that demonstrates the barriers to unlocking the built environment's potential are in no way insurmountable. Indeed, many governments have already instituted a range of successful measures designed to do exactly that.

When a single building can reduce its energy usage by up to 100% through the application of environmentally sustainable design, technology, systems and generation, then the potential to reduce a city's energy use, or a state's, or a country's becomes obvious.

There can be no doubt that leadership is required to ensure that potential does not go untapped. However, the policy responses do exist and the Garnaut Review provides a tremendous and perhaps, unique opportunity to put those policy responses in place.

If you require any further information please contact the Green Building Council of Australia:

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Appendix A – What is Green Star?

- Green Star is Australia's leading holistic environmental rating tool for buildings.

- Green Star recognises and rewards environmental leadership in the top 25% of the market.

- Green Star was created for the property industry to:
  - Establish a common language;
  - Set a standard of measurement for green buildings;
  - Promote integrated, whole-building design;
  - Recognise environmental leadership;
  - Identify building life-cycle impacts; and
  - Raise awareness of green building benefits.

What does Green Star reward credits for?

- **Management**
  Improves the adoption of sustainable development principles from project conception through to design, construction, commissioning, tuning and operation.

- **Indoor Environment Quality**
  Concerned with occupant wellbeing and performance by addressing the HVAC system, lighting, occupant comfort and pollutants.

- **Energy**
  Credits target reduction of greenhouse emissions from building operation by addressing energy demand reduction, use efficiency, and generation from alternative sources eg solar, wind, cogeneration etc

- **Transport**
  Credits reward the reduction of demand for individual cars by both discouraging car commuting and encouraging use of alternative transportation.

- **Water**
  Credits address reduction of potable water through efficient design of building services, water reuse and substitution with other water sources (specifically rainwater).

- **Materials**
  Credits targets resource consumption through material selection, reuse initiatives and efficient management practices.

- **Land Use & Ecology**
  Credits address a project's impact on its immediate ecosystem, by discouraging degradation and encouraging restoration of flora and fauna.

- **Emissions**
  Credits address point source pollution from buildings & building services to the atmosphere, watercourse, and local ecosystems.

- **Innovation**
  Green Star seeks to reward marketplace innovation that fosters the industry's transition to sustainable building.

What Green Star tools have or are being developed?

- Office Design
- Office As Built
- Office Interiors
- Office Existing
- Retail
- Healthcare
- Education
- Multi Unit Residential
- Mixed Use
- Industrial
- Public Buildings

What Green Star tools are being considered for development?

- Tourism/Hotels
- Precincts

How many Green Star projects are there (as at 10 April 2008)

51 Green Star certified buildings including

- Office Buildings such as,
    - RAAF Richmond HQ, NSW
    - Council House 2, Melbourne City Council offices
    - 255 London Circuit ACT – AusAid Building
    - Bendigo Bank HQ, VIC
    - Lend Lease HQ, 30 the Bond, NSW
- The Advertiser, SA
- Shopping Centres – Orion Springfield (QLD) and Chadstone (VIC)
- Public Building – Melbourne Convention Centre

And a further 510 registered Green Star projects.

Appendix B GBCA Members:

2020 Construction Systems Pty Ltd
50 Plus Constructions Pty Ltd
Abigroup Contractors Pty Ltd
ABN Developments
Accommodation Services - Department of Treasury & Finance
Aconex
ACOR Consultants Pty Ltd
ADC KRONE
Adco Constructions Pty Ltd
Adelaide City Council
AE Smith
AGB Group
Air Change Manufacturing
Air Con Serve Pty Ltd
AIRAH
Airmaster Australia Pty Ltd
Akalan Projects
Akzo Nobel P/L
ALA Consulting Engineers
Allen Jack + Cottier Architects Pty Ltd
Allstaff Airconditioning (VIC) Pty Ltd
Amber Blacktown
AMP Capital Investors
Andrews Neil Pty Ltd
ANZ
APM Group (Aust) Pty Ltd
APP Corporation Pty Ltd
Architectus
Architectus Brisbane Pty Ltd
Architektonic Pty Ltd
Aria Property International
Arii Smits & Associates
Ark Resources
Armstrong World Industries Pty Ltd
Arup Australasia
Aspen Group Limited
Association of Hydraulic Services Consultants (AHSCA)
Atdec
Australand
Australian Institute of Building
Australian National University
Australian Postal Corporation
Avnir Group
AW Edwards Pty Limited
B.I.C Services
BAC Group Architects
Baenziger Coles Pty Ltd
BankWest
Baratech Pty Ltd
Barnwell Cambridge Pty Ltd
Bassett Consulting Engineers
Bates Smart Pty Ltd
Baulderstone Hornibrook Pty Ltd
BCA Consultants Pty Ltd
BCI Australia
Beaumont Tiles
Becton Property Group Ltd
Bendigo Bank Limited
BESTEC Pty Ltd
Beyfield Pty Ltd Trading as East Coast Mechanical Services
BHI
Bickerton Masters Architecture
Bicycle Victoria
Billard Leece Partnership Pty Ltd
Bingo Waste Bins NSW
BioRegional Australia
Birrelli Architects
Bligh Voller Nield
BlueScope Buildings
Bond University
Bovis Lend Lease
Brisbane City Council
Broadlex Services Pty Ltd
Brookfield Multiplex Constructions
Brookfield Multiplex Developments
Brookfield Multiplex Limited
Brookfield Multiplex Services
Buildcorp Australia Pty Ltd
Buildcorp Interiors Pty Ltd
Building Commission (VIC)
Building Services Engineers Pty Ltd
Built Pty Ltd
Byron Harford & Associates Pty Ltd
Cadence Australia Pty Ltd
Cameron Chisholm Nicol
Canberra Institute of Technology
Canberra International Airport
Caroma Dorf
Cavalier Bremworth Carpets
CB Richard Ellis Pty Ltd
CBus Property Pty Ltd
Ceilite Pty Ltd
CGA Bryson Holdings Pty Ltd
Challenger Cleaning Pty Ltd
Charter Hall
Chartered Institution of Building Services Engineers ANZ Region
Citimark Services
City of Gosnells
City of Melbourne
City of Melville
City of Perth
City of Ryde
City of Sydney
City Projects
Clarence Consultants
Coca-Cola Amatil
Coffey Projects (Australia) Pty Ltd
Cogent Energy Pty Ltd
Coles Group
Collard Clarke Jackson Canberra
Colliers International Pty Ltd
Colonial First State Property Management
Colonial First State Property Management - Aurora Place
Compass Project Management
Connell Wagner Pty Ltd
Connor Pincus & Saunders Pty Ltd
Conrad Gargett Architecture
Consolidated Property Services (Australia) Pty Ltd
Construction Assignments Pty Ltd
Construction Control
Construction Queen
Coplan Pty Ltd
Corporate Property (Aust) Pty Ltd
Cox Rayner Architects
Crone Partners Pty Ltd
Crossley Architects Pty Ltd
Crown Project Services Pty. Ltd.
CSC Australia
CSM Office Storage & Filing Solutions
CSR Building Products Ltd
CSR Fricker Ceiling Systems
Cundall
Currie & Brown (Australia) Pty Ltd
Daryl Jackson Alastair Swayn Pty Ltd
Davis Langdon Australia
Defence Housing Australia
DEGW Asia-Pacific
Deloitte
Delta Building Automation
Department for Transport, Energy & Infrastructure (SA)
Department of Defence
Department of Education (Vic)
Department of Environment & Climate Change
Department of Finance and Deregulation
Department of Housing and Works (WA)
Department of Infrastructure
Department of Infrastructure & Planning
Department of Planning and Community Development
Department of Public Works (QLD)
Department of Sustainability and Environment (VIC)
Department of Territory and Municipal Services (Sustainability Programs & Projects)
Desert Ecosystems Pty Ltd
Designed Interiors Pty Ltd
Designer Paint Co
DesignInc Melbourne Pty Ltd
DesignInc Sydney
Dexion Office
Dexus Property Group
Digital Harbour
DLA Phillips Fox
DORMA Australia
Drapac
e-Water Systems Pty Ltd
E. Sime Group
Earp Bros Tiles and Bathrooms
Eastview Commercial
EcCell Environmental Management
Ecospecifier
EMF Griffiths (NSW) Pty Ltd
Encapsa Pty Ltd
enCycle Consulting
Energetics
ENERGEX
Energy Concepts Group
Energy Light Limited
Energy Strategies Pty Ltd
Environa Studio
EPA Queensland
EPA Victoria
Equiset Pty Ltd
Ernst & Young
eSmart Monitoring
Eso Group Pty. Ltd.
Eveready Partitions Pty Ltd
Exergy
F. Hannan (Properties) Pty Ltd
Fabulous Foliage Plantscaping Pty Ltd
Fairfield City Council
Fairfield Plumbing & Fire
FDC Construction & Fitout Pty Ltd
Fineseat Manufacturers Pty Ltd - Group of Companies

First Exemplar Pty Ltd (T/A Co-praxis)
fitzpatrick+partners
FJMT (Francis-Jones Morehen Thorp) Architects
FKG
FKP Property Group
Floorcovering Technologies Group
Floorspace Pty Ltd
Flowtech Air-Conditioning
FMSA Architects
Forbo Floorcoverings Pty Ltd
Formway Furniture
Frank Jell Commissioning Services Pty Ltd
Frasers Greencliff Developments Pty Ltd
Fredon Industries Pty Ltd
Frenchams Indoor Plant Hire
G E Shaw & Associates (ACT) Pty Ltd
Gall and Medek Architects Pty Ltd
Gallagher Jeffs Pty Ltd
GE Real Estate Investments Australia Pty Ltd
Gentra
Genus Loci Pty Ltd
GEO Flooring
George Floth Pty Ltd
Gerflor Australasia P/L
Geyer Pty Ltd
GHD Pty Ltd
Gibbon Group
Glad Group Pty Ltd
Glenzeil Pty Ltd
Global Construction and Consultancy Services P/L
Global Facilities Management Pty Ltd
Gold Coast City Council
Good Environmental Choice Australia Ltd
Goodman Group
Grazer Pty Ltd
Great Forest Australia
Green Building Project Management
Green Design Indoor Plant Hire
Green Pages Australia
Greenpeace Australia Pacific Ltd
Gregory Commercial Furniture Pty Ltd
Grieve Gillett Pty Ltd
Grimshaw
Grindley Construction
Grocon
Grosvenor Australia Asset Management
Group GSA
GRT Group
Gwelo Developments
Habitation
Haden Engineering Pty Ltd
Hames Sharley
Hansen Yuncken Pty Ltd
Hardy Milazzo Architecture & Interior Design
Harris HMC
Harry Poulos Architects
Hassell Pty Ltd
Hastie Group Ltd
Hawaiian Management Pty Ltd
Haworth Australia
HBO + EMTB
Helioscreen
Herbert Geer & Rundle Lawyers
Herman Miller (Aust) Pty Ltd
Herron Todd White
Hettich Australia
Hickory Developments Pty Ltd
Hindmarsh
Housing NSW
Hume City Council
Hungerford Project Services Pty Ltd
Hunter Douglas Ltd.
Hutchinson Builders
Hy-tec Industries
Hyder Consulting Pty Ltd
IA Group Pty Ltd
IBMS Pty Ltd
Ichor Constructions Pty Ltd
ICS Australia
Ilum-a-Lite Pty Ltd
In Vogue Blinds Pty Ltd
INCLEAN Magazine
Incoll Management Pty Ltd
Indochine Engineering
ING Real Estate
Innvotech Solutions Pty Ltd
Intact Projects Pty Ltd
Integral Energy
Integrated EcoVillages Pty Ltd
InterfaceFLOR
Interiors Intoto Pty Ltd
Intermain Pty Ltd
Interstudio Australia
Investa Property Group
Irwinconsult
ISIS Group Holdings Pty Ltd
ISPT Pty Ltd
ITC Group Pty Ltd
Jackman Parken Evans
Jackson Teece
James L. Williams Pty Ltd
Jarrett Services
JBW Central Vacuum Systems
JCK Consulting Pty Ltd
JDV Group
JES Electrical Group Pty Ltd
John Holland Pty Ltd
Johnson Pilton Walker Pty Ltd
Jones Lang LaSalle (NSW) Pty Ltd
Kador Group Holdings Pty Ltd
Kann Finch Group
Karndean International Pty Ltd
Kell & Rigby Pty Ltd
Kemp Strang (Kennedy Strang Legal Grp)
Kingspan Insulated Panels Pty Ltd
Kinnarps of Sweden PTY Ltd
KLM Group Ltd
Knight Frank (Australia) Pty Ltd
Knox Advanced Engineering Pty Ltd
Konstruct Pty Ltd
Krantz Products & Systems Australia
Kyocera Mita Australia Pty Ltd
Lab Architecture
Laing O'Rourke
Land Development Agency
Landcom
LandCorp
Leading Edge Automation
Leighton Contractors
Leighton Properties Pty Limited
Lend Lease
Lester Group Ltd
Lewis Pulleys Pty Ltd
Lincolne Scott
Lindsay Bennelong Developments
Lipman Pty Ltd
Liquid Management And Design
Living Edge
Living Green Designer Homes P/L
Lucid Consulting Engineers
Mackie Pty Ltd
Macquarie Bank Limited
Macquarie University
Mark Perry Business Furniture
Marshall Kusinski Design Consultants
Mastercare Property Services (NSW) Pty. Ltd
Matrix Group (Aust) Pty Ltd
McLachlan Lister Pty Ltd
McNab Property Developments Pty Ltd
Medland Mitropoulos Pty Ltd
Meinhardt Australia Pty Ltd
Meinhardt Facade Technology Pty Ltd
METIER3 Pty Ltd Architects
Metroplex Management Pty Ltd
MGF Consultants (NQ) Pty Ltd
Mikor Pty Ltd
Milliken Berson Madden Pty Ltd
Mirvac
MJF Projects Pty Ltd
Monash University
Monkey Steel Pty Ltd
Morley Davis Architects
Morris Bray Architects
Mossop Group Pty Ltd
MSM Architects
Multisystem Communications
Murchie Consulting Pty Ltd
Murdoch University
Nancarrow Property Group
Napier & Blakeley Pty Ltd
National Business Leaders Forum on Sustainable Development
NDH Property Services
Nettleton Tribe Partnership Pty Ltd
NettZero Pty Ltd
Nilsen (Vic) Pty Ltd
Noel Bell Ridley Smith & Partners Pty Ltd
Noise Mapping Australia
Norman Disney & Young
Northerly Group Pty Ltd
Northpoint Group
Northrop Engineers Pty Ltd
O'Donnell Griffin
O.P. Industries (Sydney) Pty Ltd
Oakbeech Pty Ltd
ODCM
Office Furniture Systems Pty Ltd
Office Spectrum Pty Ltd
Oldfield Knott Architects Pty Ltd
Ontera Modular Carpets P/L
Optima Commercial
Orchard Funds Management
Orica Consumer Products
Origin Energy
P V INTERIORS
P. W. Baxter & Associates Pty Ltd
Paper To Paper Australia Pty Ltd
Parbury
Parkview Group
Paterson Group Architects

PDS Group
PDT Architects
Peddle Thorp Architects
Pike Withers Pty Ltd
Pitt & Sherry
Plenary Group
Plus Architecture
PMDL Architecture & Design
Port of Brisbane Corporation
Posh Indoor Plant Hire
Powerhouse Group
PPG Architectural Coatings
Prestigious Indoor Plants
PricewaterhouseCoopers
Pritchard Francis Pty Ltd
Pro Management Group
Project Planning and Management Pty Ltd
Promat Australia Pty Ltd
PTW Architects
Purchasing Solutions
Q-Bears Pty Ltd
Qanstruct
Qantas Airways
QANTEC McWILLIAM consulting engineers
QED Environmental Services
Quad Consulting Pty Ltd
Queensland Department of Main Roads
Queensland Health
Reefway Environmental Services
Regupol (Australia) Pty Ltd
Remondis
Rentokil Tropical Plants
Resource Architecture Pty Ltd
Rice Daubney
Richard Crookes Constructions Pty Limited
RICS Oceania
Rider Levett Bucknall
RMIT University
Roberts Weaver
Robertson & Marks Architects Pty Ltd atf Guy Fuller Cook Trust
Robina Projects Australia Pty Ltd
Root Projects Australia Pty Ltd
Rothelowman
RSM Bird Cameron
Rynat Industries Australia
S.P.A. Consulting Engineers Pty Ltd
SA Water Corporation
Salinger & Co
Salta Group
Savills (Aust) Pty Ltd
Schamburg+Alvisse Furniture
Schiavello
Schiavello Project Solutions
Scott Carver Pty Ltd
Sebbel Projects
SEE Sustainability Consulting
Serco Sodexho Defence Services
Sheldon Commercial Interiors
Signature Floorcoverings Pty Ltd
Simpson Kotzman Pty Ltd
Sinclair Knight Merz Pty Ltd
Slavin Architects Pty Ltd
Smart Environmental Solutions
Sodexho Australia
Solar Systems Pty Ltd
Somfy Pty Limited
Spotless Services Australia Ltd
Spowers
St Hilliers Contracting Pty Ltd
Stair Lock International Pty Ltd
Star Group
Steensen Varming
Stockland
Stowe Australia
Structural Systems Limited
Studio Two ID Pty Ltd
Studor Australia P/L
Stylecraft
Sustainability Victoria
Sustainable Built Environments (SBE)
Sustainable Living Fabrics Pty Ltd
Swan Services Pty Ltd
Swanbury Penglase Architects
Sydney Harbour Foreshore Authority
Sydney Olympic Park Authority
Szencorp Pty Ltd
TAC Pacific Pty Ltd
TAFE NSW - MEC&T Curriculum Centre
Tagara Builders Pty Ltd
Tarkett Australia Pty Ltd
Tasman Access Floors
Taylor Projects Group
Team Catalyst Pty Ltd
Techbuilt Interiors Pty Ltd
THCS (ACT) Pty Ltd
The Buchan Group
The Buchan Group (Brisbane)
The Container Connection Group
The General Mat Company Pty Ltd
The GPT Group
The Laminex Group
The Property Lab
The Royal Australian Institute of Architects
The Salvation Army (Victoria) Property Trust
The Smith Family
The University of Melbourne
The University of NSW
The University of Sydney
The University of Technology Sydney
The University of Western Australia
The Whitehouse Institute of Design, Australia
Thiess Pty Ltd
Thinc Projects Australia Pty Ltd
Thomas & Coffey Limited
Thomson Adsett Architects
Toga Group
Tony Edye and Associates Pty Ltd
Total Image Interiors Pty Ltd
TPI Commercial Joinery
Trafalgar Building Products
Transpacific Resource Recycling
Triple 'M' Mechanical Services Pty Ltd
Tropical Plant Rentals
Turner & Townsend
Turner+Associates Architects
TVS Partnership
UCI
Ultralast Pty Ltd
Umow Lai & Associates
UNICA PTY LTD
Unique Flooring (NSW) Pty Ltd
Urbis
USG Australasia
V Arc
Valad Property Group
Valmont Interiors Pty Ltd
Vaughan Constructions Pty Ltd
Verosol Aust Pty Ltd
Vertilux Corporation
Victaulic Company of America
VicUrban
Vinidex Pty Ltd
Viridian
Viridis E3 Pty Ltd
VOS Group Pty Ltd
Walter Brooke & Associates Pty Ltd
Walton Construction Pty Ltd
Waterloo - CTCI
Waterman AHW Pty Ltd
Watermark Architecture and Interiors P/L
Watersave Australia Pty Ltd
Watpac Australia Pty Ltd
Western Power
Westfield Pty Ltd
Westralia Airports Corporation
Westside Mechanical Contracting Pty. Ltd.
Whipps-Wood Consulting Pty Ltd
Whittaker Hadenham Openshaw
Wilkhahn Asia Pacific
Willoughby City Council
Winrock Investments Pty Ltd
Wood & Grieve Engineers
Woodhead International Pty Ltd
Woods Bagot Pty Ltd
Woven Image
WT Partnership
XACT Project Consultants Pty Ltd
Xsquared Architects Pty Ltd
Young's Electrical Services Pty Ltd
Zenith Air Pty Ltd
Zenith Ceilings Pty Ltd
Zenith Interiors (NSW) Pty Ltd
Zumtobel Lighting