

22 April 2009

Mr John Hawkins
Committee Secretary
Senate Select Committee on Climate Policy
PO Box 6100
Parliament House
CANBERRA ACT 2600

Submission to the Senate Select Committee on Climate Policy

This submission is made on behalf of members of the Green Building Council of Australia ("GBCA").

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.worldgbc.org).

Over 750 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.

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

Over 140 buildings in Australia are already Green Star certified and there are 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

¹ Intergovernmental Panel of Climate Change (IPCC) "Working Group III contribution to the IPCC Fourth Assessment Report" (2007)



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 them².

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. Residential and commercial buildings are 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.

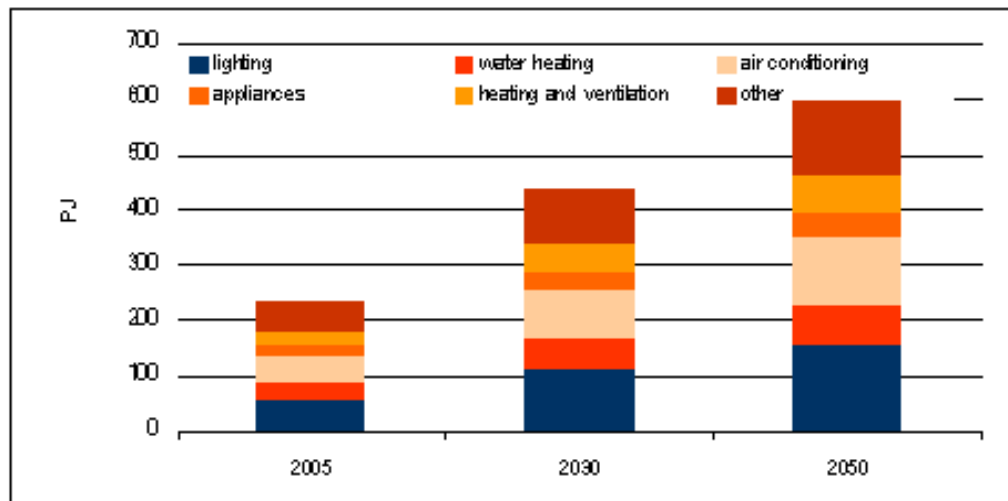
Around 40% of the amount of waste that goes into Australia's landfills is as a result of the construction and destruction of buildings.

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

² *Reducing greenhouse emissions from commercial and industrial buildings : what local government can do (AGO, February 2002)*

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

2.9 Commercial sector projected energy use by activity – no action



Data source: Peas (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 consumption⁴

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.

Key Research Findings:

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.

⁴ USGBC



- 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.

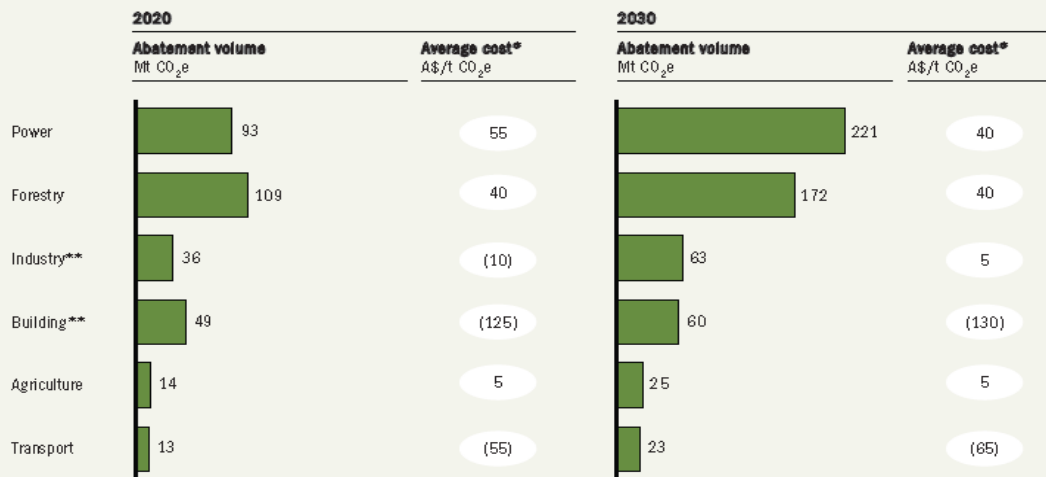
There is a considerable body of evidence which all point to the very significant role buildings can play in global efforts to reduce greenhouse gas emissions and other impacts on the environment.

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 tonnes 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.

Emissions reduction opportunities and cost by sector



* Volume weighted costs to the economy—does not necessarily represent loss of profit to individual businesses
 ** Opportunities in the building sector, and a proportion of those in industry, are measures to reduce energy demand and thereby indirectly reduce emissions in the power sector
 Source: McKinsey Australia Climate Change Initiative

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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 Intergovernmental Panel on Climate Change (IPCC) which shows buildings offer the greatest potential for abatement, outstripping the energy, transport and industry sectors combined.

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

Economic mitigation potentials by sector in 2030 estimated from bottom-up studies

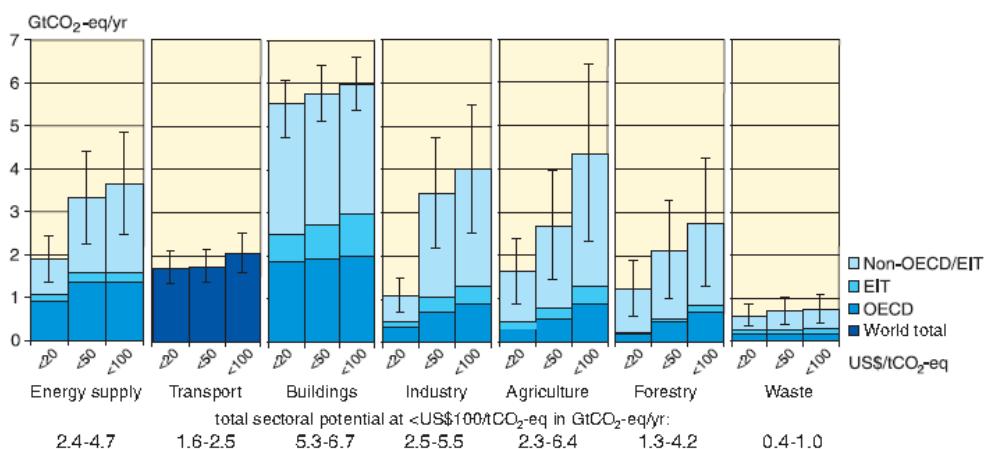


Figure 4.2. Estimated economic mitigation potential by sector and region using technologies and practices expected to be available in 2030. The potentials do not include non-technical options such as lifestyle changes. (WGI/II Figure SPM 6)

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-CO₂ 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%.

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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.

Energy Efficiency in the Built Environment and the Carbon Pollution Reduction Scheme (CPRS)

The Federal Government's CPRS is the cornerstone of Australia's effort to reduce greenhouse gas emissions. The commitment to a unilateral reduction of 5 percent below 2000 levels by 2020 and 15 percent if a global agreement is reached represents a starting point for the government.

The retention of the commitment to reduce emissions to 60 percent of 2000 levels by 2050 is welcome and is consistent with the aim of stabilising atmospheric CO₂ levels at 450ppm or lower.

However, the CPRS does not include the one sector that offers the single largest, cost-effective opportunity for greenhouse gas abatement - Australia's buildings. The CPRS is clearly targeted towards the high-end emitters as opposed to the users of energy such as the electricity consumed in the operation of buildings.

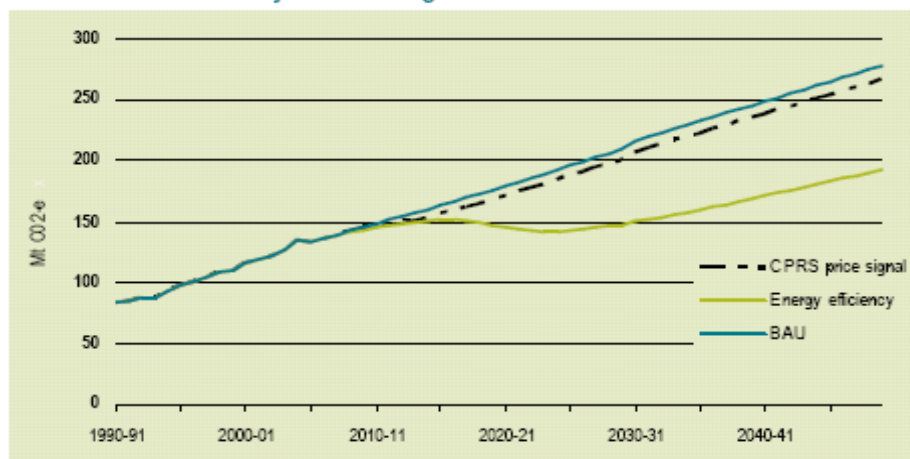
⁷ 4th International Panel on Climate Change, Synthesis Report, 2007.



Given the above, it is clear that a range of measures that are complementary to the CPRS are required to unlock the abatement potential within buildings. A range of measures that are directed at improving energy efficiency in Australia's built environment have been detailed in a number of documents and will be synthesized in this document.

To demonstrate the value of energy efficiency measures, the following chart demonstrates the relative decreases in GHG emissions from the building sector given particular policy approaches.

1.4 GHG emissions by the building sector



Note: The series 'CPRS price signal' plots only expected effect of the CPRS price signal on electricity demand. It has not attempted to account for other influences on the price of electricity (such as other policy measures), nor the supply side response to the CPRS. This series reports the impact on GHG emissions that results from an increase in electricity prices.

Data source: CIE (2007) and ASBEC CCTG estimates.

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In number terms, if the CPRS was the only policy measure applied, greenhouse gas emissions in the building sector (which represents 23% of all Australian emissions) would be reduced by only 8 Mt per year.

If a range of complementary measures are also introduced, the abatement from the sector rises to 60 Mt per year over the longer term which represents a very significant, cost-effective abatement.

Energy efficiency offers the most significant opportunity for abatement and it is important to note that the modelling used to produce this chart is the same as that currently being used by the Federal Government.

Specific Measures

1) Accelerated or 'Green' Depreciation:

Essentially, green depreciation would provide for accelerated depreciation for buildings that meet a specified environmental standard. This would be achieved by allowing the deferment of tax by reducing taxable income in early years in exchange for bringing forward investment.

⁸ ASBEC, *The Second Plank - Building a Low Carbon Economy with Energy Efficient Buildings*, 2008.



This has the benefit of significantly reducing the timing gap issues that usually arise as a result of investing in energy efficiency technology.

Accelerated depreciation would apply to capital expenditure on refurbishments that 'green' commercial buildings and would generally only apply to substantial refurbishments that require local government approval. Fixtures and fittings as well as capital works would be eligible.

Approximately 98% of all building stock is existing stock - that is, building stock which is not new. While most new buildings of any size have for some time now been built with environmental considerations in mind, the vast proportion of Australia's existing buildings remain to varying degrees, inefficient in both energy and water use.

So Australia's existing buildings are extremely important in terms of improving energy efficiency in a sector that represents one quarter of our national emissions profile.

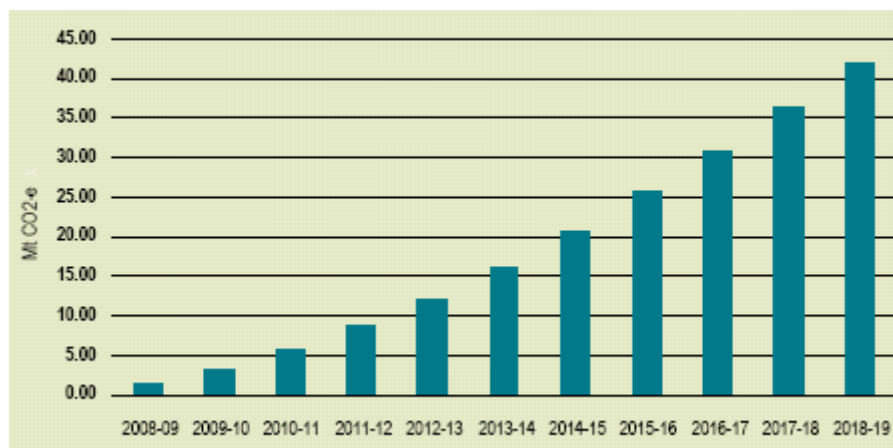
One of the major barriers to the upgrading of these existing buildings is cost and hence, pay back period. Data suggests that it currently takes up to 15 years to obtain a pay back on the cost of upgrading a building to a four star energy rating.

The most significant benefit of accelerated depreciation is that it addresses the single largest barrier to the widespread and rapid upgrading of Australia's existing buildings.

Further, as this is a measure which involves the forgoing of revenue, it would involve a short term loss of government revenue which would soon be offset by an ultimate increase in revenue and economic activity, particularly at a time when the property sector is undergoing something of a slump.

The Centre of International Economics estimates that some 203 Mt of CO2 could be abated in the first 11 years of the scheme at an average rate of 18 Mt per annum at a relatively low cost of approximately \$11 per tonne of CO2.

4.5 Savings of greenhouse gas emissions through green depreciation



Data source: CIE (2007).

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⁹ Ibid, page 30.

2) Increase in Environmental Standards in Building Code of Australia (BCA):

The Building Code of Australia (BCA) represents a very valuable instrument through which the Federal Government can effect change on a widespread basis. This was recognised some time ago and provisions for energy efficiency have been progressively introduced into the BCA since 2003. In May 2006, a range of energy efficiency provisions for all remaining types of commercial buildings were introduced into Section J of the BCA.

The measures require commercial and public buildings to achieve minimum levels of energy-efficiency through performance-based provisions. The measures are designed to reduce the use of artificial heating and cooling, improve the energy performance of lighting, conditioning and ventilation and reduce energy loss through leakage.

Given the advent of national greenhouse gas emission reduction targets and the increasing recognition that buildings are the one of the most significant users of energy and have the greatest potential for effective and efficient improvement, it is very important that the minimum environmental standards in the BCA are progressively increased.

The current standards are not appropriate in the context of Australia's ability to meet its GHG reduction targets.

A new model for the BCA is required and the GBCA supports the proposal to create a National Construction Code (NCC). However, whether through the BCA or a newly formed NCC, the minimum environmental standards need to be progressively and gradually increased.

Rather than the current process where the Building Minister's Forum meets and agrees on a new set of standards, what is required is an agreement on a framework for pre-agreed, progressive increases over a five-year planning horizon. This will not only ensure the standards are progressively increased to match improving technology but also give the market certainty over that planning horizon. It also removes the need for Ministers to wrangle over the detail of the standards year upon year.

The BCA, or its successor, is an important policy mechanism to achieve environmental outcomes. For example, in the United States, requirements in their building code reduced energy consumption in new developments by 15-16%.¹⁰ Experience in the European Union also reinforces the value of building codes to achieve national policy objectives.

3) Public Funding for Building Retrofits:

¹⁰ Nadel, S. 2004, Supplementary Information on Energy Efficiency for the National Commission on Energy Policy, American Council for an Energy-Efficient Economy, Washington DC.



The Federal Government has recognised the important role buildings can play in the fight against climate change in a range of ways, most notably, the \$90m Green Building Fund.

This measure reflects the government's intention to provide an incentive for building owners to improve the energy efficiency of their buildings through retrofit or refurbishment.

This programme, targeted at commercial properties, matches a range of federal and state programs which offer incentives in various forms, to improve energy or water efficiency in residential premises.

Incentives can take various forms, ranging from direct grants to rebates to waivers. Taken collectively, incentives are an important method by which specific market failures or barriers can be overcome or a vehicle by which technology can be made available to those segments of the market that would otherwise not be able to afford them.

While the Green Building Fund is welcome, it is a relatively small amount of money and no funding was provided for the programme to be effectively marketed. This needs to be addressed as a matter of priority to ensure the programme is advertised throughout the sector and to more effectively demonstrate the Federal Government's commitment.

Much of the opportunity for subsidy or incentives rests with local government given their role in approving developments. A range of incentives such as, stamp duty and rate relief for green buildings, or development application fee waivers or faster DA approvals for green buildings can be very effective, locally based measures to improve energy efficiency. However, many local councils do not have the resources to be able to offer such incentives due to their limited financial capacity.

The Commonwealth should consider directly funding local councils to enable them to offer such incentives. This would ensure energy efficiency isn't just available to capital city councils but be genuinely achievable for every jurisdiction in the country.

The Commonwealth has recently provided significant funds directly to local government to support a range of principally capital works programs. The next tranche of funding should be provided to local government to enable them to implement a range of policy measures designed to support the national policy to reduce greenhouse gases.

4) Establish an Energy Savings Trust

Experience in the United Kingdom, where the government has established a Carbon Trust, has shown that an organisation such as this has proven to be critical to the success of government energy efficiency programs. Such bodies also provide critical assistance in coordinating and monitoring the myriad of environmental programs that are a feature of contemporary public administration.



Such a body could act as the delivery agency for a range of Commonwealth measures and ensure programs complement each other and overlap or waste is minimised. The trust would:

- * Oversee existing and proposed Government funds (eg Green Loans, Climate Action Fund, Climate Ready Programme);
- * Engage stakeholders to enhance the effectiveness of existing and proposed funds and incentives (eg work with banking and property industry to increase awareness and uptake of Green Loans and energy efficiency tax credits);
- * Run national and sector specific information campaigns to increase awareness of energy efficiency options;
- * Coordinate and enhance energy data collection;
- * Report annually to Parliament on the effectiveness of all policies and measures and make recommendations for improvements;
- * Engage with state and territory governments to encourage coordination, consolidation and collaboration of programs and policies.

The principle supporting the establishment of such a body is that the effectiveness of the range of local, state and federal programs can be significantly ameliorated without proper coordination which is exactly what the trust would be designed to provide.

Conclusion

Two facts stand out amongst an array of others when one considers climate change and greenhouse gas abatement. The first is buildings represent one quarter of Australia's greenhouse gas emissions. The second is the built environment represents the single largest opportunity for cost-effective abatement of greenhouse gases.

This has been recognised by the Australian Government enough for the Prime Minister to identify energy efficiency as representing the 'second plank' of the government's strategy for meeting its greenhouse targets.

While the first plank is the Carbon Pollution Reduction Scheme - targeted at energy producers, more needs to be done to meet the Prime Minister's second plank commitment.

A range of reviews are currently on-foot including the Wilkins Review and the Henry Tax Review and it is hoped that the outcome of these reviews will include measures that address energy efficiency in the built environment as the CPRS White Paper was bereft of any such measures.

The government is very aware of the measures that are available to implement that would be effective and would realise early and significant reductions in greenhouse gases.

In the sector which is responsible for one quarter of the nation's greenhouse gases, the building sector, the CPRS will only achieve a 3-4% reduction in GHG. Clearly other measures



are required and if a range of complementary energy efficiency measures are introduced, then the reduction in GHG rises to 27-31% or 60 Mt of CO₂ per annum.

These measures have been identified. The sector is prepared to support the government in introducing those measures. The community expects such measures to be implemented and they are all in line with existing national policy.

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
- Precincts

More than 100 buildings in Australia have already been certified Green Star with another 500 more are registered and awaiting assessment and certification.