green building council australia

12 November 2009

Submission to the Inquiry into the Safe Climate
(Energy Efficient Non-Residential Buildings Scheme) Bill 2009

Executive Summary

The Green Building Council of Australia (GBCA) is a national not-for-profit organisation promoting a sustainable property industry through education and the Green Star rating tool. The GBCA welcomes the inquiry into the Safe Climate Bill as an opportunity to discuss how Australia can reduce greenhouse gas emissions from its buildings. Reducing emissions from the building sector is critical; and other policy measures are needed to complement the Carbon Pollution Reduction Scheme if the building sector's abatement potential is to be realised. However, the GBCA believes that other initiatives should be prioritised over the introduction of a building energy efficiency trading scheme at this time, such as reforming the Building Code of Australia, promoting accelerated depreciation and public funding for retrofitting, and government leadership in its own buildings and tenancies. Further information about the GBCA and Green Star is available at Appendices A and B.

1. Introduction

The GBCA welcomes the inquiry into the Safe Climate (Energy Efficient Non-Residential Buildings Scheme) Bill 2009 as an opportunity to discuss the most effective policies that Australia could pursue at this time to promote energy efficiency and reduce greenhouse gas emissions from our buildings. We note the Bill sponsor's ongoing interest in, and commitment to, promoting a more sustainable property sector in Australia.

This submission begins by making the case for why addressing emissions from our buildings is so critical, and why we must take action now. The submission then summarises the research which suggests other measures are needed to complement the Carbon Pollution Reduction Scheme (CPRS), if the abatement potential of the building sector is to be realised. The submission then suggests that other policy interventions, such as green depreciation and financing, should be prioritised over the introduction of a building energy efficiency trading scheme.

2. The importance of tackling emissions from buildings

The most recent report from the Intergovernmental Panel on Climate Change (IPCC) estimated that building-related emissions totalled 8.6 billion metric tons in 2004, and could almost double by 2030 to reach 15.6 billion metric tons.[1] Up to 90% of energy is consumed during the use stage of buildings, for heating, cooling, ventilation, lighting, appliances and so on.[2] Some 10-20% of energy consumed is used for manufacturing materials, construction and demolition.[3]

Proven and commercially available technologies could reduce energy consumption in old and new buildings by 30-50%, without significantly increasing investment costs.[4] The IPCC report found that there was 'high agreement and much evidence' among scientists that there is the 'global potential to reduce approximately 29% of the projected baseline emissions by 2020 cost-effectively in the residential and commercial sectors, the highest among all sectors.'[5] These savings could be achieved through better design, improved insulation, low-energy appliances, highly efficient ventilation and cooling systems, solar hot water, high-reflectivity materials and multiple glazing.[6] The largest savings for new buildings come from designing and operating buildings as complete systems.[7] But retrofitting existing buildings and replacing energy-using equipment would realise the largest portion of carbon savings by 2030.[8]

UNEP has stated, 'no other sector has such a high potential for drastic emission reductions'[9] and buildings 'should be considered a key issue for the post Kyoto period.'[10] The Stern Review also noted the 'significant untapped energy efficiency potential' that exists in the building sector.[11] The Review suggested 'large numbers of poor quality and inefficient

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[1] See M Levine, D Urge-Vorsatz, K Block, L Geng, D Harvey, S Lang, G Levermore, A Mongameli Mehlwana, S Mirasgedis, A Novikova, J Rilling, H Yoshino 'Residential and commercial buildings', in B Metz, O Davidson, P Bosch, R Dave and L Meyers (eds), *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge: Cambridge University Press, 2007.

[2] C Cheng, S Pouffary, N Svenningsen, and M Callaway, *The Kyoto Protocol, The Clean Development Mechanism and the Building and Construction Sector – A Report for the UNEP Sustainable Buildings and Construction Initiative*, Paris: UNEP, 2001, p.8.

[3] Ibid, p.8.

[4] Ibid, p.1.

[5] Levine et al above n 1, p.389.

[6] Ibid, p.389.

[7] Ibid, p.389.

[8] Ibid, p.389.

[9] UNEP, *Assessment of Policy Instruments for Reducing Greenhouse Gas Emissions from Buildings*, UNEP, 2007, p.3.

[10] UNEP, *Buildings and Climate Change: Status, Challenges and Opportunities*, Paris: UNEP, 2007, p.v.

[11] Nicholas Stern, *Stern Review on the Economics of Climate Change*, London: HM Treasury, 2006, p.378.

buildings are constructed despite the existence of a range of cost effective technologies and design techniques.'[12] However, getting the design right may have 'significant potential to reduce emissions from buildings, especially in fast growing construction markets.'[13] The Garnaut Review's issues paper on transport and the built environment also noted that there might be 'significant opportunities for emission reductions that would quickly provide financial benefits for building occupants, partially protecting them against the effects of potential energy price rises.'[14]

The diagram below, taken from the IPCC report, demonstrates the significant potential to reduce emissions from buildings.

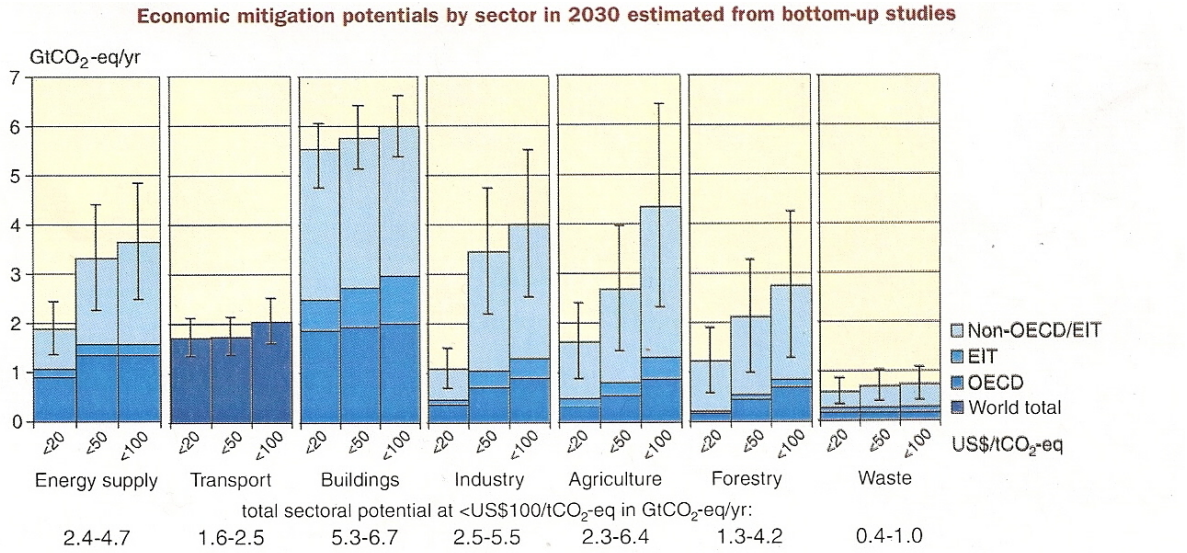

Figure 4.2. Estimated economic mitigation potential by sector and region using technologies and practices expected to be available in 2030. The potentials do not include non-technical options such as lifestyle changes. {WGIII Figure SPM.6}

Source: Intergovernmental Panel on Climate Change, 2007. Synthesis Report, IPCC, Spain, p.59.

Investing in buildings is cost-effective. UNEP states that 'most measures aimed at greenhouse gas emission reduction from buildings also result in reduced energy costs over the building's life cycle, which over time off-sets increased investment costs.'[15] A US study found that investing in the energy efficiency of buildings could reduce the nation's energy consumption by 23% by 2020, save the US economy $1.2 trillion and reduce greenhouse gas emissions by 1.1 gigatons

[12] Ibid, p.379.
[13] Ibid, p.379.
[14] Garnaut Climate Change Review, *Issues Paper – Forum 5: Transport, Planning and the Built Environment*, Melbourne: Garnaut Climate Change Review, 2008, p.10.
[15] Cheng et al, above n 2, p.1.

annually.[16] An Australian study found that a significant reduction in Australia's emissions is possible by 2020, and 25% of the total reductions potential could be realised with positive returns to the economy.[17] According to the study, 'most of these positive-return (or 'negative-cost') opportunities are energy-efficiency measures related to improvements in buildings and appliances.'[18] The study notes

> each year we delay producing energy efficient buildings… the greater the volume of negative-cost opportunities we lose. The cost of creating a new energy-efficient asset is typically a fraction of the cost of retrofitting it later, or retiring an asset before its useful life is over.[19]

The World Business Council for Sustainable Development has stated:

> Urgent action is needed because of the timescales involved in the building sector. Buildings, unlike cars, last decades or even centuries in some countries. A country's entire car fleet can be renewed in a dozen years, rapidly making room for new technology and greater efficiency. But buildings constructed now will probably still be standing near the end of the century.[20]

3. Could Australia just rely on the Carbon Pollution Reduction Scheme to reduce emissions from the building sector?

GBCA welcomes the introduction of the CPRS, as one part of Australia's response to climate change. However, the abatement potential of the building sector will not be realised if Australia relies on the CPRS alone.

Research by the Australian Sustainable Built Environment Council (ASBEC) and the Centre for International Economics (CIE) found that energy efficiency gains delivered by the building sector can reduce the costs of abatement for all sectors by nearly 14% by 2050.[21] GDP would be nearly 2% higher, equivalent to $38 billion per annum, and adverse impacts on

[16] See McKinsey, *Unlocking Energy Efficiency in the US Economy*, McKinsey, 2009.
[17] McKinsey, *An Australian Cost Curve for Greenhouse Gas Reduction*, McKinsey Australia Climate Change Initiative, 2008, p.6.
[18] Ibid, p.6.
[19] Ibid, p.20.
[20] World Business Council for Sustainable Development, *Transforming the market: Energy efficiency in buildings*, World Business Council for Sustainable Development, 2009, p.17.
[21] Centre for International Economics, *Capitalising on the building sector's potential to lessen the costs of a broad based GHG emissions cut*, Canberra: Centre for International Economics, 2007, p.4.

employment would be minimised.[22] The most critical finding in this context was that:

> energy efficiency measures in the building sector have the potential to abate nearly 2 billion tonnes of CO2-e in total over the period from 2010 to 2049-50. The price signal of the CPRS, as currently configured, will abate less than one fifth of this amount.[23]

ASBEC concluded that

> The additional contribution that substantial demand side management in the building sector can make to the abatement effort is striking… this is why the Government's second plank and the additional complementary measures that will enable the building sector [to] realise its potential are crucial.[24]

As Prime Minister Rudd has recognised, 'there is a much broader set of measures to be embraced by both households and by business in order to make a significant contribution to the drawing down overall energy usage, and therefore greenhouse gas emissions.'[25]

The Council of Australian Governments recently endorsed the second plank of the Government's approach, the National Strategy on Energy Efficiency. A large part of the strategy is devoted to making buildings more energy efficient.

4. Promoting energy efficiency

The Australian Government is currently seeking to introduce important new policies, such as the CPRS and mandatory disclosure. The GBCA believes that these policies, together with the National Strategy on Energy Efficiency, should be implemented before a building energy efficiency trading scheme is introduced.

Drawing on the National Strategy for Energy Efficiency, and ASBEC's work on energy efficient buildings, the GBCA would like to highlight three key policy interventions which we believe should be high priorities: reforming the Building Code of Australia; public funding and accelerated depreciation for retrofitting; and government leadership.

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[22] Ibid, p.4.
[23] Australian Sustainable Built Environment Council, *The Second Plank – Building a Low Carbon Economy with Energy Efficient Buildings*, Flemington: ASBEC, 2008, p.1.
[24] Ibid, p.1.
[25] Kevin Rudd in Australian Sustainable Built Environment Council above n 23, p.1.

The Building Code of Australia

UNEP considered 80 case studies and concluded that regulatory instruments, such as a building code, were the most effective and also, normally, the most cost-effective way of promoting energy efficiency and reducing emissions.[26] McKinsey has likewise suggested that government regulation is needed to address market failures from split incentives between builders and tenants.[27] In the US, it is estimated that such codes have reduced energy use by 15-16% of the baseline in 2000.[28]

The National Strategy for Energy Efficiency foreshadows 'increasingly stringent minimum performance standards for new buildings.'[29] The current review of the Building Code of Australia provides such an opportunity, but it will be important to raise minimum standards in existing buildings as well.

Public funding and accelerated depreciation for retrofitting

ASBEC has suggested two related policy interventions to encourage retrofitting in existing buildings. 'Green' depreciation would allow the owners of buildings that meet a specified environmental standard to receive accelerated depreciation:

> Green depreciation would allow the deferment of tax by reducing taxable income in early years in exchange for bringing forward investment. By allowing investors to defer tax payments, green depreciation can significantly reduce the timing gap problems of energy efficient investments.[30]

Public funding through grants subsidies and rebates could also assist to make building retrofits more cost effective from an owner's perspective. According to ASBEC, 'public funding of building retrofits reduces the investment cost for energy consumers, therein closing the "payback gap" and providing the necessary incentives to undertake investment in energy efficiency.'[31]

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[26] UNEP above n 9, p.65.
[27] McKinsey above n 17, pp.6, 20.
[28] UNEP above n 9, p.19.
[29] Council of Australian Governments, *National Strategy on Energy Efficiency*, Canberra: Commonwealth Government, 2009, p.12.
[30] Australian Sustainable Built Environment Council above n 23, p.29.
[31] Australian Sustainable Built Environment Council above n 23, p.31.

Government leadership

As the National Strategy for Energy Efficiency acknowledges, government leadership is critical: 'improving the energy efficiency of Commonwealth, state and territory governments'[32] operations will… demonstrate leadership and thus encourage wider community acceptance.' Further, 'governments are major clients in the commercial buildings market, with the Commonwealth Government alone representing around 13 per cent of the commercial office market.'[33]

The GBCA encourages governments to commit to using Green Star for government buildings and tenancies. The Green Star rating tool promotes energy efficiency, but also broader sustainability principles. Such a commitment would be a tangible expression of government leadership.

5. Conclusion

The GBCA welcomes the opportunity to discuss how we can improve energy efficiency in Australian buildings, and reduce greenhouse gas emissions from this critical sector. The Safe Climate Bill makes an important contribution to this discussion, but we believe other policy interventions, such as improving the Building Code, government funding and accelerated depreciation for retrofitting, and government leadership in its own buildings and leases, are higher priorities than a building energy efficiency trading scheme.

[32] Council of Australian Governments above n 29, p.15.
[33] Ibid, p.15.

Further inquiries

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

Dave Peebles
Director – National Policy and Public Affairs
Green Building Council of Australia
Email dave.peebles@gbca.org.au
Phone 0447 456 677
Address Suite 6A Mezzanine Level, Melbourne Building,
Atrium Centre 55, Northbourne Avenue
Canberra ACT 2602

Appendix A – About the Green Building Council of Australia

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.
- It has developed a national suite of green building rating tools called 'Green Star' (see Appendix B for more details).
- It is a member of the World Green Building Council (www.worldgbc.org).

Over 800 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.

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.

More than 165 buildings in Australia have received a Green Star certification (representing 11% of Australia's commercial office space); another 460 projects are registered and awaiting assessment and certification. There are 3,000 Green Star Accredited professionals and more than 14,000 people have attended Green Star courses. A full explanation of Green Star can be found in Appendix B.

Appendix B – About the Green Star rating tool for buildings

- 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 target 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