

14 August 2009

Submission to the Queensland Parliamentary Inquiry into Energy Efficiency Improvements

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).

More than 800 organisations are members, representing a diverse cross section of the property industry from developers and owners to sub contractors and manufacturers. The Australian 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 provides an invaluable opportunity for the property industry to learn and share experiences and ideas.

Over 160 buildings in Australia are already Green Star certified, with a further 400 plus projects registered for certification. A full explanation of Green Star can be found in Appendix A.

Energy Efficiency and the Built Environment

Buildings have a significant impact on our environment and contribute a sizeable proportion of Australia's greenhouse gas emissions. Buildings can also be part of the solution to climate change, 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 within them².

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 per cent 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. A number of measures are already being integrated into the built environment by the property sector. These include:

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

Buildings and Climate Change

Conventional buildings have a very significant impact on the environment. Residential and commercial buildings are responsible for 23 per cent of Australia's total greenhouse gas emissions annually.³

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 per cent 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 per cent of the national energy output and 12 per cent of the fresh water resources in OECD countries.

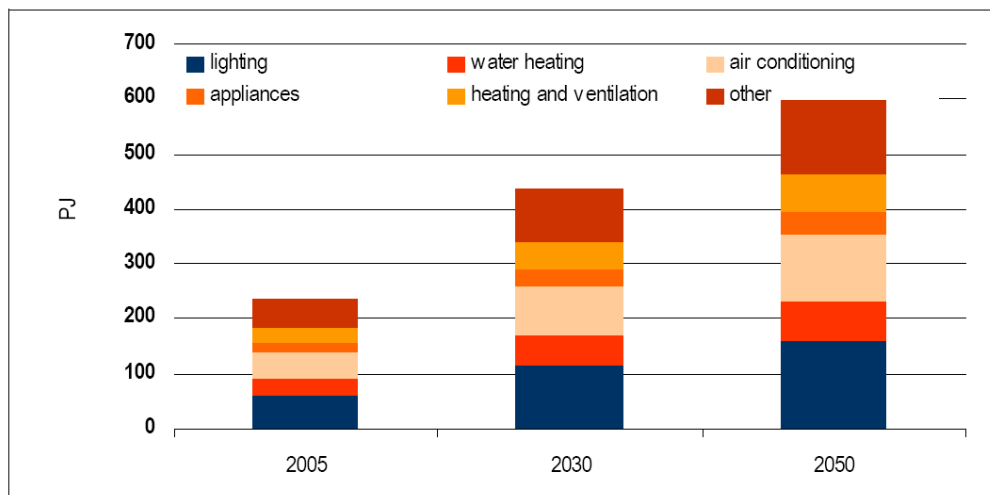
Without appropriate action, energy use in the commercial sector is forecast to treble by 2050.⁴

³ Australian Sustainable Built Environment Council, *The Second Plank: Building a low carbon economy with energy efficient buildings*, (August 2008).

⁴ 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

General comment

GBCA would suggest, firstly, greater clarity around the intended goal that the Queensland Government is trying to achieve. Promoting energy efficiency is not necessarily the same as reducing greenhouse gas emissions. For example, an electric hot water system is 98% energy efficient. In comparison, a gas hot water system is only about 70% energy efficient and a solar hot water system is only about 25% energy efficient. If we are seeking energy efficiency, we would all choose the electric water heater, but for greenhouse efficiency, we would choose the solar water heater first and the gas heater second with the electric water heater last.

This issue has been recognised by the Australian Building Codes Board. It has been proposed that Section J of the Building Code of Australia be changed from “..to reduce greenhouse gas emissions by efficiently using energy” to more simply “.. to reduce greenhouse gas emissions.”

Whilst using energy efficiently may reduce greenhouse gas emissions often the efficient use of energy will not make any difference. We should be explicit about the need to promote greenhouse gas efficiency and mitigate climate change.

1. What have been the economic and environmental costs and benefits of energy efficiency initiatives affecting households, industries/businesses, governments and communities in Queensland?

Households

The BCA's efforts to improve the energy performance of new houses has improved the quality of Queensland homes. However, the corresponding increase in the uptake of consumer electronics and air conditioning has meant that actual greenhouse gas emissions have increased since the policy was implemented. Whilst the initiative involved a small economic cost, the environmental cost has been significantly larger. There has not been a distinct economic or environmental benefit when compared to the benchmark before the measure was implemented. We acknowledge, though, that the environmental damage would have been worse if the measure was not implemented.



Phasing out electric hot water systems in Queensland homes is significantly reducing greenhouse gas emissions. However, these emissions could be almost eliminated if solar hot water instead of gas water heating was used. The cost impact of this policy is almost insignificant when compared to the price of a home and as such the economic impact is almost negligible.

Industry/businesses

We believe there is scope for the Queensland Government to introduce further measures to curb the growing greenhouse gas emissions of Queensland industry and businesses. The measures in the BCA appear to have been effective, but good data to support this conclusion does not appear to be collected in Queensland. Whilst some industry programs like the Eco-Biz program from the EPA showed potential, the focus on economic output for lower environmental impact limited the ability of the program to deliver significant environmental benefits. It may have been more effective to focus on reduced environmental impact first.

Government

There are some excellent case studies about the successes that the Queensland Government has had in reducing their own corporate greenhouse gas emissions. However, more could be done to take the lessons from these projects and apply them to business and industry to assist them with achieving similar savings. In particular, the Government Energy Management Scheme (GEMS) and the work done by Queensland Health to identify inefficiencies and invest in alternatives are examples that the entire community should have access to. Many local governments in Queensland participated in the ICLEI Cities for Climate Protection Program and implemented extensive programs to address their emissions.

Community

It is difficult to identify any community programs aimed at significantly reducing greenhouse gas emissions. Similarly, it is difficult to identify any metrics or data collected by the Queensland Government to inform community greenhouse policy.

2. In economic and environmental terms, what energy efficiency initiatives have been effective in Queensland?

The most effective initiatives are the ones where the outcomes are guaranteed. The phase out of electric hot water systems appears to be one where no matter which alternative consumers selected, the outcome of reduced greenhouse gas emissions was guaranteed.

Promoting the use of compact fluorescent lights is another area where the savings could be significant.

3. What role do Commonwealth Government initiatives, including the proposed Carbon Pollution Reduction Scheme, play in encouraging energy efficiency?

It is appropriate for the Commonwealth Government to introduce initiatives like the CPRS to address national issues. This has limited effect if other levels of government do not follow through with detailed policy responses. For example, state governments have responsibility over the efficiency of health and educational facilities and it is appropriate that the states implement initiatives to address the emissions associated with these facilities. Similarly, state governments have authority over urban development and are therefore responsible for the growth in emissions related to transport.

The Australian community understands that greenhouse gas emissions are an important focus for us all as a nation. The Commonwealth Government has made that clear through initiatives like the CPRS and ratifying the Kyoto Protocol.

4. What additional policies should the Queensland Government implement to encourage energy efficiency improvements?

As suggested above, we believe the Queensland Government should focus explicitly on greenhouse gas emission reduction, rather than energy efficiency. Whilst energy efficiency is one of the effective ways of reducing greenhouse gas emissions it is probably not the most effective mechanism. Most of the successful initiatives implemented around the world fall under other greenhouse reduction measures such as fuel switching and behaviour change.

The Queensland Government should immediately seek to address the data gaps in its greenhouse policy. It should commence collecting data on energy consumption at the end use level that is needed to justify and measure the effectiveness of greenhouse efficiency initiatives. This data should be made publicly available.

The Queensland Government should consider more appropriate measures to influence the greenhouse gas emissions from industry and business. The focus in the past on voluntary measures has had very limited impact. For most Queensland businesses, the total energy bill is significantly lower than other business costs. This makes cost effective greenhouse gas efficiency measures unattractive in comparison to other investments which result in increased economic output and return. The Queensland Government should consider whether it is time to regulate for better outcomes.

Some voluntary programs such as the Green Star building certification scheme run by the Green Building Council of Australia have seen commercial office buildings in Brisbane reduce their greenhouse footprint by over 70% when compared to business as usual - Green Square North Tower's energy rating is 65% better than the "Exceptional" level of 5 stars in the NABERS Energy rating scheme. The Queensland Government should consider options to support the construction industry's efforts to use resources more efficiently, and how best practice achievements can be effectively disseminated to industry. Similarly, the Queensland Government's building retrofit programs provide some excellent case studies. The Queensland Government should consider ways that it can disseminate the details of these case studies including the financial costs and benefits so that the broader industry can engage with and replicate these examples. The Queensland Government should also critically review these case studies to determine whether further regulation for improved greenhouse outcomes is possible and warranted.



5. What barriers and impediments to energy efficiency enhancements exist in Queensland?

One of the key barriers to the more efficient use of energy and better greenhouse policy in Queensland is the lack of data collection and effective engagement from government. Other state governments started collecting data from which to inform energy and greenhouse policy platforms more than ten years ago. In Queensland, though, there still appears to be no programs in place to collect and analyse end-use energy consumption and greenhouse gas emissions patterns.

Voluntary actions such as subscribing to GreenPower still remain marginal commitments for Queenslanders. More could be done by government to identify the simple things Queenslanders could take personal action on to reduce their environmental impact. The recent response to government programs run in South East Queensland to reduce water consumption should be used as model programs for action on climate change.

6. What policies should be considered to overcome these barriers and impediments?

The Queensland Government could consider adopting “greenhouse efficiency” rather than “energy efficiency” as its key goal.

The Queensland Government could consider ways that it can address the emissions from transport in the country’s most decentralised state. Support for additional public transport services, alternative fuel vehicles, reduced registration for efficient cars and possibly even greater registration charges for inefficient cars would be a good place to start.

7. How can governments make information on energy efficiency improvements more accessible?

Information needs to be provided as a single part of a program aimed at changing the behaviours of Queenslanders. The Queensland Government should look closely at the way information was provided as part of the Target 150 campaign to reduce water consumption in South East Queensland.

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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 per cent 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 and 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 160 buildings in Australia have already been certified Green Star with another 400 plus registered and awaiting assessment and certification.