

John Hawkins  
Committee Secretary  
Senate Economics Legislation Committee  
[economics.sen@aph.gov.au](mailto:economics.sen@aph.gov.au)

23 October 2009

Dear Mr Hawkins

The Energy Efficiency Council welcomes the opportunity to provide a submission to the Senate Economics Legislation Committee inquiry into the *Safe Climate (Energy Efficient Non-Residential Buildings Scheme) Bill 2009*.

As the peak body for companies that deliver cutting-edge energy efficiency services, the Energy Efficiency Council has extensive on-ground expertise in the commercial reality of technology and policy relating to greenhouse emissions and energy generation, distribution and use.

Australia needs programs to drive energy efficiency in the commercial building sector. Even in the absence of climate change energy efficiency will improve the efficiency of the Australian economy. With the imperative to reduce emissions, energy efficiency in the building sector could save an average of \$130 per tonne of carbon dioxide abated (McKinsey and Company 2008), resulting in an economy-wide saving of \$38 billion per annum by 2050 (Centre for International Economics 2007).

The Energy Efficiency Council supports the rapid introduction of a strong Carbon Pollution Reduction Scheme (CPRS), but additional policies are required to address a range of market distortions and market failures that impede energy efficiency. Failing to introduce complementary policies to drive energy efficiency will substantially increase the economic cost of the CPRS.

The proposed 'Energy Efficient Non-Residential Buildings Scheme' is not the most effective policy to drive energy efficiency in commercial buildings. The scheme is not well targeted, has equity implications and has high administration costs.

The Energy Efficiency Council recommends an alternative suite of policies to drive retrofitting of existing commercial buildings, which includes:

- A *National Energy Efficiency Scheme* that covers commercial buildings and replaces the energy efficiency schemes introduced in New South Wales, Victoria and South Australia. Design options include a white certificate scheme and expanded Green Building Programs.
- A National Demand-Management Scheme to address the existing distortions in the National Electricity Market (NEM) that favour supply-side over demand-side solutions.
- Capacity building in the finance, property and energy efficiency sectors.
- Mandatory disclosure of commercial building performance.
- Improvements in the energy efficiency of government operations.

Please contact me on 03 8327 8422 should you require further information on any of the issues raised in this submission.

Yours sincerely

Rob Murray-Leach  
Chief Executive Officer

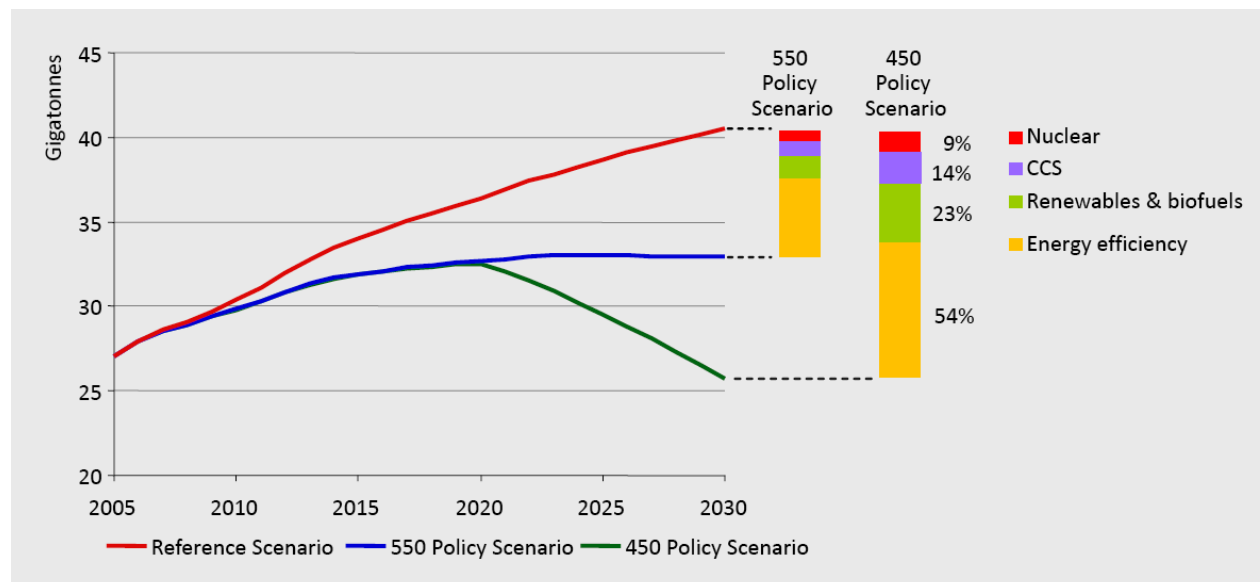
## 1. The Energy Efficiency Council

The Energy Efficiency Council is the Peak Body for commercial and industrial energy efficiency providers. The Council was established in 2009 to grow the market for energy efficiency products and services and ensure that energy efficiency is implemented with excellence and accountability.

## 2. The importance of energy efficiency

There are significant economic drivers for energy efficiency policy even in the absence of climate change. When a company invests in cost-effective energy efficiency it improves their overall efficiency and productivity. These savings help businesses save money, improve productivity and retain staff, while creating new jobs in energy efficiency. As a result tapping into Australia's full energy efficiency policy would increase GDP, even in the absence of a carbon price.

The drivers for energy efficiency are more substantial in a carbon constrained economy. Similarly, the Australian Bureau of Agricultural and Research Economics estimates that energy efficiency will account for around 55 per cent of Australian emission abatement to 2050 (Gurney et al 2007). Energy efficiency is the largest and most cost effective source of greenhouse gas reduction. The International Energy Agency (IEA) estimates that energy efficiency will account for around 54 per cent of global emission abatement to 2030 in a scenario where global carbon dioxide levels stabilise at 450ppm.



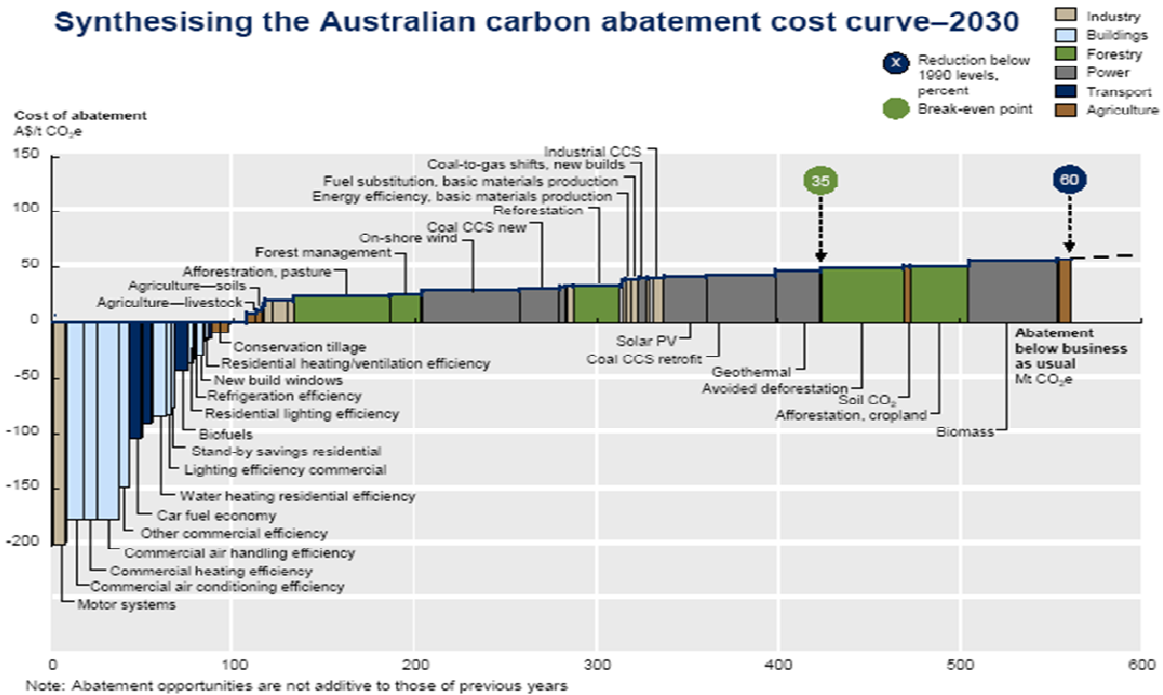
Source: IEA World Energy Outlook 2008

Both estimates are likely to underestimate the potential contribution of energy efficiency to emissions abatement. Many real-life energy efficiency projects have demonstrated significantly greater cost-effective energy efficiency opportunities than assumed in these projections. The Energy Efficiency Opportunities Program requires companies to investigate their options to save energy. These investigations unearthed substantial savings, with one company finding over 5 Petajoules of savings at a single site, equivalent to the energy use of around 100,000 households.

The International Panel on Climate Change notes that its own estimates of the energy efficiency potential in buildings is likely to be lower than the real potential "Due to the limited number of demand-side end-use efficiency options considered by the studies, the omission of non-technological options, the often significant co-benefits, as well as the exclusion of advanced integrated highly efficiency buildings... (*high agreement, low evidence*)."

(Metz et al 2007 p409). In addition to being the largest source of emission abatement, energy efficiency is widely acknowledged as the most cost-effective form of abatement. The 'McKinsey curve' (below) indicates that the most cost-effective opportunities for abatement are in energy efficiency, to the left of the curve. As a result, the economic cost of tackling climate change in Australia will be substantially higher if we fail to mobilise the potential for energy efficiency.

## Synthesising the Australian carbon abatement cost curve–2030



Source: McKinsey and Company 2008

Energy efficiency is not only critical for protecting the economy, it is also a substantial economic opportunity. HSBC estimate that global revenue from climate-related businesses grew 75 percent over the past year to reach US\$530 billion in 2009, and project that revenue will reach US\$2 trillion in 2020. Energy efficiency is one of the fastest growing areas of climate-related business, accounting for 31 per cent of revenue in 2009. If Australia can position itself as a regional hub for exporting energy efficiency technology and services it would significantly benefit the economy. However, to become an export market it will need to have a strong domestic market for energy efficiency.

### 3. The Commercial Building Sector

The commercial building sector must be a priority area for climate change policy as, along with industry, it is one of the largest and most cost-effective sources of abatement in the economy:

- Commercial buildings account for around 13 per cent of Australia's emissions. The Centre for International Economics (2007) estimates that emissions from commercial buildings could be reduced by 35 per cent, which at today's emission levels would be equivalent to reducing Australia's emissions by 4.6 per cent.
- McKinsey and Company (2008) estimate that energy efficiency in the commercial building sector saves an average of \$130 for each tonne of CO<sub>2</sub>e abatement.
- The Centre for International Economics (2007) estimates that tackling energy efficiency in the building sector would save the Australian economy \$38 billion per annum by 2050.
- Davis Langdon (2009) estimated that a major refit of Australia's commercial buildings would create 27,000 jobs each year over the next decade.
- Energy efficiency upgrades deliver improved indoor environments and a number of studies have indicated this increased staff productivity by 5 to 10 per cent.

Energy efficiency policies must focus on retrofitting existing buildings. Standards for new buildings are important, but the energy used in existing buildings over the next 20 years will dwarf the energy from buildings constructed after 2009. Long-term historical trends suggest that existing buildings will account for around 65 per cent of the building stock in 2030, and over the period 2010-2030 will produce well over ten times the emissions from new buildings.

## 4. Policy implications

The Energy Efficiency Council supports the rapid introduction of a strong and effective Carbon Pollution Reduction Scheme (CPRS). However, a range of existing market distortions and market failures means that additional policies are required to mobilise Australia's energy efficiency potential.

Complementary policies are critical for four main reasons:

1. There are substantial market distortions and market failures that impede energy efficiency
2. Even in the absence of climate change, the efficiency of Australia's businesses will affect their competitiveness, but in a carbon constrained global economy it will be critical.
3. If Australia fails to tap into the largest and most cost-effective form of abatement it will significantly increase the economic impact of tackling climate change.
4. Fostering cost-effective domestic abatement will demonstrate that emissions reductions and economic growth can go hand-in-hand. This is critical for global negotiations.

Energy efficiency policies and programs need to:

1. Drive as much cost-effective energy efficiency as possible. The level of energy efficiency that is cost-effective will be affected by all costs (capital, labour and program costs) and all benefits (energy savings, energy infrastructure savings, productivity improvements, health and greenhouse reductions).
2. Focus on tackling market failures and existing market distortions.
3. Address the full range of market failures and distortions to unlock the full potential for energy efficiency. Where multiple barriers impede energy efficiency, each barrier needs to be addressed to deliver energy efficiency at the lowest cost.
4. Have sufficient funding to drive cost-effective energy efficiency, but be cost-effective so that each dollar invested in a program drives the maximum amount of energy efficiency.

## 5. Market distortions and market failures that impede energy efficiency

The failure to internalise the cost of carbon in the cost of energy is only one of the barriers to energy efficiency. Extensive studies have identified a range of other market failures and market distortions that are well accepted by experts.

The current National Electricity Market (NEM) rules and regulations create substantial market distortions. The NEM rules attempt to create a competitive market in a complex situation involving monopoly grid supply and semi-competitive generation and retail markets. A wide variety of experts, including the Parer Review and Professor Garnaut, have identified flaws in the current NEM rules that favour established supply-side options (i.e. expanding centralised generation and the grid) over demand-side options (energy efficiency and distributed generation).

One flaw centres on the opportunity to acquire new electricity distribution capacity through energy efficiency and distributed generation sources. Where there is a need for new capacity in the grid, distributors have the option of either investing in increased network infrastructure or investing in energy efficiency and distributed generation to reduce peak demand. Although investing in energy efficiency and distributed generation would often provide the same capacity at much lower costs to the public, the NEM rules strongly favour investing in networks and centralised supply.

Even in the absence of climate change these flaws should be tackled, as they distort the energy market, increasing energy supply costs for households and businesses. With climate change, the imperative to address these flaws is even stronger.

Addressing the failures in the NEM is critical to helping Australia lower the cost of meeting its greenhouse targets. Tackling these failures is strongly complementary to the CPRS, as it will remove existing distortions rather than create an additional driver for emissions reduction. Completely resolving the full range of these complex issues will not occur overnight. However, governments can make significant inroads now through a number of core programs.

There are also a range of well-established market failures, which are discussed in more detail in the Garnaut Review and the sources listed in the references at the end of this submission. The following list of market failures affecting energy efficiency is not exhaustive:

<b>Externalities</b>	In addition to the carbon externality, energy efficiency has spillover benefits such as reduced network infrastructure costs. As noted above, the NEM rules currently fail to reward companies for delivering these benefits.
<b>Early mover spillovers</b>	Support for research and development is required to extend the potential of energy efficiency
<b>Principal agent problems</b>	The incentives facing landlords, tenants and building managers are frequently not aligned, resulting in sub-optimal outcomes
<b>Public good information, information spillovers &amp; information asymmetry</b>	Many homeowners, companies and specialists lack information on energy efficiency due to a range of market failures. With information asymmetry this can impede coordination between parties. Information gaps are not minor problems; they can entirely impede otherwise cost-effective energy efficiency
<b>Bounded rationality and organisational failures</b>	Even with access to information, individuals and organisations can fail to recall, process or use information effectively

These market failures interact to create emergent problems. For example, bounded rationality and gaps in knowledge within companies and financial institutions can impede access to capital for energy efficiency projects. In particular, governments' budgetary policies can be a significant impediment to cost-effective energy efficiency projects. Therefore, directly addressing access to capital can overcome multiple market-failures.

Similarly, principal-agent problems, serious gaps in knowledge and bounded rationality create barriers throughout a supply chain, impeding the entry and diffusion of novel technologies. For this reason, market transformation approaches that consider the whole supply chain can be more effective than addressing each part of the chain separately.

## 7. Safe Climate (Energy Efficient Non-Residential Buildings Scheme) Bill

The Energy Efficiency Council strongly supports the proposal to introduce a scheme to drive energy efficiency in the commercial building sector. However, the 'Energy Efficient Non-Residential Buildings Scheme' (the 'proposed scheme') is not the most effective policy option to drive energy efficiency in commercial buildings. The proposed scheme:

1. Imperfectly targets key behaviour- cost-effective improvements in energy efficiency
2. Has equity implications; and
3. Is expensive to administer.

To explain this in more detail, the scheme should aim to drive cost-effective improvements in the energy efficiency. The level of energy efficiency improvement that is cost-effective will vary between buildings:

- Some buildings are already highly efficient (e.g. rated 4.5+ NABERS stars) and have limited scope for cost-effective efficiency improvements.
- Some inefficient buildings (1-3 stars) can be cost-effectively upgraded to a high level of efficiency.
- Some inefficient buildings (1-3 stars) have some scope for some cost-effective upgrades, but cannot be upgraded to a high level of efficiency. The only way for these buildings to become highly efficient is to substantially remodel them or demolish them, which would generate significant carbon emissions. The amount of 'embodied' energy involved in this process could outweigh the energy saved through efficiency improvements.

This means that, firstly, the proposed scheme only weakly targets the desired behaviour, improving energy efficiency. While the scheme provides an incentive for owners of inefficient buildings to improve the efficiency of their buildings, much of the funds in the scheme will simply reward the owners of buildings that are already energy efficient (4.5+ stars). This means that the scheme funds will be directed to reward historical actions, not improvements.

Secondly, the proposed scheme has equity implications. The scheme will reward companies that own buildings that are either already efficient or can be cost-effectively made efficient. Conversely, the scheme will be an impost on companies that own buildings that cannot be made highly efficient at reasonable cost.

Finally, the proposed scheme will be administratively cumbersome. A scheme to improve the efficiency of buildings should focus on the point at which buildings' efficiency is improved. However, under the proposed scheme an administrator will need to do the following every year:

- Collect and verify data on the efficiency of every building captured in the scheme. This could potentially be thousands of liable parties.
- Determine the 'efficiency threshold' for buildings
- Levy penalties on companies that own buildings that fall below the 'efficiency threshold' and disburse the funds to companies that own buildings that fall above the 'efficiency threshold'.

## 8. Policy Recommendations

The Energy Efficiency Council supports an alternative approach to the 'Energy Efficient Non-Residential Buildings Scheme', which consists of a number of components. In particular, the Energy Efficiency Council recommends a national energy efficiency scheme in place of the 'Energy Efficient Non-Residential Buildings Scheme'.

### ***National Energy Efficiency Scheme***

Key market failures impede cost-effective investment in energy efficiency, including:

- Perverse incentives in Australia's electricity markets for retailers and distributors
- Misaligned incentives between landlords and tenants
- Information and bounded rationality issues requiring third-party intervention

To address these market failures, the governments of New South Wales, Victoria and South Australia have introduced energy efficiency schemes. The Energy Efficiency Council advocates replacing this scheme with a single national scheme. This approach would have multiple advantages over the "Energy Efficient Non-Residential Buildings Scheme":

- It targets improvements in cost-effective energy efficiency. The scheme would increase the level of energy efficiency that is cost-effective to reflect the 'spill-over benefits' (externalities) from demand-side energy efficiency. This would address a number of the flaws in the NEM rules and regulations
- It is equitable. The scheme would create incentives for undertaking improvements in energy efficiency, not reward existing levels of energy efficiency.
- It would create incentives for third parties (e.g. energy retailers and Energy Service Companies) to deliver energy efficiency, addressing information barriers.
- If the scheme was funded through electricity charges it would partially address the misaligned incentives between landlords and tenants. Normally, while tenants benefit from energy savings from energy efficiency, they do not invest in their buildings. Conversely, while landlords can invest in building upgrades they generally won't save money from reduced energy use. Under this type of scheme tenants would indirectly fund energy efficiency improvements, as charges on their energy bill would be transferred to landlords that invest in energy efficiency, benefitting the tenants.
- A single national scheme could replace the multiple existing state schemes, such as the NSW Energy Saving Scheme and the Victorian Energy Efficiency Target, reducing the compliance costs for energy retailers.

The Energy Efficiency Council notes that there are several options for this type of scheme, including:

- A single national scheme that replaces the state schemes (e.g. the NSW Energy Saving Scheme and Victorian Energy Efficiency Target). This has the advantage that, as other market failures are addressed through regulation and information programs, the target or financial incentive for efficiency improvements declines. The scheme should include commercial buildings, and should also include industrial energy efficiency if there is no separate industrial energy efficiency scheme.
- An expanded version of the 'Green Building Scheme' with at least \$300 million per annum between 2010 and 2020.

The Energy Efficiency Council also recommends a range of other complementary policies that are essential to mobilise the energy efficiency potential in the commercial building sector.

### ***National demand-management scheme***

Tackling regulatory problems in the National Electricity Market is critical to mobilising demand-side investment. With comprehensive energy market reform at least a decade away, the Council calls for a national demand-management scheme to direct potentially billions of dollars from investment in unnecessary grid infrastructure into cost-effective demand-side measures. Part of the National Demand-Management Scheme should be delivered in capital cities with a focus on energy efficiency and distributed generation in commercial buildings.

### ***Capacity Building Measures***

1. **Finance Sector:** The finance sector faces a number of barriers that prevent it providing capital for energy efficiency upgrades. The Government should expand its \$50 million revolving fund (Carbon Trust) and use it to leverage private sector capital.
2. **Energy Efficiency Services Sector:** There is a significant capacity constraint in engineers with appropriate specialisation in energy efficiency. Funding is required for a wide range of training programs, including measurement and verification.
3. **Property Sector:** Building owners and tenants need to become more informed about the opportunities for energy efficiency upgrades

### ***Mandatory Disclosure of Commercial Building energy efficiency***

Mandatory disclosure is essential to address information asymmetries in the commercial building market that result in 'adverse selection' (see Garnaut Review, Chapter 17). The Energy Efficiency Council supports the rapid introduction of a strong mandatory disclosure scheme that makes information widely available to prospective tenants and buyers. In buildings where governments occupy over 1000m<sup>2</sup>, the NABERS tenancy and base-building rating should be disclosed in the foyer.

### ***Energy efficiency in government operations***

Finally, all three levels of government need to address energy efficiency in their own operations. Investing in energy efficiency is not just prudential financial management, it will be essential in transforming the commercial building market. Governments currently occupy around 30 per cent of Australia's commercial building market. There are several components in effective Government energy efficiency programs, and the most critical is establishing a clear funding path for agencies to access capital for efficiency upgrades.

**References and recommended texts**

- Bjornstad, D.J. & Brown, M.A. 2004, *A Market Failures Framework for Defining the Government's Role in Energy Efficiency*, Joint Institute for Energy and Environment, Knoxville, Tennessee.
- Centre for International Economics 2007, *Capitalising on the building sector's potential to lessen the costs of a broad based GHG emissions cut*. Centre for International Economics, Sydney.
- Davis Langdon 2009, *Retrogreening Offices in Australia*, Davis Langdon Research Report, Davis Langdon
- Garnaut, R. 2008, *The Garnaut Climate Change Review: Final Report*, Cambridge University Press, Melbourne.
- Golove, W.H. & Eto, J.H. 1996, *Market Barriers to Energy Efficiency: A critical reappraisal of the rationale for public policies to promote energy efficiency*, Lawrence Berkeley National Laboratory, Berkeley, California, <http://eetd.lbl.gov/EA/EMS/ee-pubs.html>
- Gurney, A., Ford, M., Low, K., Tulloh, C., Jakeman, G. and Gunasekera, D. 2007, *Technology: Toward a Low Emissions Future*, ABARE Research Report 07.16 prepared for the Australian Government Department of Industry, Tourism and Resources, Canberra, September.
- HSBC 2009, *Climate Annual Index Review September 2009*, HSBC.
- International Energy Agency 2008, *Energy Technology Perspectives 2008: Executive Summary*, International Energy Agency, Paris.
- McKinsey and Company 2008, *An Australian Cost Curve for Greenhouse Gas Reduction*, McKinsey and Company, Sydney.
- Metz, B., Davidson, O.R., Bosch, P.R., Dave, R. and Meyer L.A. 2007, *Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- Jaffe, A.B, Newell, R.G and Stavins, R.N. 2005, 'A tale of two market failures: Technology and environmental policy', *Ecological Economics* 54: 2-3 p164-174
- McKinsey & Company 2008, *An Australian Cost Curve for Greenhouse Gas Reduction*, McKinsey & Company, Sydney.
- Paton, B. 2001, 'Efficiency gains within firms under voluntary environmental initiatives', *Journal of Cleaner Production* 9: 167-78.
- Sorrell, S., O'Malley, E., Schleich, J. & Scott, S. 2004, *The Economics of Energy Efficiency*, Edward Elgar Publishing Ltd, Cheltenham, United Kingdom.