

25 September, 2007

National Market Driven Energy Efficiency Target Bill 2007 Submission to the Senate Economics Committee

The Australian Conservation Foundation is committed to inspiring people to achieve a healthy environment for all Australians. For 40 years we have been a strong voice for the environment, promoting solutions through research, consultation, education and partnerships. We work with the community, business and government to protect, restore and sustain our environment.

This submission responds to the issues raised by the introduction of the *National Market Driven Energy Efficiency Target Bill 2007*.

ACF notes that consultations on Stage 2 of the National Framework for Energy Efficiency (NFEE) are currently underway. ACF has made oral and written submissions to NFEE that are similar in content to this submission.

ACF believes that current national policy on energy efficiency is inadequate and needs a wide range of significant reforms. In this submission, we propose a policy overhaul that would bring Australia to the forefront of energy efficiency.

Australia can, and should be, an energy smart nation.

Attached as part of this submission, is the research commissioned by the Australian Sustainable Built Environment Council (ASBEC) - Climate Change Task Force, conducted by the Centre for International Economics, and Adjunct Professor Alan Pears. This research examines the potential for the building sector to lessen the costs of a broad based greenhouse gas emissions cut. ACF is a member of ASBEC and played an active role in bringing together the range of industry groups involved in the research.

FRAMING THE CHALLENGE – SETTING OUR NATIONAL GOALS

Energy efficiency needs to be understood in the context of the broader challenge of climate change.

As a nation, we need to reduce our greenhouse gas emissions by at least 30% below 1990 levels by 2020, and 80-90% by 2050. Around half of our greenhouse gas

emissions are produced from the stationary energy sector – primarily electricity and gas. The only way we can transform this picture is with a:

- Substantial improvement in energy efficiency, and
- Clean, renewable forms of electricity.

Because energy efficiency is such a crucial part of the clean energy future that we need to avoid dangerous climate change, we need to ensure national energy efficiency policy can deliver the required level of energy efficiency improvement. Otherwise – we simply won't tackle the threat of climate change.

In short, if we are to deliver significant greenhouse gas reductions through energy efficiency, we need to:

Set world's best energy performance standards and establish a priority package of efficiency measures to cut energy waste and deliver cost-effective energy savings.

International leaders on energy efficiency have committed to both energy efficiency targets and greenhouse reduction targets. They are also investing in energy efficiency on a scale that is equivalent to their investment in electricity generation.

The European Union aims to cost-effectively cut 20 per cent in annual energy use by 2020.¹ California will invest \$US2.7 billion in energy efficiency in two years to 2008, with expected savings of \$5.4 billion, avoiding the need for several new large power stations.²

Australia's National Framework for Energy Efficiency should demonstrate the same scale of commitment.

The quickest and cheapest way to cut greenhouse pollution

Energy efficiency is the quickest and cheapest way to cut greenhouse gas pollution. The research conducted by the Centre for International Economics for the ASBEC Climate Change Task Force showed that additional energy efficiency in the building sector would make Australia's deep cuts scenario \$38 billion cheaper in terms of GDP by 2050³.

Better services, lower bills.

A range of smart technologies exist that use a lot less energy to deliver the same (or better) service to consumers. Becoming energy smart will save on household and business energy bills and help protect Australians against the impact of energy price increases as we clean up our energy supply.

Cost-effective and available now

¹ Action Plan for Energy Efficiency: Realising the Potential, Commission of the EC, COM(2006)545.

² The construction of 1500MW of new power generation will be avoided. See: www.cpuc.ca.gov/published/report/49756.pdf

³ CIE (September 2007) *Capitalising on the building sector's potential to lessen the costs of a broad based GHG emissions cut*. For Australian Sustainable Built Environment Council Climate Change Taskforce.

A comprehensive Government review in November 2003 found we could immediately reduce our energy use by up to 30 per cent using off-the-shelf cost-effective technologies, with immediate economic benefits and an average 'payback' of four years.⁴

If we implemented only half of the opportunities identified to cut energy waste, our economy would be \$1.8 billion stronger, 9,000 new jobs would be created and we'd use 9 per cent less energy. In addition, we'd cut pollution by 9 per cent, while earning a 26 per cent return on our investment.⁵

All Australians deserve to live in homes that save energy and work in buildings that are energy smart. Yet we are falling short of international standards. Our best energy rating standards for homes in Australia are 5-star programs or their equivalent, compared to typical mandatory standards in similar climates overseas of around 6.5 to 8 stars on the Australian scale.⁶

A PRIORITY PACKAGE OF MEASURES

Governments can help us all avoid unnecessarily high energy bills when we buy new goods and services. World leading minimum energy performance standards for new buildings, appliances and industrial equipment should be implemented by 2010.

The following measures show how Australia can get energy smart – using smart technologies that save us money, reduce energy use and cut greenhouse pollution.

Minimum appliance performance standards by 2010

Refrigerators and other appliances make up around a quarter of household emissions. Even though refrigerator technologies have become more energy efficient over the last decade, we could do a lot more. For example, if the minimum requirement for fridges was 3.5 stars rather than the current minimum we would use about 55 per cent less energy for refrigeration.

Emissions from water heating (24 per cent of household emissions) could be reduced by 61 per cent with high efficiency solar hot water (or equivalent) systems⁷.

Inefficient appliances and equipment accounts for much of our energy waste – standby power alone accounts for 10 per cent of household energy use – and we could reduce emissions by 75 per cent even assuming old equipment was replaced gradually over time.⁸

The research conducted for the ASBEC Climate Change Taskforce included a ground-up model of the energy saving opportunities in the residential sector.

⁴ Energy Efficiency and Greenhouse Working Group (2003) *Towards a National Framework on Energy Efficiency – Issues and Challenges*, Discussion Paper, November 2003.

⁵ Energy Efficiency and Greenhouse Working Group (2003) *ibid.*

⁶ RMIT Centre for Design (2005) study for AGO.

⁷ CIE (2007)

⁸ National Appliance and Equipment Energy Efficiency Program (2002) *Standby Power Consumption A long-term strategy to achieve Australia's One-Watt Goal 2002 to 2012.*

Ref: Table 1 **Residential sector — estimated impact of abatement**

<i>Category of energy use</i>	<i>Efficiency gain</i>	<i>GHG savings in 2050</i>	<i>Technical cost/savings</i>
	%	Mt pa	\$/tonne CO ₂ -e
Refrigeration	70	13.2	87
Light	76	7.6	99
Hot water	61	12.0	133
Stand by	71	8.1	133
Cooking	0	0	na
Space heating	47	5.7	112
Cooling	70	5.9	120
Other	0	0	na
Total	48	52.6	113

Source: CIE

The savings assume replacement of appliances and equipment with the most energy efficient technology available today - at the natural replacement rate. The average technical cost saving is \$113 per tonne of greenhouse gas abatement.

ACF recommendations:

- Standards that include all cost-effective measures with a net financial benefit (using long run marginal costs)
- Standards that are regularly reviewed and updated (at least every three years) to keep pace with technology
- The phase out of inefficient electric hot water systems from 2008
- A 1-watt standard for stand-by mode for all new appliances
- More effective consumer information programs that cover all appliances and improve disclosure by allowing 10-star ratings – well beyond the current star rating limit

Better building standards by 2010

Our homes and buildings can be far more comfortable and energy efficient than they are now. In fact, greenhouse gas emissions from Australian homes can be reduced by 48 per cent with energy efficient design and appliances⁹. If we combine best practice standards with the right incentives to go beyond them, we could transform our buildings into “zero-emitters” by installing renewable energy and co-generation.

⁹ Pears, A (2007) *Residential Sector Energy Efficiency Scenario – Background, framework and rationales*, Melbourne.

Home retrofitting initiative

Only a small number of people are lucky enough to build or renovate their own home. But governments can help us to retrofit our homes to be energy smart. An ambitious new \$1billion a year national effort to retrofit Australian homes should be launched.

It would include:

- Retrofit services for energy smart technologies that cover insulation, energy efficient lighting, AAA-rated shower heads, solar hot water systems and water tanks.
- Innovative financing arrangements for home owners to allow repayment of capital costs from savings from energy bills. This could be in the form of government guaranteed loans administered through the taxation system, or through local government rate rebates.
- Incentives for investment property owners to invest in energy efficiency, such as by making capital expenditure on energy efficiency tax deductible.

Thermal performance of homes

Climate change means that the number of heat stress days will increase, and with an aging population it makes sense if our buildings stay cooler in summer and warmer in winter - without high energy use heaters and air-conditioners. Unfortunately urban water shortages will also be part of our climate future and we need to ensure our buildings and gardens are water saving and drought tolerant.

Current energy saving standards for new homes in the Building Code of Australia are five-stars out of ten, but this is low compared to standards in similar climates overseas. In the U.S, Canada and the UK, average building standards are 6.8 – 7.5 stars for similar climate zones to Australia¹⁰.

Comparative climate zones		Average standard
Darwin	Florida	7 star
Brisbane	Texas	6 star
Dubbo	Arizona	7 star
Melbourne	California	7.6 star
Hobart	U.K/Canada	7.2 star

These standards require better insulation and design, so that the number of days that heaters and air-conditioners are needed to keep a home comfortable in winter or summer is reduced along with the associated greenhouse gas emissions.

Building greenhouse benchmark

While 5-star standards were an important first step when they were proposed in 2003 and introduced nationally after much delay in 2006, much more needs to be done. Not only should Australia increase standards in line with international best practice, we also need to address the increasing size of houses, and the direct energy efficiency of lighting, heating, air-conditioning and hot water.

Commercial building standards

The current 'Section J' of the Building Code of Australia was an important first step in ensuring building design teams changed practice to deliver energy efficiency. However the current standards, based on 3 - 3.5 star standards on the Australian Building Greenhouse Rating Scheme (ABGR) for office buildings are very low. There are a growing number of new buildings, and even 30 year old retrofits, that have achieved the 5-star ABGR energy efficiency standard. Given new buildings will be part of our existing building stock out to 2050, we should be putting effort into delivering 5-star buildings now, rather than waiting to retrofit them later.

The post-occupancy evaluation of commercial building standards is particularly important to delivering real outcomes in energy savings across the building sector. All too often, operational phase energy use does not live up to the design target. Without post-occupancy evaluation, there is no feedback loop into the design professions to improve the delivery of energy efficient buildings across the board.

ACF supports the development of the scope of the ABGR (and NABERS) rating tools to retail and other commercial buildings.

ACF recommends:

- 7-star thermal performance standards for new homes
- Mandatory public disclosure of energy performance rating of existing commercial and residential buildings at point of lease and point of sale

¹⁰ Horne, R.E et al (2005) *International Comparison of Building Energy Performance Standards*, Centre for Design, RMIT for the Australian Greenhouse Office, Department of Environment and Heritage.

- 5-star ABGR energy efficiency standards for commercial buildings with effective post-occupancy evaluation

Encouraging productive and energy smart industries

The Federal Government's Energy Efficiency Opportunities audit program requires some large companies to investigate and report on energy efficiency opportunities. This will help build capacity, but is a missed opportunity unless these companies are encouraged to deliver these efficiencies.

The Federal Government can assist in this process by:

- Amending the Energy Efficiency Opportunities Act to cover the top 5,000 energy users or businesses with over 200 employees and require implementation of options with a rate of return of 20 per cent or more, in line with the Victorian EPA requirement.

Investing in our future – a National Energy Savings Fund

Investment in energy efficiency is currently heavily outweighed by investment in new generation and transmission infrastructure.

ACF recommends:

- Establishing a National Energy Savings Fund to invest at least \$500 million a year in energy efficiency and energy savings.

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