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**Productivity Commission Inquiry into the
Economic and Environmental Potential of Energy Efficiency
Conservation Council of Western Australia (CCWA) Submission
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1.0 Introduction

The Conservation Council of Western Australia (CCWA) is pleased to provide input into the Productivity Commission's *Inquiry into the Economic and Environmental Potential of Energy Efficiency*. CCWA considers that this inquiry could be a useful step in creating a supportive policy framework for Energy Efficiency (EE) and demand management (DM)¹ in Western Australia (WA).

CCWA notes that a comprehensive body of literature has been developed both in Australia and overseas that addresses many of the questions raised by the Productivity Commission Issues Paper.

1.1 Benefits of EE and DM outcomes

If WA can create an environment in which emerging and vital EE and DM technologies can flourish, many positive environmental and social outcomes will be achieved:

- ❑ Reduced greenhouse gas emissions;
- ❑ Improved reliability and security of our electricity supply through diversification;
- ❑ Reduced need for additional large power stations and concentrated generation sources;
- ❑ Greater proximity to reactive power for customers improving power quality, reducing losses and maximising the use of network components;
- ❑ Improved employment opportunities.

CCWA's primary interest in developing the EE and DM industries stems from the contribution that these industries can make to reducing WA's greenhouse gas emissions. The phenomena of global climate change is one to which Western Australians make a disproportionate contribution, having amongst the highest rate of per capita greenhouse gas emissions in the world.

WA will experience significant impacts resulting from climate change. Fortunately we have resources and infrastructure to prepare for these threats and make changes now, unlike many less developed countries where extreme weather events and health impacts are being felt more acutely. Local examples of the predicted impacts of climate change on WA include but are not limited to:

- ❑ more frequent and prolonged droughts;
- ❑ more frequent bushfires;
- ❑ increased susceptibility to pestilence;
- ❑ increased spread of vector-borne diseases such as Ross River Virus;
- ❑ more frequent heatwaves;
- ❑ increased potential for storm surge along coastal developments.²

¹ DM programs generally fall into two main categories: energy efficiency and conservation - programs to reduce energy use by improving the efficiency of equipment buildings, and industrial processes and load management – programs to redistribute energy demand to lessen peak demand and hence reduce peak load on generation and transmission facilities and, sometimes to fill in troughs (to strategically increase energy use during periods of low electricity demand.)

² CSIRO, *Climate Change Impacts for Australia*, May 2001. <http://www.marine.csiro.au/iawg/>
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It is therefore necessary from both a global equity and self-interest point of view, that WA contribute to the global effort to abate greenhouse gas emissions. Scientists have warned that emissions reductions of 60-80 per cent of 1990 levels are required to stabilise greenhouse gas (GHG) concentrations in the atmosphere at the present levels.³ CCWA considers that the WA Government has a duty of care to future generations to significantly contribute to the global effort to abate greenhouse gases.

1.2 Capacity for EE and DM

The bulk of WA's electricity needs are met through the South West Interconnected System (SWIS). Although there is obviously an enormous capacity for improved efficiency in the SWIS this capacity has not been formally quantified. WA is in serious need of an energy efficiency audit to determine this capacity. CCWA hopes that this inquiry may serve as a catalyst to see such an audit take place.

The recently released *Clean Energy Future Study*⁴ showed that it is possible to achieve a 50 per cent reduction in Australia's greenhouse gas emissions within 40 years, without compromising GDP growth, nor prematurely retiring capital stock, utilising a combination of demand-side and supply-side options. CCWA believes that many aspects of this study should be applied immediately in WA, and that a legislative framework to enable this is required as an urgent priority.

1.3 Terms of Reference

The Commission's Terms of Reference request information on the economic and environmental potential offered by energy efficiency improvements which are cost-effective for individual producers and consumers. The comments and recommendations within this submission focus predominantly on WA.

2.0 Overall Comments Regarding the Scope, Timing and Structure of this Inquiry

In order for the inquiry to meet its potential, supplementary studies should be undertaken that provide much needed information to the community and decision makers. These studies should provide the following information:

2.1 Regulatory Framework

- ❑ Status of the primary government policies, statements and legislation currently guiding energy policy in WA, including relevant guidelines and codes.
- ❑ A review of Government policies in other jurisdictions (State, Local and Commonwealth Governments), statements and legislation guiding energy policy, including relevant guidelines and codes.
- ❑ A review of the position of EE and DM industry representatives regarding the effectiveness of interstate regulatory regimes.
- ❑ A historical overview of the development of the jurisdictional regimes, including economic analysis of EE and DM industry development.

³ Friends of the Earth International, *The Human Cost of Climate Change*, October 2001, page 22. Original Source, The Met.Office, *Climate Change and Its Impacts*, Briefing Paper October 1999.

⁴ www.wwf.org.au/News_and_information/Features/feature10.php
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- ❑ Review of some overseas regulatory programs and analysis of industry development, preferably from countries that have achieved substantial growth in the EE and DM industries.

2.2 Energy Supply

- ❑ Current installed capacity – in the SWIS and the NWIS, including regional and, to the extent possible, private installed capacity.
- ❑ Cost per kWhr of current installed capacity.
- ❑ Current projects in development and applications for distribution and transmission access awaiting approval.
- ❑ Presentation of this information as a percentage of current generating capacity.
- ❑ Review of subsidies available for renewable energy from generators of fewer than 100kW to projects of hundreds of MW.
- ❑ Investigations into barriers to renewable energy.

2.3 Demand Management

- ❑ There has been no attempt to quantify the potential application of DM technologies in WA. This should be determined through an Inquiry such as those undertaken in other jurisdictions. For example, in 2002 the NSW Independent Pricing and Review Tribunal (IPART) undertook the *Inquiry into the Role of Demand Management and Other Options in the Provision of Energy Services* and Energy South Australia released several papers addressing potential DM application in South Australia.⁵

2.4 Coordination with other Inquiries

Much of the content of this submission is drawn from the CCWA's comments on the draft WA Greenhouse Strategy and the submission into the WA Legislative Assembly's Economics and Industry Committee's *Inquiry into Energy Efficiency and Renewable Energy in Western Australia*, as well as the joint Cool Communities submission to the *National Framework on Energy Efficiency*. Comments regarding access for distributed renewable generation to the distribution networks are based on our submission into the public consultation into the *Electricity Networks Access Code*. We therefore hope that as part of its investigations the Productivity Commission fully investigates submissions into and outcomes from current related inquiries and reviews, as many stakeholders do not have the time or resources to participate in all consultation processes.

CCWA's submission into the Western Australian Legislative Assembly's Economics and Industry Committee's *Inquiry into Energy Efficiency and Renewable Energy in Western Australia* is attached for your information.

2.5 Scope of Inquiry

In order for the Productivity Commission to seriously appreciate the potential environmental benefits of energy efficiency, it must consider EE and DM options in the context of the emission intensive energy systems across Australia, and particularly the SWIS. Potential environmental benefits arising from EE and DM initiatives ought to be considered together with the potential for

⁵ These papers and several other jurisdictional DM studies are available at http://www.sustainable.energy.sa.gov.au/pages/programs/dsm/elec_dsm/papers_links/papers_links.htm:sec tID=108&tempID=63
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shifting towards a more balanced energy supply including a mix of renewable energy and distributed generation. For this reason this submission includes some reference to potential increases in renewable energy generation, as a joint strategy with EE and DM to achieve economic and environmental benefits.

2.6 Political Will is the Primary Requirement

Overall, CCWA considers that a robust policy framework is the primary requirement to encouraging increased use of DM and EE. The current lack of industry development and failure to realise the potential economic and energy savings that could be made, is due to a failure of policy, not a lack of potential. The following recommendations are made in the hope that the Productivity Commission Inquiry will stimulate a process of genuine commitment to energy sector reform that will acknowledge the urgent need to restrict growth in energy consumption, shift away from fossil fuel dependency and reduce greenhouse gas emissions.

3. Policy Framework to Encourage Efficiencies in Electricity Production and Consumption

The issues discussed below address areas not specifically covered in the Productivity Commission Issues Paper but that CCWA considers is relevant to the discussion of the potential economic and environmental potential offered by energy efficiency improvements which are cost-effective individual producers and consumers.

3.1 Removal of Public Subsidies to Fossil Fuels

It is widely recognised that WA's GHG emissions are predominantly the result of energy-intensive industry. What is unclear is the extent to which the activities are supported financially by the WA government. The 2001 Senate Inquiry into Global Warming, *The Heat is On*, found that the fossil fuel industry in Australia receives direct and indirect subsidies in the order of \$6 billion per annum⁶. According to the National Institute of Economic and Industry Research (NIEIR)⁷, public agencies in Australia provide basic geological information, databases and other information and management services to fossil fuel exploration and production companies at nominal costs. This is effectively a subsidy to the coal, oil and gas industries in Australia. It has been estimated that WA's public sector agency contributions to fossil fuel industries through non-recouped costs in 2000- 2001 were:

Office of Energy -	\$13.1 million
Department of Minerals and Energy-	\$28.3 million
Dept of Resources Development-	\$13.7 million

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Other possible subsidies include direct subsidies and rebates, favourable tax treatment and public contributions for research and development.

Given the issues in WA concerning the role of energy-intensive industry, a primary objective must be to make any regime of government support for fossil-fuel industries transparent. This will enable the EE and DM industries to have adequate information with which to make investment decisions.

⁶ *The Heat is On: Australia's Greenhouse Future*, Report of the Senate Environment, Communications, Information Technology and the Arts References Committee, Executive Summary, November 2001. http://www.aph.gov.au/Senate/committee/ecita_ctte/gobalwarm/report/b01.htm

⁷ Chris Reidy, *Public Subsidies and incentives to fossil fuel production and consumption in Australia: A Draft Discussion Paper*, November 2001. www.isf.uts.edu.au/publications/reidy.html
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Removal of fossil fuel subsidies will correct a market imperfection and improve the competitiveness of EE and DM industries. These industry sectors could further be developed if savings were directed into the promotion of energy efficiency.

3.2 Integrated Least Cost Planning (ILCEP)

Integrated Least Cost Planning involves delivery of services at minimum total cost, where economic, environment and health costs are all taken into account.⁸ Methods of Integrated Least Cost Energy Planning (ILCEP) promote DM planning and analysis of site-specific strategies for reducing energy consumption.

The current structure of the energy market in WA does not provide for ILCEP. In failing to account for environmental and health costs associated with fossil fuel use in energy production, the government is effectively subsidising those costs of energy use.

3.3 Mandating Energy Demand Management through legislation

The impetus to implement Demand Management strategies in WA could be greatly enhanced by legislation. For example, the United Kingdom has a Sustainable Energy Act (2003) which:

- ❑ Requires the Government to report annually to Parliament on the 135 commitments in the Energy White Paper regarding reducing emissions of CO₂ and ending fuel poverty;
- ❑ Requires the Government to set an energy efficiency aim for residential buildings;
- ❑ Enables the Government to set binding targets for local authorities who are required to improve energy efficiency by 30% under the Home Energy Conservation Act (1995);
- ❑ Requires the Government to set a target for Combined Heat and Power (a way of using 'Waste heat' to generate electricity so reducing emissions) in Government buildings;
- ❑ Requires the gas and electricity regulator to publish environmental impact assessments of its actions;
- ❑ Releases £60 million for developing renewable sources of energy..⁹

3.4 Energy Efficient Buildings

The design and operation of both residential and commercial buildings in WA has historically neglected energy efficient principles. It is possible to make significant improvements to the efficiency of buildings through retrofitting existing buildings and considering energy efficiency at the design stage of new buildings.

Along with support for nationally consistent minimum building code standards, CCWA considers that Western Australian consumers would benefit economically and environmentally from the mandated use of greenhouse-efficient (solar or high-efficiency equivalent) hot water systems and AAA water-rated fittings and appliances in all new buildings as well as a legislative requirement for the disclosure of energy ratings at point of sale of all buildings.

⁸ ILCEP generally involved reducing demand as well as utilising appropriate supply technologies. The result is generally economic and environmental savings.²³ 23 Sustainability Centre Pty Ltd, www.sustainabilitycentre.com.au/consulting.html

⁹ UK Energy Efficiency Commitment
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3.5 Demand Management Services Industry

In order to foster a competitive and effective DM industry it is essential to have both appropriate rules and a funding regime that allows the development of a market mechanism parallel to the electricity supply market. Experience overseas shows that, 'without a specific funding mechanism that establishes a DM market, there will continue to be a lack of dedicated, well-resourced DM proponents capable of effectively representing DM opportunities...'¹⁰

4.0 Response to Inquiry Questions

4.1 ENERGY EFFICIENCY

4.11 Economic Benefits of energy efficiency

What is the scope for cost-effective energy efficiency improvements in specific firms or households? In sectors or industries?

As has been mentioned in previous sections of this submission, it is difficult to ascertain the potential of energy efficiency in Western Australia. Research into this potential would greatly enhance the State's opportunity to implement appropriate policies and measures.

4.12 Environmental Benefits of energy efficiency

What effect would cost-effective energy efficiency improvements have on greenhouse gas emissions?

This issue has been addressed earlier in this submission.

What other environmental benefits would result from cost-effective energy efficiency improvements?

Any reduction in energy use theoretically results in less use of fossil fuels, which are the primary source of energy. Reduced use of fossil fuels would bring a range of environmental benefits. In the case of coal-fired power generation, reduced energy use would result in reduced nitrogen dioxide and sulfur dioxide emissions, fewer air borne particulates and fewer toxic compounds entering the environment, as well as health impacts from reduced coal mining. In the case of transport fuels, there are numerous environmental benefits from reducing oil and petroleum products. These range from local air quality benefits to environmental benefits for indigenous communities that suffer greatly from exploitation of oil reserves.

4.2 BARRIERS AND IMPEDIMENTS

What are the barriers and impediments to energy efficiency in the market for energy?

Barriers to energy efficiency, particularly in the residential sector are varied, and so are the solutions. Often barriers are particularly localised and can include, awareness, affordability, motivation, capacity, community support, influence of peers etc. Access to information is a serious

¹⁰ *Demand Management and the National Electricity Market*, page 4
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barrier but remedying this alone does not act as a sufficient driver. Removing the barriers to energy efficiency necessarily requires a multi-faceted approach.

A wealth of literature is available both nationally and internationally that identifies the key market barriers to energy efficiency.

As acknowledged by the Productivity Commission in the Discussion Paper, these barriers include the failure to price negative externalities and information asymmetries. Regulatory failure and perverse incentives also create significant barriers to the uptake of energy efficiency options. Examples of regulatory failure include urban-rural cross-subsidies, cross-subsidies for air-conditioner installation and use, tariff structures for both gas and electricity that reward higher use and provide little incentive to undertake efficiency measures and the promotion of air-conditioning units through utilities.

Western Australia is in a unique situation in that the electricity supply of the SWIS is dominated by the vertically integrated monopoly, Western Power Corporation (WPC), a Statutory Authority. To a certain extent, theoretically at least, some of the barriers and impediments that exist in a disaggregated electricity supply system and a competitive market may not exist. However, WPC's governing legislation the *Electricity Corporation Act 1994*, requires that it endeavour to make a profit (Section 31):

31. Corporation to act on commercial principles

(1) The corporation in performing its functions must —

(a) act in accordance with prudent commercial principles;

and

(b) endeavour to make a profit, consistently with maximizing its long term value.

Therefore, many of the same barriers exist. As in a disaggregated model, promotion of energy consumption is the main method for WPC to make a profit and there is no incentive for them to aggressively promote energy efficiency in any of the electricity generation, transmission, distribution or retail areas.

In WA political factors contribute to the lack of acknowledgement of the vital role of energy efficiency in energy management. Energy 'shortages' are not solved through application of prudent energy efficiency regulations, or even education and incentive programs. Instead, demands are made both in the media and in parliament for the construction of new baseload generation facilities. Consideration of energy efficiency is equated with somehow being 'backwards'. Newspaper headlines included "A Third World way of life in a land of plenty" when the State Government asked citizens to curtail non-essential energy use on February 18th this year. In short, in addition to market failures, energy efficiency would appear to have a bad image compared with generation.

Do these barriers and impediments warrant government intervention?

Government intervention is definitely required to overcome the market failures that provide disincentives to implement the best possible energy efficiency measures available. The National Framework for Energy Efficiency process has already gone some way to quantifying the economic and social benefits that would accrue from an increased uptake of energy efficiency measures nationally.

4.3 POLICY OPTIONS

4.31 Coordination

CCWA supports a high degree of coordination between the energy efficiency programs of different governments.

Particularly, a nationally consistent energy efficient rating for all new buildings is highly desirable. (Currently there are a number of different rating schemes used, which continue to be changed and developed).

There also exist a variety of State-based sustainable energy development agencies, such as WA's Sustainable Energy Development Office (SEDO), Sustainable Energy Authority Victoria (SEAV), and the NSW Greenhouse Unit in Premier and Cabinet. CCWA supports the continuation of these offices, but considers they need considerable legislative powers and independence. In Western Australia, for example, SEDO is being stifled by its subservience to the Coordinator of Energy and is unable to carry out its role effectively. If it continues in its present location it will be no more effective than the Alternative Energy Development Board (AEDB) that preceded it.

CCWA considers that the recent move to integrate the Australian Greenhouse Office (AGO) into the Department of Environment and Heritage (DEH) will herald a weakening of its programs.

4.32 Pricing And The Influence Of Market Reforms

To what extent do current prices for energy accurately reflect the costs of supply, including externalities?

Energy prices in Australia are amongst the lowest in the OECD. While electricity prices are slightly higher in Western Australia than in the Eastern States, prices are still low and do not provide effective economic drivers for efficiency, nor take into account the significant negative externalities associated with coal-fired power generation, which accounts for around 75% of the electricity generated in the SWIS. Gas prices are low in Western Australia compared with the Eastern States.

How have market reforms in the electricity and gas industries influenced economic efficiency? How have reforms influenced energy efficiency?

Only limited 'reforms' have been undertaken in the Western Australian electricity sector. The primary of these are the introduction of open access to the electricity networks and the associated development of the *Electricity Networks Access Code*. Although the *Electricity Networks Access Code* has not been finalised yet, it appears that it will contain Regulatory Tests for transmission and distribution networks augmentation that will require that demand management/ energy efficiency options be investigated prior to undertaking network expansion.

4.33 Information Provision

What is the rationale for government involvement in firms' internal and external capital markets?

Investors need to know that firms are operating as economically efficiently as possible and that they are prudent financial managers. Because energy use is often a small component of total costs it tends not to be prioritised. Increasingly investors want to know the environmental and social performance of the firms they invest in. Efficient use of energy is an appropriate indicator to include in an assessment profile.

Governments that have acknowledged the need to reduce greenhouse gas emissions, therefore it is reasonable to expect them to intervene in some way to facilitate firms' application of energy efficiency technologies and practices to the fullest extent possible.

Education

What is the rationale for government involvement in education and awareness raising?

As with many other public policy areas, such as smoking and road safety, government has a duty of care to its constituents to inform them of the environmental and social costs of using energy (particularly energy generate from fossil fuels) and to enable people to make decisions with full knowledge regarding the implications.

What is the rationale for government involvement in labelling?

As above. CCWA considers that labelling of appliances should be mandatory. Schemes such as the 5 star rating Scheme are effective tools for decision-making and awareness-raising.

Minimum Standards

How should the minimum standards be set?

A great challenge for the NGO sector has been to keep up with and participate in the MEPS and building code change processes. In fact, there has been little NGO involvement due to lack of resources and expertise in specific areas.

NGOs need to be able to fully participate in these processes and it would be very helpful for NGOs to have funding provided to secure the services of expert consultants to facilitate their involvement in the numerous processes to establish minimum standards for building codes and appliances.

What impact to minimum standards have on energy efficiency?

If the process fulfils its objectives then MEPS and building standards have the potential to contribute significantly to improving Australia's energy efficiency performance.

What impact do minimum standards have on consumer choice and prices of appliances?

Clearly minimum standards will drive out under performers from the market. However, the increase in standards will allow space to open for better performing products. Therefore, there may be no decrease in consumer choice through the application of minimum standards.

5.0 SECTORAL ISSUES

5.1 Consumer and Household

What is the scope for cost-effective energy efficiency improvements in the household and consumer sector?

The Cool Communities program and the NFEE Discussion Paper and Stakeholder Consultation report have identified the considerable potential to realise economic and environmental improvements in this sector through the application of energy efficiency measures.

What barriers and impediments prevent consumers from achieving these improvements?

The barriers to householders achieving energy savings have been well documented and include increased capital cost for energy efficient building materials, design and appliances, lack of Time of Use metering or otherwise limited ability to change energy costs and consumption through behavioural change, the landlord/ tenant issue that landlords are not required to retrofit or install fittings that would improve energy efficiency (and thus save money for the tenant) and a lack of cultural awareness regarding energy use as exists with water use, for example.

CCWA refers the Productivity Commission to *Motivating Home Energy Action – A Handbook of What Works*, published by the Australian Greenhouse Office in 2000 for more information in this area.

WA ought to capitalise on the accumulated knowledge around 'social change', 'community based social marketing' and 'fostering sustainable behaviour' if it is to bring about lasting efficiency gains in energy use.

CCWA considers that the Productivity Commission consider the benefits of community based social marketing for energy efficiency and support the recommendations of Cool Communities to the NFEE.

5.2 Government

What is the scope for cost-effective energy efficiency improvements in the government sector?

CCWA recognises the importance of leadership at all levels. Not only is there enormous opportunity for governments to achieve real economic and environmental savings through energy efficiency, but government action would contribute to the development of a culture of energy efficiency in Australian businesses and communities. CCWA considers that both State and Federal Governments should provide leadership on DM and recognition of community and business leading in DM practice.

The Western Australian Greenhouse Strategy proposes that the WA Government source 5 per cent of its electricity from renewable sources by 2006-07. CCWA considers that this target is far too modest. CCWA considers that it would be practical, desirable and achievable for the WA Government should commit to purchase ALL of its electricity from renewable sources by the beginning of the 2006-7 financial year.

Cost-benefit assessments of such measures would need to incorporate a PR/ advertising recognition, industry development recognition, assessment of negative externalities et cetera.

5.3 The Transport Industry

What is the scope for cost-effective energy efficiency improvements in passenger motor vehicles?

Work in Perth suggests that there is significant potential for modal shifts in the transport sector, with 47% of car driver trips readily transferable to public transport, cycling or walking (see Socialdata *Potential for Change* report on at <http://www.dpi.wa.gov.au/travelsmart/techpub.html>). By switching trips to less energy intensive modes (including telecommuting) there are additional benefits e.g. increased physical activity, reduced carbon emissions.

What barriers and impediments prevent these improvements?

Lack of awareness of travel alternatives or misperceptions about the relative performance of different modes or preference for driving is a major factor behind car use in our cities - behavioural programs should be run to capitalise on system improvements.

FBT discourages employers from providing public transport tickets to employees and for those given a company car, encourages high mileage - both commuting and non-work related use to reduce tax liability. The Australian Greenhouse Office commissioned research into the effects of FBT arrangements on motor vehicle.

Travel demand management (TDM) should be a primary strategy to increase energy efficiency in transport. TDM through behavioral change programs have been recognised as an essential component of sustainable transport policy in the UK and they are increasingly being used in Australia - usually under the banner of TravelSmart. Marketing travel alternatives to households has reduced car kilometres travelled and achieved mode shifts (car trips down, use of green modes up) in suburbs covered by the TravelSmart program in Perth (results on DPI website <http://www.dpi.wa.gov.au/travelsmart/techpub.html>).

6.0 CONCLUSION

While it is obvious that there is huge economic and environmental potential offered by cost-effective energy efficiency improvements, particularly by addressing the barriers above, the actual potential must be quantified. Currently there is a serious lack of research being carried out into the potential savings across all sectors. NGOs do not have the resources to undertake this type of research yet it is vital in terms of prioritising action and raising community awareness.

CCWA appreciates that the Productivity Commission has been requested to undertake this inquiry pursuant to the Productivity Commission Act 1998 and that the Terms of Reference are therefore restricted. However, it is relevant to note that, in less than 12 months CCWA has also made submissions into the National Framework for Energy Efficiency process and the Western Australian

Legislative Assembly's Economics and Industry Committee's *Inquiry into Energy Efficiency and Renewable Energy in Western Australia*. At some stage the costs of undertaking so many inquiries into the same issue must outweigh the benefits. Meanwhile, the costs of delaying action to implement strategies to address the issue of these economic and energy inefficiencies is rising. CCWA urges the Productivity Commission to make strong recommendations based on its findings during this Inquiry that could lead to timely and significant change in Commonwealth Government policy in this area.