

# Energy Efficiency: Queensland's First Energy Resource

Report on the economic and environmental potential  
provided by energy efficiency improvements for  
households, communities, industry, and government.

February 2010



# ENVIRONMENT AND RESOURCES COMMITTEE

53<sup>rd</sup> Parliament

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## FOREWORD

It seems everyone is chasing a bargain these days. Whether it is a new fridge, a car or a house, it is often the lowest asking price that clinches the deal. But there is a second price that can end up costing just as much, or even more. That price is the ongoing running costs that we often forget about. As time goes by, what seemed like a bargain could soon turn into a money-pit.

It is time to think about the true cost of our energy use, both economic and environmental, and to cut down on needless waste. Energy efficiency, which is about doing the same or more with less energy input, holds the key. It starts with a simple question, 'is it energy or fuel efficient?' All Queenslanders need to ask this question a lot more, and before any other considerations.

Some of the answers are in the stars – energy efficiency star ratings that is. Appliances, equipment, cars and homes that are more fuel or energy efficient may cost more initially, but can save you more off your energy or fuel bills in the long run. And they will keep saving you money every single day.

After a trebling of energy use in Queensland over the past thirty years, it is time to look forward and change our ways for a better and more sustainable future. This report will help to do this.

I would like to take this opportunity to sincerely thank committee members for their efforts to present this unanimous report, conclusions and recommendations. Readers of our report might like to consider this fact when reading the statement of reservations at the back from the Opposition members. This statement was lodged after the report was adopted.

I would like to make a special mention of Chris Foley MP, the independent Member for Maryborough, for his efforts to bring new ideas to our inquiry. I also acknowledge the extraordinary dedication and efforts of the committee's secretariat and other parliamentary staff who assisted us.

Finally, I would like to thank the many groups and individuals who shared their ideas for making energy efficiency the highest priority, and Queensland's first energy resource.



**Carryn Sullivan MP**  
Chair



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## ENERGY AND POWER TERMS EXPLAINED

Term	Explanation
CO <sub>2</sub> -e (Carbon dioxide equivalent)	As greenhouse gases differ in their capacity to trap and redistribute heat in the atmosphere, they are described as CO <sub>2</sub> -e so we can compare their strength. For example, one tonne of methane has an effect on the Earth's temperature approximately 21 times greater than one tonne of carbon dioxide, so one tonne of methane is described as 21 tonnes of CO <sub>2</sub> -e.
Joule (J)	The energy spent by a force of one Newton moving one metre along the direction of force.
Megajoule (MJ)	One million joules. 3.6 MJ = 1 kilowatt hour.
Petajoule (PJ)	One million billion joules. The Australian Government defines large energy-consuming businesses as those using more than 0.5 PJ of energy annually.
Watt (W)	A unit of measure of electric power at a point in time, as capacity or demand. Commonly used to describe the capacity of an electric generator, a watt is a measure of how much electrical energy is used per second.
Kilowatt (kW)	One thousand watts, eg, a 1000 watt hairdryer uses 1kW of energy every second.
Kilowatt hour (kWh)	1,000 watts used for one hour, eg, ten 100-watt light bulbs, burning for one hour would consume one kilowatt hour of electricity. This is the basic unit retailers use to charge customers for electricity consumption. Every kWh of electricity used produces 1.04 kg of CO <sub>2</sub> -e.  An average household uses about 10,000 kWh of electricity annually; or about one kW of electricity every hour. About 10 kilograms of coal is burnt to generate that amount of electricity for every house, every day in Australia.
Megawatt (MW)	One million watts.
Gigawatt (GW)	One billion watts or 1000 megawatts.
Gigawatt hour (GWh)	Unit of electrical energy equal to one billion watt hours or one thousand megawatt hours.
Terawatt (TW)	One trillion watts. In 2006, Australia's electricity generators produced 255 TW hours of power (255 billion kWh).
Tonne (t)	1000 kilograms.
Gigatonne (Gt)	One billion tonnes.





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## ACRONYMS

Abbreviation	Definition
ABARE	Australian Bureau of Agricultural and Resource Economics
ACF	Australian Conservation Foundation
ACTU	Australian Council of Trade Unions
CFCL	Ceramic Fuel Cells Limited
COAG	Council of Australian Governments
CPRS	Carbon Pollution Reduction Scheme
DERM	Department of Environment and Resource Management
ERC	Energy Resources Corporation
ETS	Emissions Trading Scheme
GOC	Government Owned Corporation
IEA	International Energy Association
IPCC	Intergovernmental Panel on Climate Change
MCE	Ministerial Council on Energy
NatHERS	Nationwide House Energy Efficiency Rating Scheme
NFEE	National Framework for Energy Efficiency
NILS	No Interest Loan Scheme
NSEE	National Strategy for Energy Efficiency
ppm	Parts per million
QCA	Queensland Competition Authority
QCOSS	Queensland Council of Social Service Inc
QEMP	Queensland Energy Management Plan
QPrint	Queensland Complete Printing Service
QYEC	Queensland Youth Environment Council
RIS	Regulatory Impact Statement
SME	Small and Medium Enterprise
VEEC	Victorian Energy Efficiency Certificates
VEET	Victorian Energy Efficiency Scheme



## SUMMARY

This report presents the findings from the committee's inquiry into energy efficiency improvements. The House referred the inquiry to the committee in April 2009.

The committee's inquiry process included the release of an issues paper, a public submissions process, two public forums held in Townsville and Brisbane and two public hearings at Parliament House in Brisbane. The committee gathered further information for the inquiry through literature reviews, and correspondence with government and other stakeholders. Given the scope of the inquiry terms of reference, the committee was limited in its ability to examine every aspect of energy efficiency in depth.

Energy efficiency represents a sound investment for residents, businesses, communities and government given Queensland's high energy intensity and commitment to achieving significant reductions in greenhouse gas emissions. Potentially half of the savings in greenhouse gases that will be required to meet targets supported by the Federal and Queensland Governments could be achieved through energy efficiency improvements. Despite the sound arguments, there is a considerable gap between what could potentially be achieved and what is actually implemented to improve energy efficiency.

The committee has made eighteen recommendations to ensure the effectiveness of the Queensland Government's programs designed to assist Queenslanders to implement energy efficiency improvements. These recommendations include:

- Acknowledging that energy efficiency is Queensland's first energy resource;
- Funding energy efficiency improvements ahead of other energy projects to meet Queensland's future energy needs, including renewable energy;
- Subjecting all the government's major energy efficiency programs and initiatives to external review to ensure they are working optimally, and reporting the findings to Parliament;
- Support and assistance for low-income households to implement energy efficient improvements;
- Examination of the potential benefits for Queensland of utilising distributed energy; and
- Consideration of a white certificate scheme for Queensland consistent with schemes operating in other states, though reflecting Queensland conditions, and through the Ministerial Council on Energy canvassing a national scheme.

The committee has also made recommendations about the scope and form of the Queensland Energy Management Plan that the government is developing. This plan will form the government's future energy efficiency strategy.

The last chapter discussed the impact of the Federal Government's proposed Carbon Pollution Reduction Scheme (CPRS), and projected impacts of the scheme on Queensland, and energy efficiency. The impacts on Queensland are projected to be severe due to heavy dependence on coal-fired electricity generation and mining and other energy intensive industry such as aluminium smelting. On a positive note, the proposed CPRS would provide opportunities for the state to develop and expand 'green' industries. The CPRS would also stimulate interest in energy efficiency improvements.



# SUMMARY OF RECOMMENDATIONS

## Page

### **Recommendation 1..... 14**

That the government provides funding to continue the ClimateSmart Home Service, subject to the findings of an independent evaluation, and examines the benefits and costs of amending the ClimateSmart Home Service program to include a follow up visit or phone call to clients to reinforce the benefits of the program and gauge their progress.

### **Recommendation 2..... 15**

That the government encourages all local councils and electricity retailers to offer rebates and other assistance to their clients to meet all or part of the \$50 service costs to participate in the ClimateSmart Home Service program.

### **Recommendation 3..... 15**

That the government sets targets for the provision of ClimateSmart Home Service visits to low-income households as well as households in remote and regional areas.

### **Recommendation 4..... 16**

That the government investigates new technologies to overcome the barriers to installing smart meters in multiple dwellings that are not individually metered.

### **Recommendation 5..... 25**

That the government commits to a program of independent evaluations of all major energy efficiency programs.

### **Recommendation 6..... 25**

That the government reports to Parliament the findings from independent reviews of its major energy efficiency programs.

### **Recommendation 7..... 25**

That the government reviews its funding for renewable energy programs to determine whether investing in energy efficiency improvements would achieve better value for the Queensland economy.

### **Recommendation 8..... 39**

That the government investigates in consultation with the Australian Building Code Board, potential bias issues involving the use of computer software packages to rate building energy efficiency to ensure that the software adequately reflects the energy efficiency benefits of designs that capitalise on passive heating and cooling.

### **Recommendation 9..... 42**

That the government, through the Queensland Energy Management Plan, acknowledges that energy efficiency is Queensland's first energy resource, and that the government will consider investing in programs to realise energy efficiency gains before investing in new generating or transmission capacity to meet Queensland's energy needs.



**Recommendation 10.....43**

That the Queensland Energy Management Plan:

- sets measureable targets and timeframes for energy efficiency gains;
- quantifies, for each policy or initiative, the anticipated energy efficiency gains to be achieved;
- describes how the plan links to the National Framework for Energy Efficiency and the National Energy Efficiency Strategy;
- encompasses supply-side energy efficiency improvements and demand-side improvements across all portfolio areas including land development, building and transport;
- includes the contribution of local government to energy efficiency improvements;
- addresses the need for equitable access to energy efficiency gains;
- specifies the roles and accountabilities of agencies and coordinating mechanisms;
- addresses data collection and dissemination issues, and sets a timetable for outcome evaluations of all major energy efficiency programs and initiatives;
- explains the linkages between energy efficiency and other strategies promoting clean energy, renewable energy, and climate change mitigation;
- identifies opportunities for stakeholders to contribute to the plan; and
- outlines funding mechanisms for energy efficiency improvements.

**Recommendation 11.....43**

That the immediate priority actions to be addressed in the Queensland Energy Management Plan and the first annual action plan prepared under it, should include:

- expansion of existing public education designed to achieve attitudinal change about energy use and efficiency;
- a plan for the evaluation of major energy efficiency policies and initiatives; and
- specific mention of assistance for low-income households that are most vulnerable to the effects of rising energy costs.

**Recommendation 12.....44**

That the government establishes a 'one-stop' shop to provide energy efficiency information centrally for residents, businesses, communities and governments; and explores the feasibility of using existing community extension worker networks, industry associations, trades and professional people and energy companies to deliver energy efficiency information and assistance to consumers.

**Recommendation 13.....46**

That the government ensures that low-income households have access to adequate information and other support, so that they may implement energy efficiency improvements should cost reflective electricity tariffs be introduced.

**Recommendation 14.....48**

That the government continues to support the No Interest Loan Scheme program and explores the feasibility of offering targeted rebates of \$100, modelled on the Victorian scheme, to No Interest Loan Scheme loan clients who purchase energy efficient whitegoods such as refrigerators, freezers and washing machines. The committee also recommends that the government explores the feasibility of establishing a program in the community sector, modelled on the Phoenix project to assist low-income households access energy efficient second-hand appliances.

**Recommendation 15..... 49**

That the government, through the Ministerial Council on Energy, seeks the establishment of strict guidelines which allow Government Owned Corporations in the energy generating sector to invest in appropriate and/or speculative investments for the purposes of energy efficiency research and development.

**Recommendation 16..... 50**

That the government examines the potential benefits of utilising distributed generation in Queensland.

**Recommendation 17..... 52**

That the government explores the feasibility of a Queensland white certificate scheme consistent with schemes operating in New South Wales, Victoria and South Australia, and which includes energy efficiency improvements that are appropriate to Queensland's tropical climate.

**Recommendation 18..... 52**

That the government canvases the feasibility of a national white certificate scheme through the Ministerial Council on Energy.



# CHAPTER 1 ~ THE INQUIRY

## The Environment and Resources Committee

The Legislative Assembly established the Environment and Resources Committee on 23 April 2009 to monitor and report on issues in the policy areas of environmental protection, climate change, land management, water security and energy.<sup>2</sup> The Legislative Assembly provides that the committee may:

- investigate any matter referred to it by separate resolution of the Legislative Assembly;
- instigate its own inquiries into legislative and policy issues with respect to the policy areas allocated to it. However, in carrying out its functions, the committee must give priority to those matters referred to it by any separate resolution of the Assembly; and
- seek information from ministers of the Crown, directors-general of government departments, and commissioners and chief executive officers of statutory bodies, regarding current issues in the policy areas referred to it.

## Inquiry Terms of Reference

The motion that established the committee set the terms of reference for the committee's first inquiry into energy efficiency improvements:

That the Environment and Resources Committee investigate the economic and environmental potential provided by energy efficiency improvements for households; communities; industry; and government.

In undertaking this inquiry, consideration should be given to:

- a. the economic and environmental costs and benefits arising from energy efficiency improvements;
- b. potential barriers and impediments to improved energy efficiency;
- c. potential policy options for energy efficiency improvements, with an emphasis on initiatives that are cost effective for individual producers and consumers; and
- d. the role of the Carbon Pollution Reduction Scheme and other Commonwealth Government initiatives in encouraging energy efficiency.

The motion required the committee to report to the Legislative Assembly by 30 November 2009. The House subsequently extended the reporting deadline to 25 February 2010.<sup>3</sup>

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<sup>2</sup> The full motion is reported in the Record of Proceedings, First Session of the 53rd Parliament, 23 April 2009, available from the Queensland Parliament website  
[http://www.parliament.qld.gov.au/view/legislativeAssembly/hansard/documents/2009.pdf/2009\\_04\\_23\\_WEEKLY.pdf](http://www.parliament.qld.gov.au/view/legislativeAssembly/hansard/documents/2009.pdf/2009_04_23_WEEKLY.pdf).

<sup>3</sup> The full motion is reported in the Record of Proceedings, First Session of the 53rd Parliament, 24 November 2009, available from the Queensland Parliament website  
[http://www.parliament.qld.gov.au/view/legislativeAssembly/hansard/documents/2009.pdf/2009\\_11\\_24\\_WEEKLY.pdf](http://www.parliament.qld.gov.au/view/legislativeAssembly/hansard/documents/2009.pdf/2009_11_24_WEEKLY.pdf).

## Context for the Inquiry

The committee conducted this inquiry at a time of world-wide concern about global warming caused by greenhouse gas emissions from the burning of fossil fuels for energy and from other sources. According to the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report released in 2007, the projected impacts of climate change for Australia are dire. Queensland's economy is projected to be the most impacted from unmitigated climate change of any Australian state or territory.<sup>4</sup> Projected impacts for Queensland include significant biodiversity loss on the Great Barrier Reef and in the Wet Tropics by 2020, water security problems, declining production from agriculture and forestry, and increasing risks to infrastructure from storm surge and coastal flooding.<sup>5</sup>

Globally, governments are taking steps to cut emissions and avoid the most serious climate change impacts by reducing dependence on energy from fossil fuels and cutting energy wastage through energy conservation and energy efficiency improvements.

When the inquiry commenced in April 2009, much of the policy work by the Queensland Government and other Australian governments to support the implementation of energy efficiency improvements had already been completed. Australian governments had been working cooperatively on strategies and policies to support energy efficiency improvements across all sectors for almost eight years.

The identification of policies and programs to deliver significant improvements in energy efficiency was one of the key tasks of the first Ministerial Council on Energy (MCE), established by the Council of Australian Governments (COAG) in June 2001. The MCE subsequently endorsed a range of strategies and frameworks to promote energy efficiency improvements. In November 2002, the MCE agreed to the development of a National Framework for Energy Efficiency (NFEF) that would define future directions for energy efficiency policy and programs in Australia.

Queensland led the introduction of the NFEF as Chair of the Energy Efficiency Working Group.<sup>6</sup> The NFEF included initiatives within energy departments and agencies responsible for building standards. In August 2004, the MCE committed to a package of policy measures comprising Stage One of the NFEF, noting that significant benefits can flow from enhanced energy efficiency in Australia. In December 2004, the MCE approved eight high-level implementation plans for the NFEF Stage One policy measures.

At their meeting in Sydney in September 2007, the former Prime Minister and other Asia-Pacific Economic Cooperation (APEC) leaders set a target for reducing aggregate energy intensity<sup>7</sup> in member economies by at least 25 per cent by 2030, compared with the 2005 base year.<sup>8</sup> In December 2007, the MCE approved NFEF Stage Two that comprised a package of five new energy efficiency measures.

In October 2008, COAG agreed to develop a National Strategy for Energy Efficiency (NSEE) to accelerate energy efficiency efforts, to streamline roles and responsibilities across levels of government, and to help households and businesses prepare for the introduction of a Carbon Pollution Reduction Scheme (CPRS). COAG signed the National Partnership Agreement on Energy

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<sup>4</sup> Office of Climate Change, 2009, Garnaut Review 2008 in *ClimateQ*, 2009, Office of Climate Change, Queensland viewed November 2009, [http://www.climatechange.qld.gov.au/whats\\_being\\_done/queensland\\_climate\\_change\\_strategy](http://www.climatechange.qld.gov.au/whats_being_done/queensland_climate_change_strategy).

<sup>5</sup> Office of Climate Change, 2008, *Climate Change in Queensland: What the science is telling us*, Environmental Protection Authority, 2008, p.1.

<sup>6</sup> Environmental Protection Agency, 2008, *State of the Environment Queensland, 2007*, Environmental Protection Agency, Queensland, p.319.

<sup>7</sup> Energy intensity is the ratio of energy consumption to a level of activity and is often used as a proxy for estimating energy efficiency. Generally, a lower energy intensity indicates a higher relative energy efficiency.

<sup>8</sup> Sydney APEC Leaders' Declaration on Climate Change, 2007 Energy Security and Clean Development, APEC.

Efficiency, which will deliver a nationally consistent and cooperative approach to energy efficiency, on 2 July 2009.<sup>9</sup>

In Queensland, the Office of Climate Change, the Office of Clean Energy and the Department of Public Works have developed key policies and initiatives to support energy efficiency improvements. In other work, the Premier's Council on Climate Change has explored options for the government to consider to encourage efficiency improvements in the future.<sup>10</sup>

## **Inquiry Process**

The committee commenced the inquiry in April 2009 and released a short issues paper, *Issues Paper No. 1: Inquiry into energy efficiency improvements*, to promote informed discussion and encourage submissions. The paper provided background information about energy usage and energy efficiency, and flagged the issues for submitters to consider. The committee published the paper on its website at <http://www.parliament.qld.gov.au/erc> and distributed copies to stakeholder groups and individuals inviting submissions. The committee agreed to accept and publish 51 submissions it received to the inquiry. These are listed at Appendix B.

The committee held public seminars for the inquiry in Townsville on 24 July and in Brisbane on 7 August 2009. These seminars:

- provided forums to promote greater understanding of the costs and benefits of energy efficiency improvements and the supporting policies and initiatives of the Australian and Queensland governments;
- assisted the committee to identify the opportunities as well as barriers and impediments to implementing energy efficiency improvements based on the experience of residents, businesses, government agencies and communities; and
- helped the committee to identify potential new policies and initiatives the Queensland Government could pursue to increase the adoption of cost-effective energy efficiency improvements in the future.

The committee held public hearings in the Parliamentary Annexe in Brisbane on 11 September and 8 October 2009. The witnesses are listed at Appendix C. On 14 October 2009, following the second hearing, the committee put a series of questions to the government through the Office of Clean Energy to elicit further information. The committee received the government's responses to the questions on 11 December 2009.

## **Purpose of this Report**

This report to the Queensland Parliament presents the committee's findings and recommendations for the government to implement.

## **Responsibility of Ministers**

Section 107 of the *Parliament of Queensland Act 2001* requires the responsible ministers to respond to the committee's recommendations within three to six months of the report being tabled. A copy of this section of the Act is at Appendix A.

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<sup>9</sup> Council of Australian Governments, 2008, *COAG Communiqué - 2 October 2008*, COAG, Canberra.

<sup>10</sup> A series of working papers by the Premier's Council on Climate Change are available at [http://www.climatechange.qld.gov.au/whats\\_being\\_done/queensland\\_climate\\_change\\_strategy](http://www.climatechange.qld.gov.au/whats_being_done/queensland_climate_change_strategy).



## CHAPTER 2 ~ ENERGY AND ENERGY EFFICIENCY

### Energy

Energy can be a difficult concept to understand. It is different from power. In simple terms:

*Energy is the capacity to do work. Energy is never created or destroyed; it just changes form. For example, coal, gas, wind, the sun, etc have energy (the capacity to do work). They can produce energy in the form of heat and electricity. Kinetic energy from waves, can be converted to electricity.<sup>11</sup>*

Energy is an input for virtually everything we use and do. Most of the energy we use comes from the burning of fossil fuels<sup>12</sup> to generate electricity, and petrol and diesel used in vehicle engines.

Energy is of strategic importance for 40 per cent of the world economy<sup>13</sup>, and demand is growing. With no change in government policies, the International Energy Agency (IEA)<sup>14</sup> predicts world primary energy demand will be 40 per cent higher in 2030 than in 2007. Over this period, demand for electricity is projected to grow by 76 per cent requiring 4800 gigawatts (GW) of additional capacity – almost five times the existing capacity of the United States (US).<sup>15</sup>

The IEA also predicts continuing volatility in energy prices and dramatic price increases. In the Reference Scenario, oil prices are assumed to rebound with rising demand and supply costs. Gas and coal prices are expected to increase broadly in line with oil prices, reflecting the dynamics of inter-fuel competition and rising supply costs.<sup>16</sup>

### Energy in Australia

Energy is vital to our economy both as an input to production of goods and services, for consumption by households and as an export commodity. Energy is also a driver of economic growth and wealth creation contributing to the general economic and social wellbeing of all Australians.<sup>17</sup> A total of 5770 petajoules of energy was consumed nationally during 2006-07.<sup>18</sup>

By world standards, Australia is an energy intensive<sup>19</sup> nation. The IEA lists Australia as having the fifth highest energy intensity of 21 nations assessed, behind Canada, Finland, the USA and

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<sup>11</sup> ERM Power Pty Ltd, 2008, *Units of energy and power explained*, ERM, Australia, viewed 7 January 2010, <http://www.ermpower.com.au/education/units>.

<sup>12</sup> Fossil fuels, also known as mineral fuels, are natural resources such as coal, oil and natural gas that contain hydrocarbons. Hydrocarbons release tremendous energy when burnt.

<sup>13</sup> McKinsey and Company, 2009, *Energy: A key to competitive advantage – New sources of growth and productivity*, p.12.

<sup>14</sup> Founded during the oil crisis of 1973-74, the IEA monitors international energy trends and conducts energy policy reviews of its 28 member countries of which Australia is a member. It promotes energy efficiency policy and technology in buildings, appliances, transport and industry, as well as end-use applications such as lighting.

<sup>15</sup> International Energy Agency, 2009, *World Energy Outlook Fact Sheet: Why is our current energy pathway unsustainable?* IEA, Paris.

<sup>16</sup> International Energy Agency, 2009, *World Energy Outlook Fact Sheet: Energy Price Assumptions*, IEA, Paris.

In real terms, the average IEA crude oil import price, a proxy for international prices which in 2008 averaged around US\$3 per barrel less than West Texas Intermediate, is assumed to reach US\$87 per bbl in 2015, US\$100 per bbl by 2020 and US\$115 per bbl by 2030 (in year-2008 dollars). In nominal terms, prices approach US\$102 per bbl by 2015, US\$131 per bbl by 2020 and almost US\$190 per bbl by 2030.

<sup>17</sup> Department of Resources, Energy and Tourism, 2009, *Enhancing Australia's Economic Prosperity Energy White Paper - Discussion paper: Investment, Competitive Markets and Structural Reform*, DRET, Canberra, p.7.

<sup>18</sup> Australian Bureau of Agricultural and Resource Economics, 2009, *Energy in Australia 2009*, DRET, Canberra, p.12.

<sup>19</sup> Energy intensity at an aggregate level can be measured as the ratio of energy consumption per gross domestic product or gross state product.

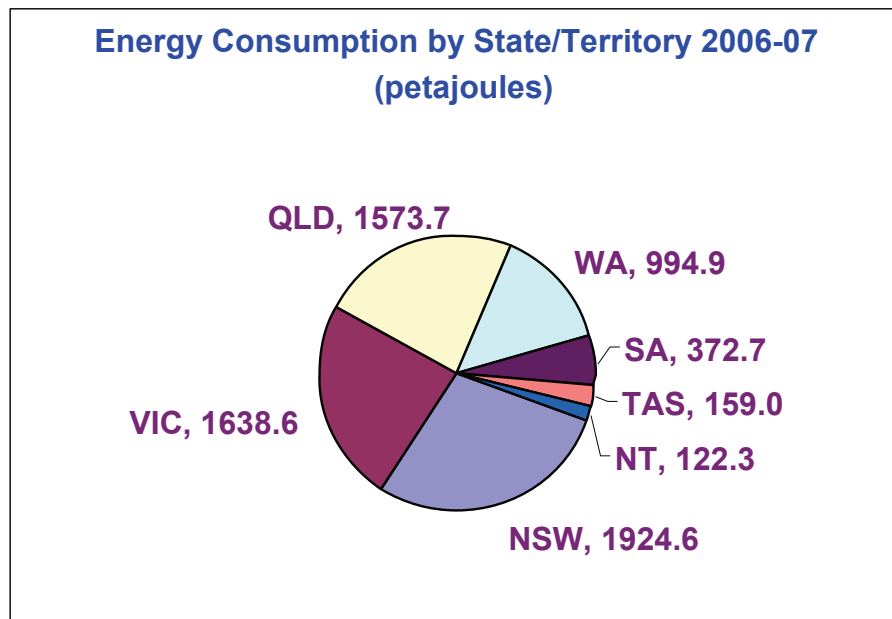


Belgium.<sup>20</sup> Australia is also the world's 20<sup>th</sup> largest energy consumer, and ranks 16<sup>th</sup> on a consumption per person basis.<sup>21</sup>

Energy consumption continues to grow in Australia at an average of 2.3 per cent annually. Over the next 20 years, under a no new policies scenario, demand for energy in Australia is projected to increase by 46 per cent linked to population growth and rising living standards.<sup>22</sup>

Within Australia, there are significant variations across jurisdictions in energy consumption and intensity. The graph below shows a breakdown of energy consumption by state/territory for 2006-07. Queensland's energy consumption was 1573.7 petajoules which was 23 per cent of Australia's total energy consumption.<sup>23</sup>

**Figure 1: Energy Consumption by State/Territory 2006-07**



Source: ABARE Australian Energy Statistics, 2009

## Energy in Queensland

Queensland is the most energy intensive state in Australia and is heavily reliant on fossil fuels to meet energy requirements. The state also has a large mining sector contributing to industrial emissions and a dispersed population requiring energy-related infrastructure.<sup>24</sup>

The graph below (at page 7) shows the trends in energy consumption in Queensland by sector for the period 1976-77 to 2006-07 in 10 yearly increments. Over the 30 years examined, Queensland's total energy consumption almost trebled. Consumption for energy generation, transport and manufacturing accounted for over 85 per cent of all energy use. Residential energy use, as a proportion of total energy use, fell over the period from 5.5 per cent in 1976-07 to 4.5 per cent in 2006-07.

<sup>20</sup> International Energy Agency/Organisation for Economic Cooperation and Development, 2007, *Energy Use in the New Millennium – Trends in IEA Countries*, IEA, Paris, p.33.

<sup>21</sup> Australian Bureau of Agricultural and Resource Economics, 2009, *Energy in Australia 2009*, DRET, Canberra, p.11.

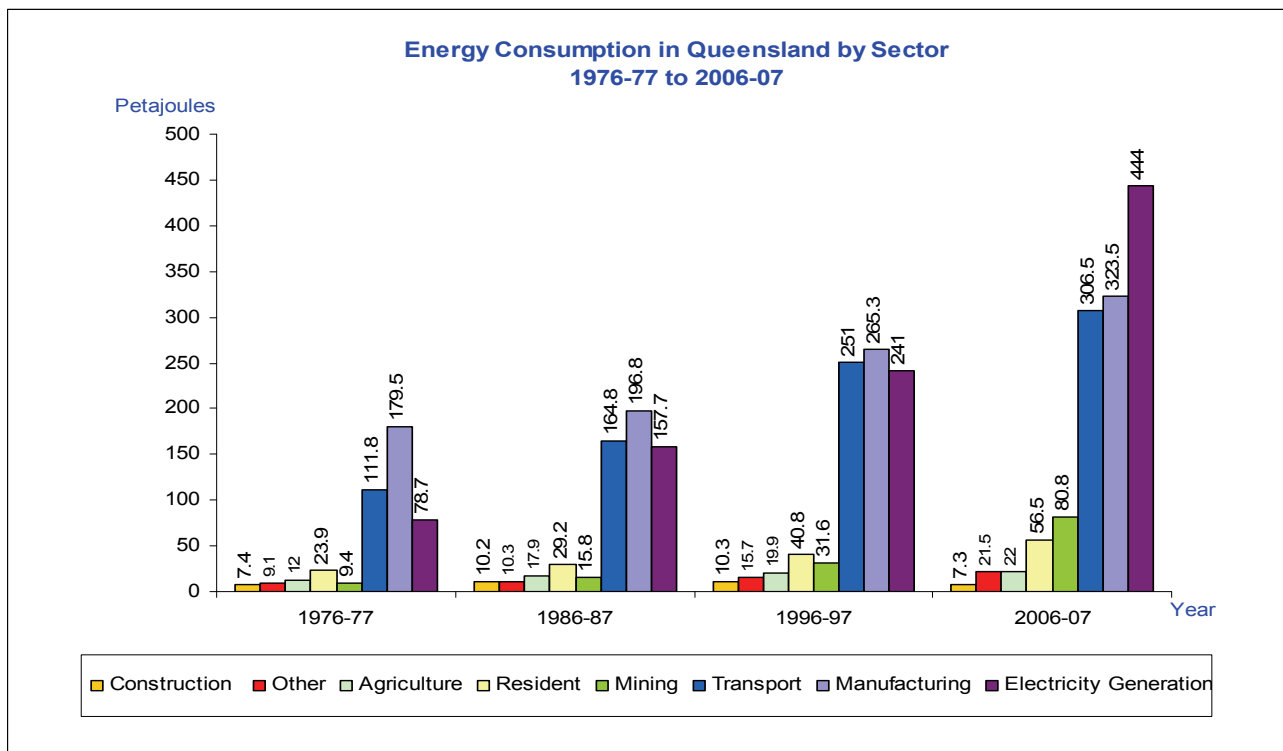
<sup>22</sup> Cuevas-Cubria, C. and Riwoe, D., 2006, *Australian Energy: National and State Projections to 2029-30*, ABARE Research Report 06.26 Prepared for the Australian Government DITR, Canberra.

<sup>23</sup> Australian Bureau of Agricultural and Resource Economics, 2009, *Energy in Australia 2009*, DRET, Canberra, p.12.

<sup>24</sup> Office of Climate Change, 2009, *ClimateQ: toward a greener Queensland*, Office of Climate Change, Queensland, pp.17-20.

Between 1999-2000 and 2007-08, annual electricity consumption in Queensland grew more than 29 per cent or approximately 10,500 gigawatt hours (GWh). Queensland is now the second highest electricity consuming state in Australia. The state's major energy-consuming sectors were electricity generation (29 per cent), manufacturing (24 per cent), transport (24 per cent), mining (7.9 per cent), residential (7.7 per cent), and commercial and services sectors (4.4 per cent).<sup>25</sup>

**Figure 2: Energy Consumption in Queensland by Sector**



Source: ABARE Australian Energy Statistics, 2009

## Energy Efficiency

The term 'energy efficiency' and what might be considered an energy efficiency measure or improvement can mean different things to different people. Energy efficiency is often used interchangeably with 'energy conservation' as both are the opposite of energy wastage, though the terms have different meanings. For this inquiry, the committee drew a clear distinction between energy efficiency improvements and energy conservation.

Energy efficiency measures, unlike energy conservation, aim to reduce energy consumption whilst maintaining or increasing the level or useful output of power using less input of fuel. Examples of energy efficiency improvements include generating more electricity from the same fuel, improving the energy efficiency of supply chains, energy efficient lighting, heating and cooling systems that produce the same outputs using less electricity and improved energy management practices in buildings and factories. Energy efficiency also includes farming practices that give the same or greater yields using less energy inputs. At the macro level, energy efficiency improvements must also extend to decisions about transport and land use planning, water and waste treatment, all of which can lock in future generational savings or cost burdens for government and communities.

<sup>25</sup> Australian Bureau of Agricultural and Resource Economics, 2009, *Australian Energy Statistics*, DRET, Canberra, viewed 30 May 2009, <http://www.abare.gov.au>.

Choosing to travel less by car or limiting the use of air conditioners are examples of energy conservation measures. Energy conservation measures complement energy efficiency improvements.

## **National Initiatives**

In late 2007, the Federal Government committed Australia to cutting greenhouse gas emissions by 60 per cent from 2000 levels by 2050 in line with international moves to mitigate global emissions and climate change risks. The Federal Government's primary policy response to the problems of greenhouse gas emissions has been to seek to establish an emission trading scheme called the Carbon Pollution Reduction Scheme (CPRS). The CPRS would effectively limit future carbon emissions using a cap and trade mechanism. At the time of writing this report, the Federal Parliament had not agreed to a CPRS. This is discussed further in Chapter 5 of this report.

A significant component of Australia's carbon emissions are from the burning of fossil fuels to produce energy. Energy efficiency, which is the more productive use of energy, forms the second plank in the Federal Government's greenhouse gas emissions reduction strategy after the CPRS. The government has developed programs to improve energy efficiency delivered under three key areas:

- the National Partnership Agreement on Energy Efficiency;
- the National Strategy on Energy Efficiency; and
- the Smart Grid, Smart City trial of new energy network technologies.<sup>26</sup>

### ***National Partnership Agreement on Energy Efficiency***

On 2 July 2009 COAG signed the National Partnership Agreement on Energy Efficiency to provide a nationally consistent and coordinated approach to energy efficiency. The agreement sets out the roles and responsibilities of governments, and includes an \$88 million funding commitment from the Federal Government for joint measures.<sup>27</sup> It also covers reporting obligations and governance arrangements while recognising the need for flexible approaches across jurisdictions and allowing for the emergence of innovation that targets regional conditions and local expertise.

### ***The National Strategy on Energy Efficiency***

The ten-year National Strategy on Energy Efficiency is a COAG initiative to assist Australian households and businesses cut their energy and fuel bills and reduce their carbon footprints. The strategy covers a broad range of areas where substantial energy efficiency opportunities exist: commercial buildings; residential buildings; appliances and equipment; industry and business; government; transport; skills and training; innovation; and advice and education. It encompasses:

- assistance to households to reduce energy use by providing information and advice, financial assistance and demonstration programs;
- assistance to business and industry to obtain the knowledge, skills and capacity to pursue cost-effective energy efficiency opportunities;
- more stringent energy efficiency standards for homes and other buildings;
- energy efficiency standards for an expanded range of appliances and equipment and a process to enable industry to adjust to increasingly stringent standards over time;

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<sup>26</sup> Robyn Kruk AM, Secretary of the Department of the Environment, Water, Heritage and the Arts, *Encouraging greater energy efficiency*, Speech to Australian Economic Forum, Sydney, 20 August 2009, DEWHA, Canberra, viewed 12 October 2009, <http://www.environment.gov.au/about/media/secretary/2009/sp20090820.html>.

<sup>27</sup> Details of the strategy are available from the Department of the Environment, Water, Heritage and Arts website <http://www.environment.gov.au/minister/garrett/2009/mr20090702b.html>.

- new minimum standards for the energy performance of air conditioners effective from 2010. A further revised standard requiring a 10 per cent additional efficiency improvement will commence on 1 October 2011;
- addressing potential regulatory impediments to innovative demand-side initiatives and smart grid technologies;
- governments working in partnership to improve the energy efficiency of their own buildings and operations; and
- a detailed assessment of possible vehicle efficiency measures, such as CO<sub>2</sub> emission standards. These measures have the capacity to reduce fuel consumption by 30 per cent over the medium term, and significantly contribute to emissions reductions.<sup>28</sup>

COAG is still assessing the costs and benefits of introducing CO<sub>2</sub> emission standards for light vehicles. In the interim, COAG has agreed to improve the availability of fuel consumption data so that consumers are better equipped to make informed purchasing decisions. COAG also agreed to request the Henry Tax Review of Australia's Future Tax System<sup>29</sup> to consider the merit of financial incentives for the purchase of fuel-efficient cars, as well as the merits of differential stamp duty and registration regimes linked to environmental performance. The review reported to the Commonwealth Government in December 2009. At the time of writing this report, the government had not released its review findings.

### *The Smart Grid, Smart City Trial*

The Federal Government has committed up to \$100 million to develop the Smart Grid, Smart City project in partnership with the energy sector to support the installation of Australia's first commercial-scale smart grid.

Smart grid infrastructure uses sensors, meters, digital devices and analytical tools to automate, monitor and control the two-way flow of energy from power plant to plug. It can identify and resolve faults on the electricity grid, automatically self-heal, manage voltage and identify infrastructure that requires maintenance. Smart grids can also help consumers manage their individual electricity consumption and enable the use of energy efficient 'smart appliances' that can be programmed to run on off-peak power.<sup>30</sup> Smart grids help to integrate renewable energy sources and enable the benefits of distributed power generation (such as the power produced by solar photovoltaic systems and co-generation plants) and distributed storage to be maximised throughout the network.

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<sup>28</sup> Council of Australian Governments, *Communiqué Preamble, meeting on 2 July 2009*, COAG, Canberra, viewed 7 January 2010, <http://www.coag.gov.au>.

<sup>29</sup> The terms of reference for the Federal Government's Review of Australia's Tax System are available at <http://taxreview.treasury.gov.au>.

<sup>30</sup> Department of the Environment, Water, Heritage and the Arts, 2009, *National Energy Efficiency Initiative, Smart Grid, Smart City*, DEWHA, Canberra, 2009, viewed November 2009 <http://www.environment.gov.au/smartgrid/>.

## Queensland Government Initiatives

The Queensland Government has three key strategies which set the direction for energy efficiency improvements. These are:

- *Queensland Energy Policy: A Cleaner Energy Strategy*;
- *Towards Q2: Tomorrow's Queensland*; and
- *ClimateQ: toward a greener Queensland*.

The *Queensland Energy Policy: A Cleaner Energy Strategy* released in May 2000 sought to ensure that Queensland had adequate, reliable and competitively priced energy available to users throughout Queensland. The government's objectives for the strategy were to:

- diversify the state's energy mix towards a greater use of gas and renewables;
- facilitate the supply of abundant and competitively priced gas in Queensland;
- facilitate the development of gas fired power stations, particularly a base load power station in Townsville; and
- reduce the growth in greenhouse gases.<sup>31</sup>

*Towards Q2: Tomorrow's Queensland* sets out a series of targets for the community, industry and government to achieve by 2020. One of the targets is to protect lifestyle by cutting Queenslanders' carbon footprint by one third through reduced car and electricity use.

*ClimateQ: toward a greener Queensland* sets out the steps for Queensland's transition to a less carbon-intensive future. ClimateQ consolidates and updates the approaches taken in ClimateSmart 2050 and ClimateSmart Adaptation 2007-12, and takes into account the latest national and international science and policy. Together with *Toward Q2*, the new strategy provides a suite of initiatives and investments to take Queensland's long term response to climate change into a new phase.<sup>32</sup>

The government is progressing a range of initiatives to promote energy efficiency in households, the community, industry and within the government. They include:

- the Queensland Energy Management Plan – a state-wide energy efficiency and demand management strategy, which will set out the government's strategic direction and priorities, and complement the *Queensland Renewable Energy Plan*;
- QFleet ClimateSmart Action Plan 2007-2010;
- the Energy Conservation and Demand Management Program;
- the Smart Energy Savings Program;
- the Sustainable Housing Initiative incorporating energy efficiency requirements into the Building Code, including a 5-star energy equivalence rating with minimum requirements for new homes;
- the ecoBiz Program;
- the Clean Energy Strategy for Queensland's isolated communities;
- funding support for the Townsville Solar City initiative under the Commonwealth Government's Solar Cities Program;

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<sup>31</sup> Queensland Government, 2000, *Queensland Energy Policy: A Cleaner Energy Strategy*, Queensland Government, Brisbane, p.5.

<sup>32</sup> Queensland Government, submission no. 42, p.24.

- the Queensland Sustainable Energy Innovation Fund;
- minimum energy performance standards for air conditioners;
- the phasing-out of electric hot water systems in gas-reticulated areas; and
- the Low Carbon Diet.<sup>33</sup>

Appendix D provides a detailed description of these initiatives based on information presented in the government's submission.

Other government policies and initiatives support energy efficiency improvements through more sustainable land-use and infrastructure planning. They include the South East Queensland (SEQ) Regional Plan 2009-2010; the SEQ Climate Change Management Plan; the Far North Queensland Regional Plan 2025; and programs to aid the development of Transit Oriented Developments and reduce urban sprawl.

In December 2008, COAG agreed to a set of principles for greenhouse gas mitigation measures to ensure they complement the CPRS. State and territory governments subsequently agreed to review their mitigation measures to ensure consistency with these principles. The Queensland Government engaged an independent consultant to review its existing climate change initiatives, including energy efficiency initiatives, for consistency with the principles. The consultant found that the vast majority of Queensland's existing mitigation measures are consistent with the COAG principles, including all existing energy efficiency initiatives such as the Smart Energy Savings Program and ClimateSmart Homes Service. The new initiatives in *ClimateQ* have been developed for consistency with the COAG principles and to address expected market failures of the Federal Government's proposed CPRS. The initiatives are also designed to be consistent with the principle of being implemented by the most appropriate level of government. They include the Energy Conservation and Demand Management Program, Queensland Solar Hot Water Program and the ClimateSmart Business Service.<sup>34</sup>

As noted above, the Queensland Government has allocated \$5 million to support the delivery of the *Townsville Solar City* initiative under the Commonwealth Government's *Solar Cities Program*. This seven year trial project is located at Magnetic Island and aims to: demonstrate the environmental and economic effects of combining cost reflective pricing with the widespread use of solar technology, energy efficiency and smart meters; find out what barriers exist regarding energy efficiency, electricity demand management and the use of solar technology among businesses and householders in different parts of Australia; and test ways to deal with these barriers.<sup>35</sup> The committee inspected the *Townsville Solar City* project and co-hosted the Townsville energy efficiency seminar with project staff. The committee acknowledges the important contribution to behaviour change towards more energy efficient practices that this project has achieved.

The committee asked the Queensland Government whether its energy efficiency programs had been independently evaluated. Program evaluations involve real time and/or retrospective assessments of their performance and implementation. The objectives of evaluations are to document and measure their effect, and determine whether they have met their goals with respect to being a reliable resource; and to help understand why those effects occurred and identify ways to improve current programs and select future programs.<sup>36</sup>

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<sup>33</sup> Queensland Government, correspondence dated 11 December 2009, Appendix A, pp.40-49.

<sup>34</sup> Queensland Government, correspondence dated 11 December 2009, p.35.

<sup>35</sup> Queensland Government, submission no. 42, p 44; Ergon Energy will conduct around 1,700 free energy assessments and install around 500 solar photovoltaic systems and 2,500 smart electricity meters. More information about the Solar Cities Program is at: <http://www.environment.gov.au/settlements/solarcities/index.html>.

<sup>36</sup> National Action Plan for Energy, 2007, *Model Energy Efficiency Program Impact Evaluation Guide*, prepared by Steven R. Schiller Consulting Inc., p.ES-1, viewed 17 February 2010, <http://www.epa.gov/eeactionplan>.

The government advised that its energy efficiency programs have not been independently evaluated due to timing and data constraints, though most programs and initiatives are evaluated using internal monitoring processes, and many have public reporting obligations.<sup>37</sup>

The committee sought further advice from the Queensland Government about the take up rates for programs to promote energy efficiency as a guide to the level of coverage of the state's 1.39 million households and 390 000 businesses.<sup>38</sup>

**Table 1: Take up rates for Queensland Government Energy Efficiency Programs**

Program	Activity measure	Notes
ClimateSmart Home Service	115 000	Number of in-home services completed up till 30.11.09.
Low Carbon Diet	148 848	Anticipated engagement reach 1 7.08 - 4.12.10.
QWESTNet	1 430	Number of delegates who attended forums conducted since 2008.
ecoBiz	54	Number of business that have completed the program and attained ecobiz Partner status.
ecoBiz	500	Approximate number of participating businesses.
ClimateSmart Business Cluster Programs	28	Number of clusters established in the first funding round.
ClimateSmart Business Clusters program	400	Number of participating businesses.
ClimateSmart Retail	40	Number of partner retailer stores involved.
ClimateSmart Business Associations	2	Industry associations that have signed with the program. DERM is negotiating with 15 associations and anticipate a further five will sign agreements in 2010.
Home EnergyWise Kits	20 000	Number of kits distributed during 2008-09. A further 10,000 kits will be distributed in 2009-10.
EnergyWise Schools	51	Number of schools participating in the program.
Solar Bonus Scheme	6 000	Number of households signed up to the program at 30.6.09.

Source: Based on information provided by the Queensland Government in correspondence dated 11 December 2009

Table 1 (above) summaries the take up rates for eleven key programs based on data provided by the government. These figures, on their own, tell little about the government's achievements to date to promote energy efficiency improvements, though, when viewed with the census data highlight the enormous task ahead to achieve an effective coverage of households and businesses state-wide. Using these figures, the ClimateSmart Home Service is reaching around one in five households, and a similar number of households may have a participant in the Low Carbon Diet Program. Around one in 46 households will likely receive a Home Energy Wide Kit.

For Queensland businesses, approximately one in 780, a fraction of one per cent, are participating in the EcoBiz program.

<sup>37</sup> Queensland Government, correspondence dated 11 December 2009, p.10.

<sup>38</sup> Australian Bureau of Statistics, *2006 Census & National Regional Profile: Queensland*, ABS, Canberra, viewed 15 February 2010 <http://www.abs.gov.au>.

## Opportunities to Improve the ClimateSmart Home Service Program

The ClimateSmart Home Service is a Queensland Government initiative targeting energy efficiency improvements in the residential sector. It has become the public face of the government's energy efficiency policy. The service involves a home energy audit by a licensed electrician, the installation of a wireless electricity usage monitor, the installation of up to 15 energy efficient compact fluorescent lamp (CFL) light globes, the installation of a water efficient showerhead and access to My ClimateSmart Home, a customised online resource for more energy and water savings information.<sup>39</sup> The program commenced on 5 January 2009 and aims to deliver the service to 260,000 households. The Queensland Government heavily subsidises the service which has a notional value of \$400. Residents receive the service for only \$50. The Brisbane City Council offers a rebate for residents to meet this cost as well. From Table 1 (on page 12) 115 000 in-home services have been provided. The government has also advised that 78 per cent of these services were to homes in south east Queensland. The ClimateSmart Home Service program is expected to cease at the end of 2010 or when the target has been reached.

The committee acknowledges the ClimateSmart Home Service program provides an important service to assist residents reduce their energy use. The following sections discusses opportunities to improve the service. The committee recommends that the service is continued, subject to the findings of an independent evaluation.

### *Follow up contact*

It has been suggested to the committee that the ClimateSmart Home Service program could be even more successful and encourage greater commitment to energy efficiency improvements if it included a follow up visit. Reporting information back to households on their energy use after the initial home visit has the potential to reinforce behavioural change and ensure momentum and interest in energy efficiency. According to the Queensland Council of Social Services Inc (QCOSS):

*Follow-up with participating households in the period after initial service delivery is also important in achieving sustained changes to behaviour resulting from a comprehensive energy and water audit. This follow-up may also have the effect of reinforcing messages delivered in the course of service delivery. One study suggested that the provision of education in conjunction with other programmatic energy efficiency measures had a synergistic effect, increasing the efficacy of both.*<sup>40, 41</sup>

In her evidence, Miss Kunz from the Queensland Youth Environment Council (QYEC) spoke about the importance of feedback:

*...Reporting that information back to households is really important, because it closes a loop. Certainly, a lot of research always shows that it is really important not to just have those kinds of services but also to report back to people and help them to see what difference it has made. Otherwise, you really do not know whether you have made progress.*<sup>42</sup>

Mr Lee, General Manager of Demand Management at Ergon Energy, told the committee that follow up visits could offer the chance to monitor and measure a household's progress for benchmarking purposes. According to Mr Lee, benchmarking is crucial in the ongoing process to improve householders' awareness of energy efficiency as it can help to make electricity tangible and real.<sup>43</sup>

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<sup>39</sup> Queensland Government, correspondence dated 11 December 2009, p.5; Due to technical limitations tenants in unit blocks and apartments are unable to utilise a wireless energy monitor but are able to take advantage of all other aspects of the initiative, Queensland Government, correspondence dated 11 December 2009, p.18.

<sup>40</sup> QCOSS, submission no. 39, p.10.

<sup>41</sup> The studies QCOSS refer to are: *Regarding Energy Efficiency*, National Consumer Law Centre: Boston; and Brown, M et al (1993) *Keys to Success: 10 Cases of Effective Weatherization Programs*.

<sup>42</sup> Kunz, QYEC, hearing transcript, 11 September 2009, pp.7-8.

<sup>43</sup> Lee, Ergon Energy Corporation Ltd, hearing transcript, 11 September 2009, pp.38-39.



In correspondence, the Queensland Government told the committee that, it would potentially be useful in reinforcing behavioural change in households, though the benefits are unknown. The government also noted that including a return visit would effectively double the service costs and therefore require significant funding.<sup>44</sup>

<b>Recommendation 1.</b>
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<p>That the government provides funding to continue the ClimateSmart Home Service, subject to the findings of an independent evaluation, and examines the benefits and costs of amending the ClimateSmart Home Service program to include a follow up visit or phone call to clients to reinforce the benefits of the program and gauge their progress.</p>
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<p style="text-align: right;"><b>Minister responsible: Minister for Natural Resources, Mines and Energy and Minister for Trade</b></p>
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### *Improving access for low-income households*

As noted above the government heavily subsidises the cost to residents to access the ClimateSmart Home Service in the order of \$400 per service. It has been suggested to the committee that the \$50 fee for the ClimateSmart Home Service still poses a barrier for low-income households and should be waived for households in areas where councils do not rebate the cost.<sup>45</sup>

According to QCOSS, the \$50 fee may provide a barrier to some low-income households who wish to access the program.<sup>46</sup> QCOSS further suggested setting targets to ensure this demographic is included in the program.

*So as an improvement to that program, for example, I would like to see that there was an allocation—a target—assigned to how many low-income households should be taking up the offer or a certain amount of the budget assigned to it. Otherwise I think the program may well be very successful but it is people who are homeowners and relatively better off that are able to access it.<sup>47</sup>*

The committee is aware that eligible households who undertake the ClimateSmart Home Service can apply for a \$50 rebate from the Brisbane City Council. Similarly, Ergon Energy offers a \$50 rebate to households participating in its Energy Savers' Program (a trial program in Mount Isa and some suburbs in Mackay).<sup>48</sup> Ergon Energy has also assisted households facing extreme financial hardship by paying for the ClimateSmart Home Service on their behalf.<sup>49</sup> There appears to be no support for low-income households residing outside of the Brisbane City Council area and who are not Ergon customers.

In our view, all low-income households across the state should be able to participate in this program. We also acknowledge that a \$50 fee may pose a barrier for some residents. However, the committee considers the level of subsidy provided by the government is already substantial. We welcome the \$50 rebate offered by the Brisbane City Council to meet the service fee, and other assistance provided by Ergon Energy to assist low income customers. We suggest other councils and electricity retailers should consider offering similar assistance to their customers to encourage energy efficiency.

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<sup>44</sup> Queensland Government, correspondence dated 11 December 2009, p.18-19.

<sup>45</sup> Kunz, QEYC, hearing transcript, 11 September 2009, p.7; QCOSS, submission no. 39, p.7.

<sup>46</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.9.

<sup>47</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.9.

<sup>48</sup> Queensland Government, correspondence dated 11 December 2009, p.5.

<sup>49</sup> Queensland Government, correspondence dated 11 December 2009, p.18.

**Recommendation 2.**

That the government encourages all local councils and electricity retailers to offer rebates and other assistance to their clients to meet all or part of the \$50 service costs to participate in the ClimateSmart Home Service program.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

***Options to assist customers excluded from the program***

The committee is aware that, for technical reasons, the ClimateSmart Home Service program is not available to people living in multiple dwelling situations such as units, flats or caravan parks where dwellings aren't separately metered. The committee heard that this is disappointing for some residents who would like to access the service.<sup>50</sup> In their submission, the Queensland Government advised the committee that other options for this particular group include: participating in The Low Carbon Diet program; information on the Queensland Government's ClimateSmart Living website; and energy efficiency information available from other government and non government sources. However, the committee acknowledges that the energy monitor is critical to assisting households in this behaviour change.<sup>51</sup> At present the monitor cannot read multiple supply lines and cannot differentiate between multiple users who receive their electricity through a single supply line. The committee recommends that the Queensland Government investigates new technologies to overcome the technical limitations of the existing energy monitor.

The committee is also concerned that only 22 per cent of households that have taken up the ClimateSmart Home Service are from outside of south east Queensland.<sup>52</sup> There appears to be a lack of access to, and awareness of, the program in remote, rural and regional communities.

The committee recommends the Queensland Government sets targets for the delivery of the program to low-income households as well as households in remote and regional communities.

Given that the ClimateSmart Home Service program is typically the first exposure by the householder to information, advice and products to reduce energy use, the committee would like the Queensland Government to investigate the feasibility of extending its current target of 260 000 households by two years to continuing the program on an ongoing basis. Further, the Queensland Government should consider including the program under its proposed 'one-stop' shop to improve access, assist in monitoring and measurement measures. Extending the program will give more Queensland households the opportunity to access to the service and increase awareness of energy efficiency issues.

**Recommendation 3.**

That the government sets targets for the provision of ClimateSmart Home Service visits to low-income households as well as households in remote and regional areas.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

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<sup>50</sup> Kunz, QYEC, hearing transcript, 11 September 2009, p.7.

<sup>51</sup> Queensland Government, correspondence dated 11 December 2009, p.18.

<sup>52</sup> Queensland Government, correspondence dated 11 December 2009, p.11.

#### Recommendation 4.

That the government investigates new technologies to overcome the barriers to installing smart meters in multiple dwellings that are not individually metered.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

### Local Government Initiatives

Officers from the Brisbane City Council and Moreton Bay Regional Council gave evidence at the committee's Brisbane hearing on 11 September 2009 about energy costs for local government. The committee heard that approximately half of electricity used by the Brisbane and Moreton Bay councils was used for water (pumping and treatment). For the Brisbane City Council, fuel for buses dominates their other energy costs.<sup>53</sup>

Hon Desley Boyle MP, Minister for Local Government and Aboriginal and Torres Strait Islander Partnerships, informed the committee of work by local governments to improve energy efficiency and/or sustainability, supported by the Queensland Government. Appendix E provides an overview of these initiatives based on the minister's advice.

The committee was further advised that the Department of Environment and Resource Management (DERM) has provided training and program materials to local councils to enable them to guide local businesses through the ecoBiz Program and enable them to identify, implement and evaluate eco-efficiency improvements. For example, DERM has worked closely with the Sunshine Coast Regional Council, providing training, program materials and joint salary funding to enable the delivery of ecoBiz to businesses in the region. In addition, councils have access to DERM's suite of materials to assist groups of businesses participating in the ClimateSmart Business Clusters program.

The Queensland Government is partnering with local councils to develop trials in energy efficiency, such as the *Queensland Energy Efficient Street Lighting Trial*. Five councils are working in partnership with the Queensland Government, ENERGEX and Ergon Energy. The three-year trial aims to identify the most efficient and cost effective street lighting options.<sup>54</sup>

### The Benefits of Energy Efficiency

The committee identified a number of studies and reports citing the potential benefits of energy efficiency improvements. The committee also noted the inherent difficulty of tracking and quantifying changes to energy efficiency.

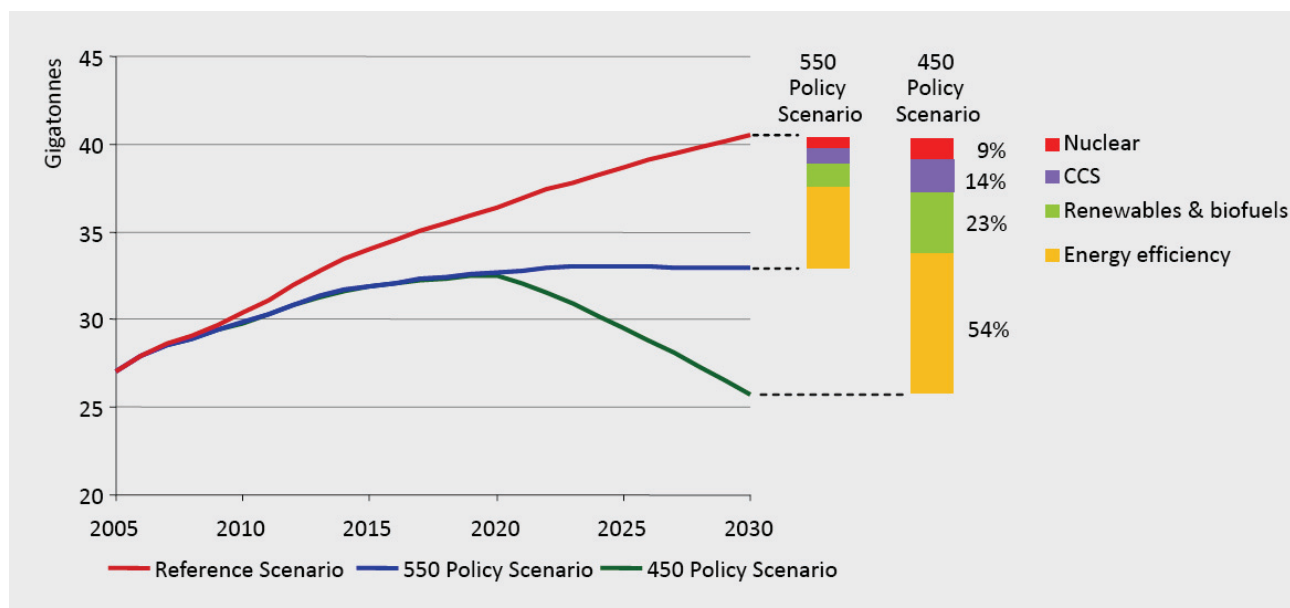
Energy efficiency, according to the IEA, offers a powerful tool for achieving a sustainable energy future; a view supported by governments around the world. Energy efficiency is the largest and most cost effective source of greenhouse gas reduction.

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<sup>53</sup> Casey, Brisbane City Council, hearing transcript, 11 September 2009, p.25; Raymond, Moreton Bay Regional Council, hearing transcript, 11 September 2009, p.25.

<sup>54</sup> Queensland Government, correspondence dated 11 December 2009, p.30.

**Figure 3: Reductions in energy-related CO<sub>2</sub> emissions in the climate-policy scenarios**



Source: International Energy Agency, *World Energy Outlook 2008*

For the electricity sector, energy efficiency is a zero-emission strategy to reduce greenhouse gas emissions.<sup>55</sup>

The 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 450 ppm. Australian Bureau of Agricultural and Resource Economics (ABARE) estimates that energy efficiency will account for around 55 per cent of Australian emission abatement to 2050.<sup>56</sup> These estimates are likely to be conservative. Similarly, the IPCC notes that its own estimates of the energy efficiency potential in buildings are 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.<sup>57</sup>

Energy efficiency and conservation programs also reduce energy costs, making businesses more competitive and allowing consumers to save money. In addition, energy efficiency reduces the cost of meeting peak demand. By reducing the demand for electricity, energy efficiency programs also play a major role in increasing reliability of the electricity system by reducing stress on existing power plants and the transmission system and reducing the demand for new power plants and transmission infrastructure.

Compared to investment in renewable energy and other more expensive measures, improving energy efficiency is widely accepted as the most cost-effective approach to reducing greenhouse gas emissions. According to the US Energy Secretary, the energy savings due to energy efficiency improvements in refrigerators save more energy in the US than is generated from all that country's

<sup>55</sup> California Energy Commission, 2009, Integrated Energy Policy Report, Final Commission Report, December 2009, CEC-100-2009-003-CMF, p.5.

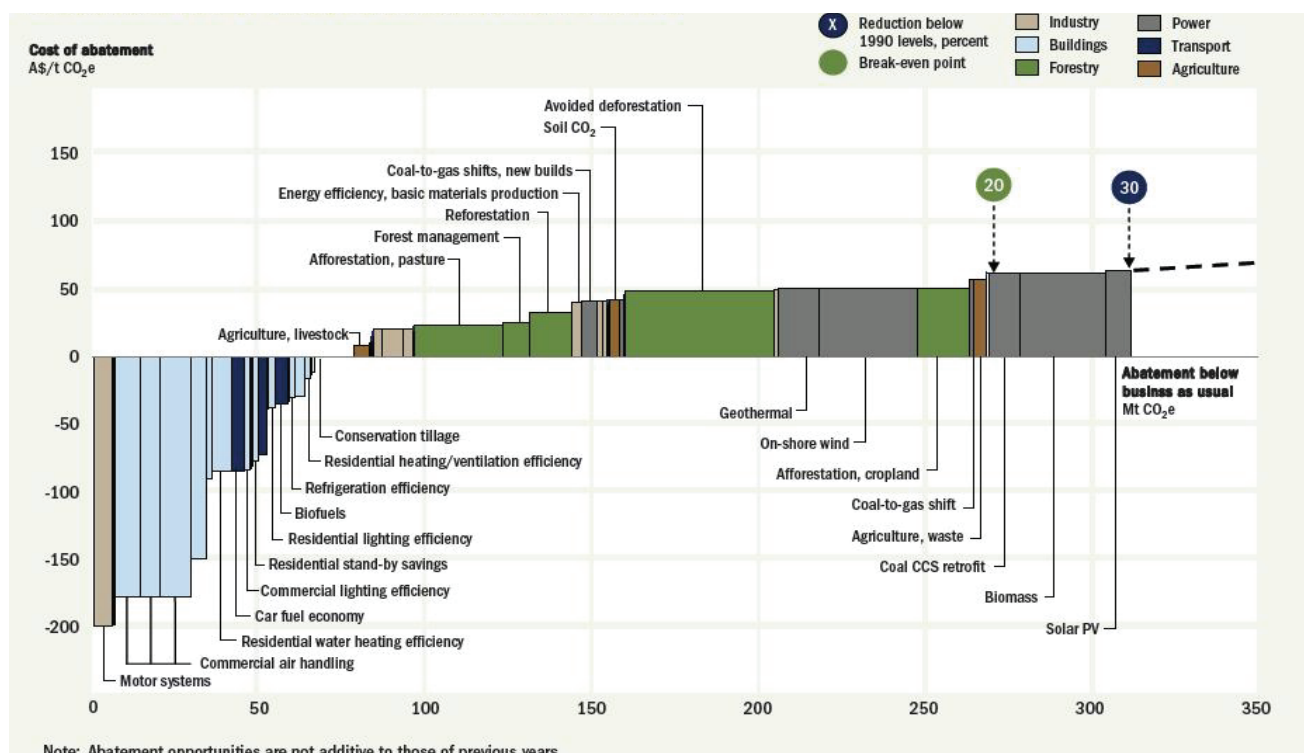
<sup>56</sup> Gurney, A., Ford, M., Low, K., Tulloh, C., Jakeman, G. and Gunasekera, D., 2007, *Technology: Toward a Low Emissions Future*, ABARE Research Report 07.16 prepared for the Australian Government, Department of Industry, Tourism and Resources, Canberra.

<sup>57</sup> 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, p.409.

renewable energy sources.<sup>58</sup> In its report into energy use within member countries, the IEA concluded that energy efficiency improvements between 1990 and 2004 avoided around 1.2 billion tonnes of greenhouse pollutants being emitted in 2004.<sup>59</sup> The IEA estimate these improvements saved at least US\$170 billion in fuel and electricity costs in the same year. Other studies have confirmed the benefits of energy efficiency.<sup>60, 61</sup>

Leading energy researchers, McKinsey and Company, in their paper on an Australian carbon emissions abatement cost curve, estimate that energy efficiency measures could generate significant savings by 2020; enough to pay for additional, more costly, carbon reduction measures.<sup>62</sup> Figure 4 (below) presents their carbon abatement cost curve for Australia for 2020. The cost and potential volume of each carbon abatement opportunity is plotted left to right in order from lowest to highest cost. Negative costs (those below the horizontal axis) indicate a net financial benefit to the economy over the lifecycle of the abatement opportunity. Positive costs (above the axis) imply that capturing them opportunity would incur incremental lifecycle costs compared to the business-as-usual or 'do nothing' case.

**Figure 4: Australian 2020 Carbon Abatement Cost Curve**



Source: McKinsey and Company, 2008, An Australian Cost Curve for Greenhouse Gas Reduction

The cost curve suggests that there are significant opportunities in Australia to reduce carbon emissions, as shown on the far left of the figure through energy efficiency improvements to:

- motor systems;
- commercial air handling;

<sup>58</sup> Talk (Summer 2008) quoted in 'Obama's Energy and Environment Team Includes a Nobel Laureate', Kent Garber, U.S. News website (posted 11 Dec 2008), <http://www.usnews.com/>.

<sup>59</sup> International Energy Agency, 2007, Energy use in the new Millennium, Trends in IEA countries, IEA, Paris.

<sup>60</sup> International Energy Agency, 2007, Energy use in the new Millennium, Trends in IEA countries, IEA, Paris.

<sup>61</sup> Worrell, E., Laitner, J., Michael, R., Finman, H. 2003, Productivity benefits of industrial energy efficiency measures, Energy, v: 28, issue: 11, September 2003.

<sup>62</sup> McKinsey and Company, 2008, An Australian Cost Curve for Greenhouse Gas Reduction, available at [http://www.mckinseyquarterly.com/A\\_cost\\_curve\\_for\\_greenhouse\\_gas\\_reduction\\_1911](http://www.mckinseyquarterly.com/A_cost_curve_for_greenhouse_gas_reduction_1911).

- residential water heating;
- car fuel economy;
- commercial lighting;
- residential stand-by savings;
- residential lighting;
- refrigeration; and
- residential heating/ventilation.

These measures represent the 'low-hanging fruit' in energy efficiency terms and, according to McKinsey and Company, should be rapidly pursued by government. Each year we delay producing energy efficient buildings and motor vehicles, 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.<sup>63</sup> As noted by Mr Rob Murray-Leach, Chief Executive Officer of the Energy Efficiency Council:

*The economic costs of tackling climate change will be substantially higher if we fail to mobilise the potential of energy efficiency.*<sup>64</sup>

The committee acknowledges that it is widely accepted that the greatest improvement in energy efficiency and greenhouse gas emissions abatement would be achieved by retrofitting buildings. This issue was raised by a number of submitters.<sup>65</sup>

As noted in the McKinsey and Company's report on Australia's marginal abatement cost curve, it is possible to reduce the building sector's greenhouse gas emissions by 60 megatonnes at low or negative cost by 2030.<sup>66</sup> This is corroborated in the Queensland Government's commissioned Queensland specific McKinsey marginal abatement cost curve report which found improved energy efficiency in buildings as among the lowest cost ways to reduce emissions – resulting in economic benefits even without a carbon price.<sup>67</sup>

According to the government, Queensland's built environment contributes significantly to the state's greenhouse gas emissions with approximately 15 per cent of Queensland's emissions total coming from the commercial and residential sectors.<sup>68, 69</sup> With continued economic and population growth driving the building sector growth, a 'business as usual' scenario is not sustainable. The committee was also made aware that to continue to build to sub-optimal energy efficiency standards is likely to lead to retrofitting at a later date resulting in costs that could have been avoided during design and construction.<sup>70</sup>

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<sup>63</sup> McKinsey and Company, 2008. An Australian Cost Curve for Greenhouse Gas Reduction, available at [http://www.mckinseyquarterly.com/A\\_cost\\_curve\\_for\\_greenhouse\\_gas\\_reduction\\_1911](http://www.mckinseyquarterly.com/A_cost_curve_for_greenhouse_gas_reduction_1911).

<sup>64</sup> Energy Efficiency Council, submission no. 3, Inquiry into the *Safe Climate (Energy Efficient Non-Residential Buildings Scheme) Bill 2009*, Senate Economics Legislation Committee, Parliament House, Canberra, p.3.

<sup>65</sup> Submission Nos.: 5, 7, 9, 17, 23, 39.

<sup>66</sup> McKinsey and Company, 2008. An Australian Cost Curve for Greenhouse Gas Reduction, available at [http://www.mckinseyquarterly.com/A\\_cost\\_curve\\_for\\_greenhouse\\_gas\\_reduction\\_1911](http://www.mckinseyquarterly.com/A_cost_curve_for_greenhouse_gas_reduction_1911), p.11

<sup>67</sup> *ClimateQ: toward a greener Queensland Fact Sheet - Cleaner Greener Buildings.*

<sup>68</sup> This 2005 figure largely comprises energy end use by building occupants, such as cooling and heating, water heating, lighting and appliance use.

<sup>69</sup> Queensland Government response to Premier's Council on Climate Change Working Paper - *Working Paper 2 - Building ClimateSmart in Queensland: Building and Regulatory Reform*, Coordinated by the Department of Infrastructure and Planning, June 2009.

<sup>70</sup> Queensland Government response to Premier's Council on Climate Change Working Paper - *Working Paper 2 - Building ClimateSmart in Queensland: Building and Regulatory Reform*, Coordinated by the Department of Infrastructure and Planning, June 2009.

The committee notes the importance of initiatives to improve the energy efficiency of the state's existing housing stock. Using figures cited by the Premier's Climate Change Council, there were approximately 1.6 million dwellings in Queensland in 2006 with approximately 33 000 dwellings to be built annually until 2026. This suggests that for new energy efficiency requirements introduced through the building code in 2009, there would potentially be 1.7 million dwellings in Queensland by the end of 2026, of which 1/3 or 561 000 dwellings (33 000 x 17) would have been constructed to comply with the new standards, leaving 2/3 of the state's dwellings that may still not conform to the new standards.

The Queensland Government provided the committee with examples of its incentives and regulatory measures that are in place to encourage retrofitting of existing commercial buildings and to encourage energy efficiency improvements during renovations.<sup>71</sup> The committee is encouraged with its progress. However, given the number of existing building stock and dwellings, and the significant potential savings and greenhouse gas emissions reductions, further initiatives to accelerate the retrofitting of existing buildings and dwellings are in order. The committee discusses the role of market based mechanisms to improve energy efficiency under chapter 4.

The committee notes moves by the government to improve the efficiency of residential air conditioners sold in Queensland, a move that is crucial to managing peak electricity demand. Each kilowatt of air-conditioning installed in Queensland costs up to \$3000 in new energy infrastructure to meet the consequential additional peak electricity demand these units generate. All electricity users share these costs.

Continued use of traditional supply mechanisms to meet projected peak demand is expected to cost approximately \$15 billion by 2020.<sup>72</sup> For example, a new residential subdivision of 100 homes each with on average 17.7 kW of air conditioning capacity (1x6.5 kW living-room sized and 4x2.8 kW bedroom sized air conditioners) will cost in excess of \$5.31 million for energy infrastructure purely to meet peak demand. For the 561 000 new dwellings expected to be constructed between 2010 and 2026, the infrastructure costs simply to meet peak demand due to air conditioners could equate to almost \$30 billion (\$29.78 billion).

The committee notes that the Federal and Queensland Governments have programs in place to capitalise on energy efficiency opportunities through minimum performance standards, more stringent building standards and information programs, though could not gauge the extent and effectiveness of their coverage. For example, in regard to fuel economy, Australia is still without mandatory fuel economy standards for light vehicles. The automotive industry has, instead, agreed to abide by an industry standard that is not binding and which does not seek to achieve significant fuel efficiency gains.

The Queensland Government submission noted the potential benefits of its energy efficiency programs for Queensland. Table 2 (on page 21) presents a summary of their projected savings and benefits. The committee looks forward to seeing these potential benefits realised.

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<sup>71</sup> Queensland Government, correspondence dated 11 December 2009, pp.14, 16, 19, 20, 22-3, 26-7, 37, 40-3

<sup>72</sup> Ergon Energy, ENERGEX, Powerlink Queensland, Queensland Department of Mines and Energy, 2008, *Energy Conservation and Demand Management*; ENERGEX Limited, Brisbane.

**Table 2: Estimated costs and savings of selected Queensland programs to promote energy efficiency.**

<b>Initiative</b>	<b>Estimated energy savings</b>	<b>Estimated greenhouse gas reductions</b>	<b>Estimated dollar savings</b>
QFleet ClimateSmart Action Plan		50 per cent saving in emissions from the government vehicle fleet by 2017 compared to the 2007 baseline	
Big Light Switch		750 000 tonnes	\$11.00 per bulb
ClimateSmart Home Service	4 000 GWh per year through lighting initiatives	260 000 homes serviced - 5.3 million tonnes reduced overall (662 500 tonnes annually)	\$250 on energy bills each year
ecoBiz Industry Partnership Program	34 686 079 MJ per year	23 106 tonnes CO <sub>2</sub> -e annually (16 per cent per average business)	\$1.38M in energy usage savings annually (13 per cent per average business)
ecoBiz Rebate	101 182 927 MJ per year	25 865 tonnes CO <sub>2</sub> -e	\$5.8M annually
Insulation (under the Sustainable Housing Initiative)	16.3 kWh (assuming around 1000 homes install insulation yearly)	17 000 tonnes (assuming around 1000 homes insulated annually)	Households can save approx. \$289 annually by installing insulation and between \$140 and \$315 by using outdoor areas (up to \$2.7M yearly)
The Low Carbon Diet		500 000 Queenslanders to save 357 000 tonnes of emissions	
Minimum Energy Performance Standards	5 500 GWh of residential electricity across Queensland by 2020	144.4 million tonnes by 2020	
Queensland Solar Hot Water Program	20 per cent less	7.1 million tonnes by 2020	Between \$237 and \$340 annually
Queensland Sustainable Energy Innovation Fund		17 850 tonnes each year per project x 77 projects so far	
Strategic Energy Efficiency Policy for Queensland Government Buildings	20 per cent reduction in energy usage by agencies by 2015		
Sustainable Housing Initiative	3 500 GWh per year through energy efficient air conditioning	Approx 7.1 million tonnes by 2020	\$1 859 over 3 years

Source: Based on information in the Queensland Government submission and correspondence dated 11 December 2009



**Figure 5: Projected costs and benefits of the E3 Program for Queensland 2009-2024**

	Million tonnes CO <sub>2-e</sub> avoided			\$M (0% discount rate)			\$M (5% discount rate)			\$M (10% discount rate)		
	2009-20	2009-24	In 2020	Saving	Cost	Benefit	B/C	Saving	Cost	Benefit	B/C	Benefit
Residential	31.2	50.7	3.6	9,540	3,929	5,611	2.4	5,949	2,587	3,362	2.3	2,120
Other	16.8	18.5	1.7	4,826	950	3,876	5.1	3,084	616	2,468	5.0	1,662
Total	47.9	69.2	5.3	14,367	4,879	9,487	2.9	9,033	3,202	5,830	2.8	3,782

Figure 29 Projected emissions avoided by State and Territory - no emissions cap

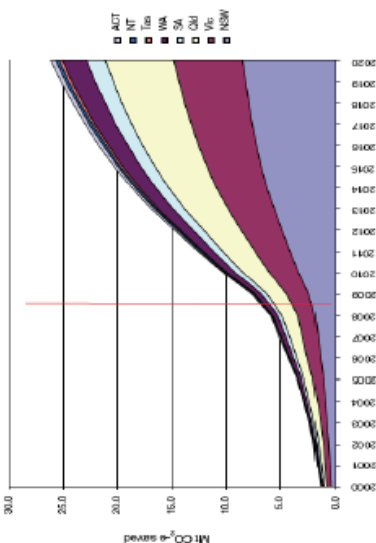
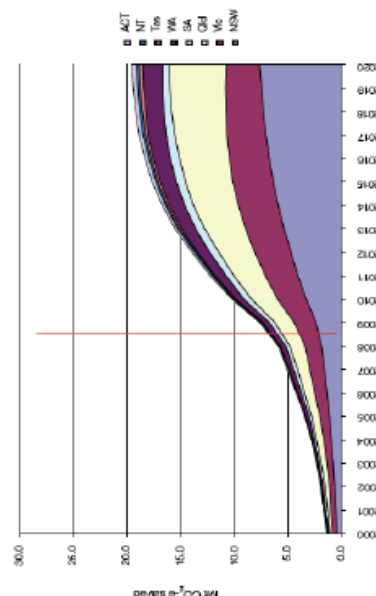


Figure 30 Projected emissions avoided by State and Territory - with emissions cap



<sup>11</sup> Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency <http://www.energyrating.gov.au/library/pubs/200901-protected-impacts.pdf>

Source: Queensland Government Submission

Figure 5 (above), taken from the government's submission, shows projected costs and benefits to Queensland of the E3 Equipment Energy Improvement program over the fifteen years to 2024. The purpose of the program is to improve energy efficiency and reduce greenhouse emissions from household appliances and equipment, and commercial and industrial equipment. The program outcomes include new or more stringent standards for equipment and appliances adopted by all jurisdictions together with performance regulation, labelling regulation and complementary voluntary measures. With an emissions cap in place, the program is projected to deliver net benefits valued at \$5.83 billion, with a benefit cost ratio of 2.8 using a five per cent discount rate.

Modelling by Powerlink, Ergon Energy and ENERGEX in January 2008 which focused on Queensland initiatives relating to air conditioning load control and the management of commercial and industrial demand, reported a potential reduction up to 1121 MW of peak demand; \$4.05 billion in utility capital expenditure reduction; and greenhouse gas emissions reductions of 23.2 million tonnes by 2020.<sup>73</sup>

More efficient use of energy by consumers, or end-users, helps smooth the 'peaks' of energy demand, alleviating the need for expensive peak generation capacity, which otherwise sits idle most of the time. This means that the need for expensive electricity network augmentation and plant construction necessary for carrying more energy loads can be postponed or even avoided.<sup>74</sup> The Premier's Council on Climate Change noted that approximately \$15 billion of energy infrastructure investment would be required by 2020 to maintain peak demand at current levels.<sup>75</sup>

A further useful insight into the benefits of energy efficiency improvements is provided by case studies. For example, Queensland Complete Printing Services (QPrint), a small business based in Nambour, was named the leading sustainable Queensland business at the Queensland Sustainable Industries Awards in 2009.<sup>76</sup> QPrint acknowledged its partnership with the Queensland Government's ecoBiz program as providing the framework to implement the measures to achieve its 94 per cent carbon neutral status. Some key measures included: re-investing its savings to buy green electricity which cut greenhouse emissions from energy to almost zero without increasing its production cost; and installing more efficient air conditioners and lighting.<sup>77</sup>

In addition to mitigating climate change risks and helping to postpone investment in additional generating capacity, improving energy efficiency offers co-benefits such as job creation and improved health.<sup>78</sup> Across Australia, the NFEI is expected to deliver employment growth of up to 9200 jobs and gross domestic product improvement up to \$1.8 billion.<sup>79</sup>

Significant localised health benefits flow from moves to cut greenhouse gas emissions in the areas of household energy, food and agriculture, low-carbon electricity generation and urban land transport.<sup>80</sup> Research undertaken by the University of Otago in Wellington, New Zealand, showed that retrofitting homes with insulation was a cost-effective intervention for improving health and wellbeing.<sup>81</sup> A similar drop in absenteeism and increased productivity has been linked to the improved energy efficiency performance of green buildings.

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<sup>73</sup> Queensland Government, submission no. 42, p.11.

<sup>74</sup> Queensland Government, submission no. 42, p 11; Robyn Kruk AM, Secretary of the Department of the Environment, Water, Heritage and the Arts, 'Encouraging greater energy efficiency', Speech to Australian Economic Forum, Sydney, 20 August 2009, DEWHA, Canberra, viewed 12 October 2009, <http://www.environment.gov.au/about/media/secretary/2009/sp20090820.html>.

<sup>75</sup> Premier's Council on Climate Change, 2009, *Building ClimateSmart in Queensland – Building and regulatory reform*, Department of Environment and Resource Management, Queensland, p.8.

<sup>76</sup> Queensland Sustainable Industries Awards are hosted by the EPA and recognise Queensland business leaders, companies and technologies that have set new benchmarks in environmental performance. QPrint was awarded the 2009 Westpac Corporate Sustainability Award. More information about QPrint is at: <http://www.qprint.com.au/>.

<sup>77</sup> QPrint, 2009, *Gold for local "green" business*, media release, 15 June 2009, QPrint, Queensland, <http://www.qprint.com.au/>.

<sup>78</sup> IEA, 2009, *Implementing Energy Efficiency Policies: are IEA member countries on track?* Executive Summary, IEA, Paris, pp.12-13.

<sup>79</sup> Stone, S (Parliamentary Secretary to the Minister for the Environment and Heritage), 2004, *End-use energy efficiency in Australia – cost effective greenhouse gas abatement*, DEWHA, Canberra, viewed 3 November 2009 <http://www.energyrating.gov.au>.

<sup>80</sup> Rose, D, 2009, *Health benefits come from emissions cuts, expert says*, News Ltd, Australia, viewed 26 November 2009, <http://www.news.com.au/story/0,27574,26402682-421,00.html>; Lancet Online, November 25, 2009, Reference: DOI:10.1016/S0140-6736(09)61713-X, *Series of six papers about health and climate change*, Authors: London School of Hygiene and Tropical Medicine, London, UK (P Wilkinson FRCP, Prof B G Armstrong PhD, Prof A Haines FMedSci, C Tonne ScD, Z Chalabi PhD); School of Public Health, University of California, Berkeley, CA, USA (Prof K R Smith PhD, H Adair BS); Bartlett School of Graduate Studies (Prof M Davies PhD, I Hamilton MSc, I Ridley PhD), and Energy Institute (M Barrett PhD, Prof T Oreszczyn PhD), University College London, London, UK; and Division of Public Health, University of Liverpool, Liverpool, UK (N Bruce PhD).

<sup>81</sup> Howden-Chapman P, Matheson A, Viggers H, Crane J, Cunningham M, Blakely T, et al, (n.d.), *Retrofitting houses with insulation to reduce health inequalities: results of a clustered, randomised trial in a community setting*. BMJ 2007, 334:p.8.

## Conclusions

Energy use in Australia and the rest of the world is projected to increase significantly over the next 20 years fuelled by rising population and living standards. Almost a quarter of all energy consumption in Australia now occurs in Queensland.

Queensland's energy usage is high by Australian and international standards, and is continuing to rise. Key drivers of this rising energy consumption are the state's growing and decentralised population, a strong minerals sector, the presence of other energy intensive industries and rising living standards. In Queensland, energy generation, transport and manufacturing accounted for over 85 per cent of all energy used in 2006-07. A large proportion of this energy was generated by the burning of fossil fuels.

Queensland, like the rest of Australia is committed to reducing greenhouse gas emissions by 60 per cent from 2000 levels by 2050 in line with international moves to mitigate global emissions and climate change risks. The committee notes research by McKinsey and Company that identifies energy efficiency improvements as offering the best carbon abatement returns for the Australian economy per dollar spent – it actually achieves net savings. Of particular note, the study suggests that investing in energy efficiency improvements reduces carbon emissions more cost-effectively than investing in renewable energy. It is imperative that governments act quickly to capitalise on energy efficiency opportunities.

All Australian governments have committed to a partnership agreement and national strategy to achieve energy efficiency improvements throughout the economy. These initiatives, focused on improving the efficient supply and end-use of energy, form a second plank of the Federal Government's climate change strategy after the proposed Carbon Pollution Reduction Scheme. The Federal Government is also committed to funding a smart energy pilot project.

The Queensland Government has a broad range of policies and initiatives in place to promote energy efficiency in cooperation with other governments. They include information and behaviour change strategies such as the ClimateSmart Home Service, and business assistance programs such as ecoBiz and partnerships with business associations and retailers.

Local governments are also supporting energy efficiency improvements by improving their internal energy use practices and through education and partnerships with the Queensland Government and local communities. Energy is a significant cost for local governments.

While there are compelling arguments for investing in energy efficiency, little is published about the actual outcomes of energy efficiency programs. It is difficult to isolate the tangible gains they have achieved. According to the Queensland Government, none of its energy efficiency programs have been independently evaluated. The programs have, however, generally been subjected to internal reviews. The committee notes that the coverage of these programs remains limited. For the government's flagship ecoBiz program designed to assist businesses, fewer than one per cent of the state's businesses are participating. A significant boost to the level of investment in energy efficiency programs by the government is required if programs are to achieve true state-wide coverage. To fund an expansion of existing energy efficiency programs, the committee recommends that the government reviews its funding for renewable energy programs. Research cited by the committee suggests that investment in energy efficiency will deliver the government and the Queensland economy better value for money.

The committee believes that rigorous independent evaluations of the major energy efficiency programs and initiatives should be conducted as a matter of good policy. The purpose of these evaluations should be to: quantify the inputs, returns and value for money achieved; determine whether the programs' objectives have been, and are being met; and to identify opportunities for improvement and enhancement in the future. The findings from these independent reviews should be reported to Parliament.

**Recommendation 5.**

That the government commits to a program of independent evaluations of all major energy efficiency programs.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

**Recommendation 6.**

That the government reports to Parliament the findings from independent reviews of its major energy efficiency programs.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

**Recommendation 7.**

That the government reviews its funding for renewable energy programs to determine whether investing in energy efficiency improvements would achieve better value for the Queensland economy.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**



## CHAPTER 3 ~ BARRIERS AND IMPEDIMENTS

As noted in previous chapters, there remains a significant gap between potential and actual savings in energy that are realised despite the merits of energy efficiency improvements. This can be attributed to a number of well-established barriers and impediments to the implementation of energy efficiency improvements. This chapter discusses the barriers and impediments using broad categories reported by the Productivity Commission in its work on energy efficiency<sup>82</sup> and in the final report of *The Garnaut Climate Change Review*<sup>83</sup>:

- market failures;
- behavioural, cultural and organisational barriers;
- financial barriers;
- skills and capacity barriers; and
- other barriers and impediments identified during the inquiry process.

### Market Failures

The Productivity Commission's Inquiry into the *Private Cost Effectiveness of Improving Energy Efficiency* reported that failures in markets for energy efficient technologies can impede the adoption of energy efficient investments whether they are privately cost effective or not. The market failures identified by the commission included imperfect information, split incentives and positive externalities.<sup>84</sup>

#### *Imperfect information*

When consumers and businesses have insufficient or inaccurate information about their energy efficiency options, the market can react by undersupplying energy efficient technologies.<sup>85</sup>

Examples of imperfect information were evident throughout the inquiry. Many submitters reported difficulties finding useful and concise information on energy efficiency. The Queensland Chamber of Commerce in their submission on behalf of Queensland businesses noted:

*The lack of knowledge, coupled with time constraints, means that the owners and managers of smaller businesses are generally focused on more pressing issues such as running the business rather than energy efficiency... Many smaller businesses also do not have the internal capacity to review and improve their energy efficiency. These constraints can also act as a barrier to energy efficiency as many businesses are simply unaware of the measures that they can employ to improve their energy efficiency and the financial savings that those measures may generate.*<sup>86</sup>

The Queensland Government accepts that misinformation, or lack thereof, pose significant barriers to the adoption of energy efficiency in the commercial sector.

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<sup>82</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne.

<sup>83</sup> Garnaut, R., 2008, *The Garnaut Climate Change Review: Final Report*, Cambridge University Press, Melbourne.

<sup>84</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.47.

<sup>85</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.47.

<sup>86</sup> Queensland Chamber of Commerce, submission no. 21, p.5.

*Another common challenge that business has is they do not know where to go for good information. If they are motivated to do something, they do not know where to get it or who to trust, and they want to hear a story from someone who has gone through it.<sup>87</sup>*

Similar confusion exists for individuals and community organisations. At the committee's hearing, QCOSS stated:

*There is a plethora of programs and it is very confusing ... the search time involved in making energy efficient choices is actually a really major barrier as well. I guess time is money, and the effort of trying to sort through the mess of things can be pretty discouraging.<sup>88</sup>*

This was echoed by a representative from Sustainable Jamboree:

*It is hard for me to keep up to date with everything, actually. There are a few different hotlines around, but people do not know about them. Some of the uptake on these programs might be better if there was a well-known phone number so that people could not only get things mailed to them, but actually chat through the issues with someone on the phone in a meaningful way to try to get to the bottom of their situation.<sup>89</sup>*

The Victorian Government's submission revealed similar findings:

*The Victorian government has found that householders' understanding of the benefits of energy efficiency remains rudimentary. This situation appears to exist in spite of considerable investment by government and other parties, such as private companies and consumer groups, explaining the benefits of energy efficiency in general, and in relation to specific products and activities.<sup>90</sup>*

### **Information asymmetry**

Information asymmetry occurs when information is known to some, but not all, participants of a transaction. According to the Productivity Commission's inquiry report, information asymmetries abound in the energy efficiency market.<sup>91</sup> In this market there are many opportunities for vendors to mislead buyers. Vendors may promote products as energy efficient even when they are not and consumers may become wary of such promotions, thus steering away from high quality, energy efficient products.<sup>92</sup> This was further highlighted in the report from the *Garnaut Climate Change Review*:

*There are potentially significant information asymmetries for appliances, vehicles and houses as it is extremely difficult for non-experts to determine the ongoing energy used by, for example, an appliance without outside assistance. This allows opportunism, as a product manufacturer could mislead a buyer on the efficiency and efficacy of a product, which the buyer is unable to verify.<sup>93</sup>*

There are few incentives for vendors and retailers to provide information on the energy efficiency of the products they sell. ENERGEX's submission noted that appliance and equipment retailers were not generally compelled to feature energy efficiency in their marketing and, as a result, customers subsequently weren't educated to choose more efficient appliances.<sup>94</sup> Market research

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<sup>87</sup> Quinn, Department of Environment and Resource Management, hearing transcript, 8 October 2009, p.11.

<sup>88</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.10.

<sup>89</sup> McGaw, Sustainable Jamboree, hearing transcript, 11 September 2009, p.26.

<sup>90</sup> Victorian Government, submission no. 50, p.28.

<sup>91</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.50.

<sup>92</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.52.

<sup>93</sup> Garnaut, R., 2008, *The Garnaut Climate Change Review: Final Report*, Cambridge University Press, Melbourne, p.407.

<sup>94</sup> Energex Limited and Ergon Energy Corporation Limited, submission no. 14, p.4.

by ENERGEX and CSIRO has shown that customers are also sceptical of the motivations of utilities and governments' promotion of energy efficiency measures.<sup>95</sup>

For the market, these types of information asymmetries may mean an undersupply of energy efficiency technologies and services because consumers, producers and vendors are unaware of their options and lack the correct information to make a decision based on energy efficiency.<sup>96</sup>

In this environment, there are also incentives not to supply information on the energy efficiency of a product or service for financial reasons. For businesses, replacing major electrical equipment like industrial refrigerators or pumps can be expensive. According to Energy Answers' submission, while suppliers tended to have a better understanding of available energy efficiency options and life-cycle costs, they deliberately quoted less expensive, energy intense options, in the belief that the customer would choose the lowest initial cost item.<sup>97</sup>

Examples of undersupplying information on energy efficient products because of the higher up-front costs associated with energy efficient technologies (versus cheaper options), was also highlighted by Energy Resources Corporation (ERC) during a public hearing. ERC spoke about the 'cut-throat nature' of the building industry where subcontractors were forced to tender the cheapest possible option to developers who were conscious of keeping capital costs down.<sup>98</sup>

For engineers or architects, where fees can be based on a percentage of the capital cost of a project, energy efficient design may end up cutting their clients' costs but decreasing their own profits. Thus there is an incentive not to provide information to clients about more energy efficient building and design options. According to the IEA's report on financing energy efficient homes, the fee structure is such that designers who do extra work to create and implement innovative energy efficient systems such as a passive solar building that requires fewer pieces of equipment installed (for example HVAC), and end up cutting their clients' operating costs, are actually penalised by lower fees and profits.<sup>99</sup>

### *Split incentives*

Another barrier arises when the costs and benefits of an energy efficiency improvement are not shared by the same party. This can result in both parties having little or no incentive to act on energy efficiency opportunities. There are thus 'split incentives' in the energy efficiency market that may drive the market to undersupply technologies and services.<sup>100</sup> **The split incentive scenario is most clearly evident in the landlord/tenant relationship.** This is a particularly important barrier to energy efficiency improvements in Queensland which has the largest private rental sector of the states and territories.<sup>101</sup> According to the Australian Bureau of Statistics 2006 Census of Population and Housing, there were 452 596 rented properties in Queensland, representing 32.3 per cent of dwellings for which tenure was recorded.<sup>102</sup>

A landlord has little incentive to improve a home or building's energy efficiency in terms of major appliances and insulation because he or she is not responsible for the energy bills. The higher running costs that result are born by tenants. Even when tenants are willing to pay higher rents for the installation of more energy efficient appliances, the transaction costs of negotiating a new

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<sup>95</sup> Energex Limited and Ergon Energy Corporation Limited, submission no. 14, p.4.

<sup>96</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, pp.47 -51.

<sup>97</sup> Energy Answers Pty Ltd, submission no. 25, p.5.

<sup>98</sup> Hudson, Energy Resources Corporation, hearing transcript, 11 September 2009, p.20.

<sup>99</sup> IEA, 2007, *Financing Energy Efficient Homes: Existing policy responses to financial barriers*, IEA, Paris, p.16.

<sup>100</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.47

<sup>101</sup> Australian Bureau of Statistics, 2009, *Household Income and Income Distribution, Australia, 2007-08*, ABS, Canberra.

<sup>102</sup> Residential Tenancies Authority, 2009, *Annual Report 2008-09*, Residential Tenancies Authority, Brisbane, p.2.



rental agreement may be too high. Consequently, both parties are discouraged from investing in energy efficiency.<sup>103</sup> As QYEC explained at the hearing:

*... From a tenant perspective, if you are not sure how long you are going to be staying in a property it is probably not in your interests, even if you could agree with the landlord, to implement particular measures. If you are going to leave in a year's time, there is no incentive there. Similarly for the landlords, if they do not see a return on investment you can understand why they would not want to install energy efficiency.<sup>104</sup>*

QCOSS reported that, whilst the split incentive issue affected all renters, it was particularly debilitating for disadvantaged, low-income renters who were more likely to live in older housing stock, with older, less efficient appliances and no ceiling insulation.<sup>105</sup> Lifeline Community Care believe the issue may be further compounded if owners have earmarked the property for development.

*... a lot of the low-rental accommodation is earmarked for development and there is not a lot of home improvement happening there.<sup>106</sup>*

The barriers and impediments to energy efficiency improvements inherent in the landlord/tenant relationship pose significant challenges for the Queensland Government. Considering Queensland has the largest private rental sector of all the states and territories there is also the potential for significant energy savings.<sup>107</sup>

The Queensland Government submission provided an example of split incentives in the building industry:

*... package builders have little incentive to build more energy-efficient buildings, when the purchaser will benefit (in the absence of clear market recognition of the value of energy efficiency). This means that developers or landlords may choose to install less efficient technologies that have lower upfront costs rather than install more expensive, more efficient ones that deliver benefits to tenants.<sup>108</sup>*

Split incentives are also apparent in the energy retail sector. Origin Energy stated in their submission that government regulation of retail energy prices reduces the incentive for energy retailers to offer more comprehensive energy efficiency services to their customers as they would not be able to recover all of their costs.<sup>109</sup> AGL in their submission also noted that retailers had few incentives to provide innovative energy efficiency services to customers.<sup>110</sup> Market incentives to address this problem are discussed in Chapter 4.

### ***Positive externalities/spillovers***

Positive externalities, or spillovers, occur when a party is unable to capture all the benefits of their action. Consequently, the benefits 'spill over' and are shared by others. Spillovers also occur when information is seen purely as a public good. Such information is likely to be undersupplied by the private sector as they are unable to capture all of the benefits associated with making the information widely available.<sup>111</sup> Positive externalities are a well known market failure. According to

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<sup>103</sup> IEA, Financing Energy Efficient Homes: Existing policy responses to financial barriers, IEA, Paris, p.4.

<sup>104</sup> Kunz, QYEC, hearing transcript, 11 September 2009, p.6.

<sup>105</sup> QCOSS, submission no. 39, p.6.

<sup>106</sup> Hawthorne, Lifeline Community Care, hearing transcript, 11 September 2009, p.5.

<sup>107</sup> Australian Bureau of Statistics, 2009, *Household Income and Income Distribution, Australia, 2007-08*, ABS, Canberra.

<sup>108</sup> Queensland Government, submission no. 42, p.28.

<sup>109</sup> Origin Energy Limited, submission no. 27, pp.5-6.

<sup>110</sup> AGL Energy Limited, submission no. 11, p.4.

<sup>111</sup> Garnaut, R., 2008, *The Garnaut Climate Change Review: Final Report*, Cambridge University Press, Melbourne, p.406.

the Productivity Commission, where positive externalities exist the market may undersupply investment in new technologies and processes.<sup>112</sup>

Market failures due to spillovers are most evident in the energy innovation sector from the research and development stage through to the demonstration and commercialisation of a new energy technology.<sup>113</sup> Despite the environmental and social benefits of new energy efficient technologies, the costs and associated risks are significant for businesses and not just in terms of the initial capital costs and the time lag to recoup costs. When a product is demonstrated to the market, competitors are able to see the benefits of the investment and can adopt the same technology without shouldering the initial risks and capital investment in research and development. As noted by the Productivity Commission, when firms are unable to appropriate all of the benefits from being the first mover, there may be an under-adoption of new technologies.<sup>114</sup>

## **Behavioural, Cultural and Organisational Barriers**

Even when credible information is available, individuals are bound by their own value systems and limitations to obtain and process information, as well as the cost of time taken to do so. This results, unfortunately, in decisions being made that give a low prominence to energy efficiency. Reviews by Garnaut and the Productivity Commission provide broad examples of bounded rationality in the energy efficiency market.<sup>115</sup> They included:

- Rules of thumb behaviour (or brand loyalty) where an individual may only purchase the same make or brand of equipment as previously or they will only purchase the same brand as a family member or another significant individual;
- When an individual's perceptions of the costs and effort required to assess energy efficiency products may steer them away from such options even if the savings are known;
- When individuals have a low budget in mind for capital improvements but a high budget for utility costs as opposed to purchasing an energy efficient appliance that would lower their overall utilities bill; and
- When an individual uses selection criteria that focuses on key features and overlooks more technical and seemingly less important considerations such as energy efficiency.

The Queensland Government's submission provided an example of the type of bounded rationality behaviour that would be evidenced in the building industry:

*For example, a building manager may be assessing priorities for a major retrofit of a building. Due to the large number of decisions needed and their individual capacity to access and interpret information about technologies, the manager may not incorporate the best or most cost-effective measures.*<sup>116</sup>

The values, attitudes and perceptions of individuals towards energy use can pose significant barriers to the adoption of energy efficiency measures. According to ENERGEX and Ergon Energy's submission, individuals and small to medium sized businesses do not adequately understand the

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<sup>112</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.47.

<sup>113</sup> *Energy White Paper: National Energy Policy Framework 2030*, Strategic Directions Paper, 2009, Department of Energy and Tourism, Canberra, p.12.

<sup>114</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.53.

<sup>115</sup> Garnaut, R., 2008, *The Garnaut Climate Change Review: Final Report*, Cambridge University Press, Melbourne, p.408; Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.56.

<sup>116</sup> Queensland Government, submission no.42, p.27.

long-term running costs of equipment, are unwilling to invest in energy efficient technologies and do not fully appreciate the consequences of peak demand electrical supply.<sup>117</sup>

Energy efficiency remains a low priority for many consumers in their purchase decisions. Energy prices are a relatively small expense for most households, representing only 2.5 per cent of household expenditure.<sup>118</sup> For low-income households spending on energy can be as high as 6.8 per cent of their budgets.<sup>119</sup>

Culture change is a difficult barrier to overcome and change may come only when the real price of carbon is reflected in energy prices. As ENERGEX and Ergon Energy stated in their submission there is '*no burning platform*' to drive consumer behaviour as was demonstrated during south east Queensland's recent water crisis.<sup>120</sup> The threat of climate change and impending consequences has not been internalised and many people are still sceptical.

Ergon believes consumer attitudes are starting to change:

*One of the key barriers that we identified is a general lack of awareness about energy efficiency and about what can be done. A lot of that comes from a relatively low level of emotional involvement in electricity supply. As long as the power is there, a lot of people do not care too much more about it. With rising electricity prices and climate change awareness, we are seeing that start to change.*<sup>121</sup>

Speaking at the committee's Brisbane energy efficiency seminar, Mr Rob Murray-Leach, CEO of *The Energy Efficiency Council*, noted the need for a change in the corporate mindset where increasing the profit margins wasn't just about making money but about saving money.<sup>122</sup> It appears that energy efficiency is not often regarded as a means to increase a business' bottom line. A Queensland Government survey of small and medium businesses (SMEs) in Queensland revealed that eco-efficiency (including energy) was perceived to be irrelevant to their business activities and operations. Survey findings suggested that most SMEs were unaware of the benefits associated with energy efficiency technologies and measures.<sup>123</sup>

Energy Answers in their submission supported the view that most businesses do not see energy as a dominant cost, nor is it seen as 'core business'.<sup>124</sup>

According to ENERGEX and Ergon Energy's submission:

*... industry as a whole in Queensland spends approximately 4-5 per cent of its annual expenditure on energy and as a result the concept of a reduction of 10-15 per cent savings achieved through the introduction of energy efficiency measures is "small beer".*<sup>125</sup>

Significant savings can be made by improving a company's energy efficiency through vehicles such as energy efficiency audits, however, these are still relatively uncommon across business and industry. An NFEE discussion paper referred to the low prominence of energy in corporate budgets and planning as '*organisational inertia to change*'. It reported on the need for energy efficiency to become a mainstream business concern rather than a short term response to government initiatives.<sup>126</sup>

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<sup>117</sup> Energex Limited and Ergon Energy Corporation Limited, submission no. 14, p.4.

<sup>118</sup> Queensland Government, submission no. 42, p.25.

<sup>119</sup> Parmenter, QCOS, hearing transcript, 11 September 2009, p.7.

<sup>120</sup> Energex Limited and Ergon Energy Corporation Limited, submission no. 14, p.4.

<sup>121</sup> Comber, Ergon Energy, hearing transcript, 11 September 2009, p.32.

<sup>122</sup> Rob Murray Leach, Energy Council of Australia, Energy Efficiency Seminar, 7 August 2009.

<sup>123</sup> Queensland Government, submission no. 42, p.26.

<sup>124</sup> Energy Answers Pty Ltd, submission no. 25, p.5.

<sup>125</sup> Energex Limited and Ergon Energy Corporation Limited, submission no. 14, p.4.

<sup>126</sup> Department of Resources, Energy and Tourism, 2003, *Towards a National Framework for Energy Efficiency – Issues and Challenges Discussion Paper*, DRET, Canberra, p.9.

Greater promotion of the significant savings that can be achieved through audits and energy management systems is required. According to the CEO of ABC Carbon:

*There are a lot of businesses that are very involved in doing audits for companies as well as for homes. They make it very clear when they do these audits that not only can you reduce your energy use by doing certain things and obviously reduce your emissions but you can also save money. It does work very effectively. I have seen businesses look at this very closely and achieve cost savings that are quite significant.*<sup>127</sup>

According to the Productivity Commission, the concept of bounded rationality has important policy implications:

*... it helps to explain that, in some cases, supplying information might not be sufficient – decision makers might not be able to process it. This suggests that different ways of providing information might need to be explored. Second, given that information is costly to obtain and process, there might be a role for governments to minimise transaction costs.*<sup>128</sup>

The Garnaut Review reported that information needs to be tailored to the targeted audience so that the right individuals received the most appropriate information.<sup>129</sup>

## Financial/Investment Barriers

For business, most energy efficiency improvements require significant up-front investments. There are risks and uncertainties of change, capital costs, asset replacement costs, associated costs for the implementation of new technologies and processes and training and personnel costs. Whilst savings will accrue in time, the payback period for businesses is often longer than gains that may be made through alternative investments.<sup>130</sup> The cost effectiveness of the energy efficiency improvement is thus diminished.

An NFEF discussion paper highlighted these costs as a significant barrier to business:

*There are limits and priorities on the capital available to any organisation-and energy efficiency has to compete for this capital with other potential investments... Too many organisations find it is easier to continue to use the same technologies and processes that are already in place, rather than bear the cost and risk of investing time and money in new processes and technologies.*<sup>131</sup>

This view is supported by the Productivity Commission:

*If improving energy efficiency comes at the cost of forgoing other more cost-effective opportunities (because of capital or labour constraints or because the projects are mutually exclusive alternatives), it would be rational for the firm to give energy efficiency a low priority.*<sup>132</sup>

The most significant barrier to greater energy efficiency for low-income households is cost. Access to capital for the upfront costs of major appliances is difficult for low-income groups especially for expensive fixed appliances like hot water systems. According to QCOSS, even if households gain access to capital to update an appliance, price is more of a deciding factor than

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<sup>127</sup> Hickson, ABC Carbon, hearing transcript, 11 September 2009, p.17.

<sup>128</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.56.

<sup>129</sup> Garnaut, R., 2008, *The Garnaut Climate Change Review: Final Report*, Cambridge University Press, Melbourne, 2008, p.409.

<sup>130</sup> Queensland Government, submission no. 42, p.28.

<sup>131</sup> Department of Resources, Energy and Tourism, 2003, *Towards a National Framework for Energy Efficiency – Issues and Challenges Discussion Paper*, DRET, Canberra, p.9.

<sup>132</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.120.

energy efficiency.<sup>133</sup> Low-income households are also more likely to buy second-hand appliances that are unlikely to offer the efficiency gains of new appliances designed to meet stringent minimum efficiency requirements. Low-income households spend proportionally more of their budget on energy than other income groups and are more vulnerable to stress caused by rising energy costs. The Queensland Government acknowledges that low-income groups may have no choice but to trade-off higher utility bills in the long term with the savings in up-front costs.<sup>134</sup>

Ms Linda Parmenter, Manager of Policy and Communication for QCOSS, also commented on this issue in her evidence:

*In terms of the upfront costs, even when government programs often do reduce them quite considerably, for a low-income household that has very little discretionary income, ... they will replace things only when they fail and they will replace them with the cheapest that they can buy.*<sup>135</sup>

Mrs Bernice Ralph, President of the Ipswich Tenants Group Inc, supported this claim:

*There are quite a few families who have never had a new electrical appliance ... they buy second-hand washing machines and fridges and then when they go, they buy another second-hand washing machine and fridge. So they cannot afford to go and buy a new one and look for the most energy efficient; they look at the price, and that is what guides them.*<sup>136</sup>

QCOSS also identified that long payback times discouraged individuals from purchasing energy efficient appliances for the home.

*... the payback time for a number of energy efficient appliances is really too long...I believe the average payback period is around three to four years. In a situation where we are talking about fixed appliances that is particularly problematic if people are renting and their average length of tenure is more like 12 months. So I think they are the two key barriers.*<sup>137</sup>

## Skills and Capacity Barriers

There is a significant skills shortage in the energy sector. In recent years, demand for energy related skills and training has outstripped supply.<sup>138</sup> This shortage will worsen as the green energy sector and interest in energy efficiency grow. The green industry sector is one of two energy sectors that will experience significant growth over the next five to ten years regardless of a global economic slowdown.<sup>139</sup> Tighter building regulations will also stimulate demand for people who are expert in designing and constructing energy efficient buildings and renovations.

Engineering and scientific solutions will be needed to replace inefficient technologies with new energy efficient, environmentally sustainable solutions. The transport sector will experience a growing demand for mechanics skilled in repairing LPG, electric and hybrid vehicles. Similar growth is also predicted in the solar energy area with skilled electricians unlikely to keep up with the growing demand. Environmental or 'green' accounting is another growth area where accountants will have to quantify the 'green' credentials of businesses.<sup>140</sup>

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<sup>133</sup> QCOSS, submission no. 35, p.5.

<sup>134</sup> Queensland Government, submission no. 42, p.28.

<sup>135</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.4.

<sup>136</sup> Ralph, Ipswich Regional Tenants Group Inc, hearing transcript, 11 September 2009, p.4. Mrs Bernice Ralph is the President of the Ipswich Regional Tenants Group Inc.

<sup>137</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.4.

<sup>138</sup> Energy Skills Queensland, 2009, *Energy Industry Skills Plan 2009-2012*, Energy Skills Queensland, Brisbane, p.18.

<sup>139</sup> Energy Skills Queensland, 2009, *Energy Industry Skills Plan 2009-2012*, Energy Skills Queensland, Brisbane, p.26.

<sup>140</sup> See <http://www.theage.com.au/business/skills-shortage-could-delay-greencollar-jobs-20080918-4iz6.html>. For further analysis of the challenges of meeting the needs of the growing green economy see CSIRO, 2008, *Growing the Green Collar Economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint*, CSIRO, Canberra.

A report by the CSIRO on green collar jobs has called for substantial action to ensure that skills, education and training are ready to meet these challenges:

*This will involve concerted action by government, businesses, labour, and educational and training institutions to develop and implement new approaches to green education, training and jobs. To be prepared for such challenge in both magnitude and innovation needs, Australia should strengthen its capacity for analysing and understanding the interrelationships between education and training, jobs and employment and environmental footprint by improving the scientific knowledge underpinning such understanding and by up-grading the extent and quality of information and data in the areas concerned.*<sup>141</sup>

Through the *2007 Business Sustainability Survey*, the Queensland Government identified the skills deficit that faced Queensland based developers of innovative sustainable technologies and services. Survey findings pointed to a lack of marketing skills, knowledge and resources which effected access to markets.<sup>142</sup>

It is important to note that Queensland's remote communities present unique challenges for the energy skills job market. The Queensland Government's submission noted that current energy skills shortages were not simply due to insufficient training but included issues such as geographical remoteness and the work being incompatible with desired lifestyles.<sup>143</sup> The attractiveness of regional areas to workers and their families as well as education and training to meet the industry's changing skills needs were also outlined in the Federal Government's Energy White Paper.<sup>144</sup>

The Garnaut Review report recommended targeting and tailoring programs such as: basic education programs for the retail and real estate sectors, carbon management and energy practices for business managers; specialist programs for trades that offer practical skills; and a mixture of theory, knowledge and skills for professions such as engineering.<sup>145</sup>

## Other Barriers and Impediments

### *Lack of co-ordination across governments*

A significant proportion of submissions to the inquiry commented on the proliferation of energy efficiency initiatives and apparent overlaps of programs and initiatives across various levels of government as being a barrier in itself. Whilst the initiatives were welcomed, the number of initiatives that appeared to be duplicated across government coupled with the proliferation of guides, rebates and other incentives created confusion and unnecessary complexity in the energy efficiency market.

The Office of Clean Energy advised that this issue was raised at a workshop they ran in September 2009.

*We ran a workshop in September with a number of government agencies as well as the GOC energy providers. One of the outcomes of that was a view that there needed to be a one-stop shop for all of the information and the whole process had to become simpler for consumers, and that is not just relevant to energy efficiency but also relevant to renewable energy. So there is a clear driver that we have to make it more simple than it is currently and, secondly, that everybody needs to bring their information together and treat it as if it is a*

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<sup>141</sup> CSIRO, 2008, *Growing the Green Collar Economy: Skills and labour challenges in reducing our greenhouse emissions and national environmental footprint*, CSIRO, Canberra, p.2.

<sup>142</sup> Queensland Government, submission no. 42, p.29.

<sup>143</sup> Queensland Government, submission no. 42, p.29.

<sup>144</sup> Department of Resources, Energy and Tourism, 2003, *Towards a National Framework for Energy Efficiency – Issues and Challenges Discussion Paper*, DRET, Canberra.

<sup>145</sup> Garnaut, R., 2008, *The Garnaut Climate Change Review: Final Report*, Cambridge University Press, Melbourne, p.410.

*shared resource rather than a disparate resource. It is an issue we have noticed. You are right: with solar hot water you have to go to the federal arena and you have to go to the Queensland arena. It is difficult for consumers. So it is on notice.*<sup>146</sup>

The apparent lack of co-ordination across the levels of government and between agencies was identified as a barrier to improving energy efficiency and highlighted a lack of clarity in government roles. Home owners and tenants as well as business and industry are confused about energy efficiency initiatives and about the departments or agencies responsible for implementing the initiatives.

A number of submissions expressed a desire for energy efficiency policies to be coordinated by the Federal Government. The Gold Coast City Council supported a national approach but with state implementation.<sup>147</sup> Origin Energy wrote:

*The proliferation we are currently seeing of state-based energy efficiency measures is creating unclear policy outcomes...From our experience a nationally harmonized approach provides a range of benefits, many of which can be passed onto our customers and Australian households and businesses.*<sup>148</sup>

The Australian Petroleum Production and Exploration Association expressed a similar view:

*The growth of separate Australian Government and state and territory government policies and greenhouse initiatives and their lack of consistency are increasing costs and uncertainty for Australian industry, including the upstream oil and gas industry. This cost and uncertainty and the associated sovereign risk, misallocation of resources and deadweight losses to the economy associated with the hotchpotch of greenhouse measures in Australia is significant and is growing. A single, nationally coordinated approach by all Australian governments is urgently required. In particular, State governments should not introduce policies and mechanisms inconsistent with a national approach.*<sup>149</sup>

A number of other hearing witnesses commented on the lack of co-ordination, though did not necessarily suggest that the Federal Government assume the co-ordinator role. But there was strong support for a 'one-stop' shop. ABC Carbon suggested:

*I think there is a need for a bit like the one-stop shop but also a clearing house that puts all of this stuff together and makes it very clear and communicates to the man on the street, the woman on the street, the householder and the businessperson: 'These are the things you can do. This is what will happen. These are the results in terms of saving energy, saving emissions, saving money, and this is what is available in terms of incentives to enable you to do it.'*<sup>150</sup>

The Productivity Commission warned against making judgments about how much information governments should provide directly.

*For example, the Australian Greenhouse Office's Green Vehicle Guide provides fuel consumption information that largely replicates what is available from private sources. And some advice on home energy efficiency options can be obtained from commercial and other non-government sources. To some extent, the most productive role for government is to be the facilitator that draws together this information and packages it in a form that ensures that relevant and trusted information gets to those who would otherwise not get it.*<sup>151</sup>

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<sup>146</sup> Nielsen, Office of Clean Energy, hearing transcript, 8 October 2009, p.7.

<sup>147</sup> Gold Coast City Council, submission no. 5, pp.3-4.

<sup>148</sup> Origin Energy Limited, submission no. 27, p.2.

<sup>149</sup> Australian Petroleum Production and Exploration Association, submission no. 31, p.1.

<sup>150</sup> Hickson, ABC Carbon, hearing transcript, 11 September 2009, p.19.

<sup>151</sup> Productivity Commission, 2005, *The Private Cost Effectiveness of Improving Energy Efficiency*, Productivity Commission Inquiry Report No. 36, Productivity Commission, Melbourne, p.30.

### *Problems with software used to rate building energy efficiency*

Interestingly, the tools used to determine the energy star ratings of buildings in Australia were identified as barriers during the inquiry process due to their over-provision as well as for apparent software failings. For example, Australian Building Codes Board alleges that there are too many rating tools which in itself causes problems:

*A potential barrier or impediment to improved energy efficiency may be the market confusion that has resulted from the proliferation of sustainability rating and assessment tools in Australia. With the proliferation of these tools have come varying rating mechanisms. For example AccuRate assesses using a 0-10 star rating while Green Star uses 0-6 stars.<sup>152</sup>*

Other submissions criticised the various rating and thermal performance measuring tools for favouring building envelopes and designs for cold climate living rather than designs specific for the tropical and subtropical zones of Queensland. Consequently, spaces have been designed to be insulated, closed-in and, in Queensland's case, air conditioned. Timber Queensland highlighted the apparent failures in the AccuRate system:

*Cooling is the major issue in these climates, and appropriately insulated lightweight construction combined with good airflow provides for rapid cooling of the building envelope and subsequent internal temperatures. The AccuRate system does not adequately recognise these benefits, and in fact promotes high thermal mass building envelopes that hold heat, and even reduced window size to improve the efficiency of artificial cooling. Clearly these outcomes are contrary to the natural use of buildings in Queensland.<sup>153</sup>*

The Centre for Excellence in Tropical Design in their submission focussed on the limitations of the thermal performance simulation software used to determine the energy star rating for residential buildings. According to the submission, there are three main software packages available to energy assessors and all utilise the same 'calculating engine' known as AccuRate to calculate the star rating of a home.<sup>154</sup> The submission noted that AccuRate requires constant internal parameters to perform its calculation and that this punishes passive design. The submission also noted that natural ventilation and cooling techniques such as breezeways, and orientation and shading were discouraged. The role of elevation in building design to encourage natural breezes and airflow can paradoxically reduce a building's star rating using this software. The submission also highlighted the problems the software had with calculating radiant heat that can affect internal heating.<sup>155</sup>

The Housing Industry Association also raised the issue of natural ventilation being discouraged by the software tools:

*... I think we also need to start recognising that in our houses we open the windows to allow ventilation in. The Federal Government spent a lot of money about two years ago trying to improve the models. Opening windows creates an issue for the software tools, because they like to measure a closed envelope. As I said, they have improved them a bit but in our view not enough.<sup>156</sup>*

The Queensland Government also commented on the failure of current software to adequately rate elevated floors for ventilation in Queensland homes and buildings:

*While improvements have been made to the BCA requirements for Queensland's unique climatic conditions there is a need to continually monitor the effect of the incremental changes to the code. For, example, where elevated floors in tropical and sub-tropical areas are required to be insulated this may mean that elevated Queenslander designs become impractical or*

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<sup>152</sup> Australian Building Codes Board, submission no. 8, p.6.

<sup>153</sup> Timber Queensland, submission no. 1, p.3.

<sup>154</sup> Centre for Excellence in Tropical Design Network, submission no.43, p.5.

<sup>155</sup> Centre for Excellence in Tropical Design Network, submission no.43, pp.2-3.

<sup>156</sup> Roberts, Housing Industry Association, hearing transcript, 11 September 2009, p.16.



*overly expensive. Also, as performance standards rise, market conditions may make the provision of large windows prohibitively expensive in comparison to replacing glazed areas with insulated walls, thereby affecting the use of natural light and ventilation.<sup>157</sup>*

Whilst stipulating that some improvements have been made to second generation NatHERS software tools, the Queensland Government also acknowledges that further improvements and investigations are required:

*Second generation NatHERS software tools which can be used to determine compliance with energy efficiency requirements<sup>158</sup>, have been improved to take into account Queensland's tropical and subtropical climates. It has recently come to the attention of DIP that for some house designs, further software improvements may be required to encourage these designs in the Queensland climate. This will be investigated in detail with industry stakeholders and feedback regarding any potential improvements will be provided to DEWHA.<sup>159</sup>*

## **Conclusions**

Despite the often compelling arguments for implementing energy efficiency improvements, there remains a significant gap between potential efficiency improvements and actual improvements that individuals, businesses, industries, communities and governments implement. This is due to the existence of a range of barriers and impediments. They include: market failures; behavioural, cultural and organisational barriers; financial barriers; and skills and capacity barriers. It appears that the lack of coordination of policies and programs across governments presents a further impediment.

For many energy users, the costs of energy are a small part of their overall budget (small beer) and attract a similarly small level of interest. For industry as a whole, the committee was told energy accounts for 4-5 per cent of their costs. For households, energy costs are on average around 2.5 per cent of expenditure. It follows that implementing efficiency improvements to save a fraction of these energy costs, in the absence of other motivations, attracts an even lower level of interest and priority. The predicted rises in energy costs will stimulate greater interest in energy efficiency in the future. For low-income households that spend on average around 6.8 per cent of their budgets on energy, the incentive to use energy more efficiently and save money is greater. However, these households are less able to meet the up-front costs.

Addressing the barriers to energy efficiency is a challenge for all governments and will involve work on a number of fronts – there is no single measure that will fix the problem. Making information about energy efficiency programs and initiatives more useful and readily accessible is crucial, as is raising awareness of, and changing attitudes to, energy use and wastage. We note in particular the importance of tailoring information to the needs of the target audiences.

Experienced architects, housing industry representatives and builders expressed concerns during the inquiry about the bias in computer software packages used to rate building energy efficiency. It appears that these packages may give a more favourable rating to buildings that are designed to use air-conditioning efficiently, rather than utilise the benefits of natural passive cooling and heating which is more energy efficient. The committee is concerned that this has the potential to undermine good design principles for Queensland housing, and needs to be investigated in consultation with the Australian Building Codes Board.

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<sup>157</sup> Queensland Government, correspondence dated 11 December 2009, p.28.

<sup>158</sup> One of the software tools used to determine compliance with energy efficiency requirements.

<sup>159</sup> Queensland Government, correspondence dated 11 December 2009, p.29.

**Recommendation 8.**

That the government investigates in consultation with the Australian Building Code Board, potential bias issues involving the use of computer software packages to rate building energy efficiency to ensure that the software adequately reflects the energy efficiency benefits of designs that capitalise on passive heating and cooling.

**Minister responsible: Minister for Local Government  
and Torres Strait Islander Partnerships**



## CHAPTER 4 ~ OPTIONS TO ENCOURAGE ENERGY EFFICIENCY IMPROVEMENTS IN QUEENSLAND

The previous chapters discussed the technical benefits of energy efficiency, the policies and initiatives implemented by government to encourage energy efficiency improvements and the barriers and impediments to these improvements being implemented.

This chapter discusses the development of a state energy efficiency strategy and further potential policy options to complement existing initiatives and policies to support energy efficiency in Queensland.

### A Queensland Energy Efficiency Strategy

The government has committed to devising a state-wide energy efficiency and demand management strategy to be called the Queensland Energy Management Plan (QEMP), to set out its strategic direction and priorities. The plan will complement the *Queensland Renewable Energy Plan*.<sup>160</sup> In developing QEMP, the government will draw from the findings of the committee's inquiry. The committee welcomes the development of an energy efficiency strategy and the opportunity to contribute to its form.

Having a written strategy in place provides a useful point of reference for those in government and outside of it, and helps to articulate the government's vision with broad targets, objectives, responsibilities and accountabilities. QEMP could, in our view, address many concerns about the alignment and coordination of existing strategies and programs and help to clarify the purposes of initiatives that are already in place.

We think if the government is serious about energy efficiency, it will need to supplement the soft energy efficiency programs it has in place that provide information, rebates and advice (carrots) with harder measures (sticks) such as more mandatory minimum efficiency standards for appliances, mandatory energy audits to cut energy wastage and caps on energy usage by energy inefficient industries, businesses and residents. This reflects the sentiments expressed in the submissions and other evidence we collected in our inquiry.

The government's energy management plan also provides an opportunity for the government to flag the importance of paradigm shifts about much of our consuming behaviour to give much greater prominence to energy efficiency and sustainability issues, and the role that governments should play in this change. This an important dialogue that the government need to have with the people of Queensland.

As noted by the Clean Energy Council in their submission, there is a raft of measures at the national and state level to promote energy efficiency, but there is a need for a more coherent vision. This vision should be framed around two aims, to reduce demand for energy and increase energy efficiency.<sup>161</sup> In our view, QEMP should set key principles about future energy and energy efficiency for Queensland by stating that energy efficiency is Queensland's first energy resource, and stipulating that the government is obliged to consider investing in programs to realise energy efficiency gains before investing in other energy options to meet Queensland's energy needs.

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<sup>160</sup> Queensland Government, submission no. 42, p.24.

<sup>161</sup> Clean Energy Council, submission no. 41, p.2.

**Recommendation 9.**

That the government, through the Queensland Energy Management Plan, acknowledges that energy efficiency is Queensland's first energy resource, and that the government will consider investing in programs to realise energy efficiency gains before investing in new generating or transmission capacity to meet Queensland's energy needs.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

The committee considered what the QEMP should specifically address. In our view, it is crucial that QEMP:

- sets measureable targets and timeframes for energy efficiency gains;
- quantifies, for each policy or initiative, the anticipated energy efficiency gains to be achieved;
- describes how the plan links to the NFEE and NEES;
- encompasses supply-side energy efficiency improvements and demand-side improvements across all portfolio areas including land development, building and transport;
- includes the contribution of local government to energy efficiency improvements;
- addresses the need for equitable access to energy efficiency gains;
- specifies the roles and accountabilities of agencies and coordinating mechanisms;
- addresses data collection and dissemination issues, and sets a timetable for outcome evaluations of all major energy efficiency programs and initiatives;
- explains the linkages between energy efficiency and other strategies promoting clean energy, renewable energy, and climate change mitigation;
- identifies opportunities for stakeholders to contribute to the plan; and
- outlines funding mechanisms for energy efficiency improvements.

**Recommendation 10.**

That the Queensland Energy Management Plan:

- sets measureable targets and timeframes for energy efficiency gains;
- quantifies, for each policy or initiative, the anticipated energy efficiency gains to be achieved;
- describes how the plan links to the National Framework for Energy Efficiency and the National Energy Efficiency Strategy;
- encompasses supply-side energy efficiency improvements and demand-side improvements across all portfolio areas including land development, building and transport;
- includes the contribution of local government to energy efficiency improvements;
- addresses the need for equitable access to energy efficiency gains;
- specifies the roles and accountabilities of agencies and coordinating mechanisms;
- addresses data collection and dissemination issues, and sets a timetable for outcome evaluations of all major energy efficiency programs and initiatives;
- explains the linkages between energy efficiency and other strategies promoting clean energy, renewable energy, and climate change mitigation;
- identifies opportunities for stakeholders to contribute to the plan; and
- outlines funding mechanisms for energy efficiency improvements.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

The committee further recommends that QEMP provides for annual reporting by the Office of Clean Energy as the lead agency responsible for energy efficiency, of energy usage trends and emerging issues for Queensland, as well as progress by the government to implement planned efficiency improvements.

As a starting point for the government's consultation with industry and community groups and other stakeholders about the QEMP, the committee recommends that the immediate priority actions to be addressed in the plan and the first annual action plan prepared under it, should include:

- expansion of existing public education designed to achieve attitudinal change about energy use and efficiency;
- a plan for the evaluation of major energy efficiency policies and initiatives; and
- specific mention of assistance for low-income households that are most vulnerable to the effects of rising energy costs.

**Recommendation 11.**

That the immediate priority actions to be addressed in the Queensland Energy Management Plan and the first annual action plan prepared under it, should include:

- expansion of existing public education designed to achieve attitudinal change about energy use and efficiency;
- a plan for the evaluation of major energy efficiency policies and initiatives; and
- specific mention of assistance for low-income households that are most vulnerable to the effects of rising energy costs.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

## Energy Efficiency Information

Questions and concerns about the availability of useful information on energy efficiency dominated the feedback we received during the inquiry. We heard from many people passionately interested in improving their energy efficiency and who were struggling to find answers and guidance. Like the spread of programs across different agencies and levels of government, information about energy efficiency programs and solutions is scattered across a labyrinth of government agencies and energy company websites. We were asked repeatedly why the information could not be held in one place or on one web site or 'one-stop' shop. Others commented on the types of information provided and the need for someone to give directions on finding the right information rather than a self-help approach.

**We were pleased to note that one of the Queensland Government's objectives of its QEMP will be to investigate options for developing an overarching framework and/or a single point of contact for its energy efficiency programs.** We also note that a key objective of the NSEE, agreed by COAG in July 2009, is to rationalise state-based strategies and programs at the national level to improve consistency between jurisdictions.<sup>162</sup> We welcome this news. We suggest that other options to improve the availability and usefulness of energy efficiency information need to be considered.

The committee encourages the government to consider distributing information and advice on energy efficiency improvements through others. There are sound precedents from the public health sector for delivering information and resources to the community by 'piggy-backing' existing networks of extension workers rather than building new networks. In the energy efficiency context, there are established networks of community workers, indigenous community workers, building-related tradespeople and professionals who could potentially assist residents, businesses and communities to locate and tailor information and other assistance about energy efficiency on the government's behalf and as part of other services. The provision of energy efficiency advice should become the norm rather than the exception.

We were encouraged by the efforts of DERM to establish formal partnerships by agreements with industry associations to deliver the ecoBiz program. Using partnerships offers the potential to expand the reach of the ecoBiz program far beyond the extent of coverage possible through direct one to one contacts. Working through industry associations offers ready-made distribution networks, industry knowledge and an established working relationship with individual businesses.

### Recommendation 12.

That the government establishes a 'one-stop' shop to provide energy efficiency information centrally for residents, businesses, communities and governments; and explores the feasibility of using existing community extension worker networks, industry associations, trades and professional people and energy companies to deliver energy efficiency information and assistance to consumers.

**Minister responsible: Minister for Natural Resources,  
Mines and Energy and Minister for Trade**

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<sup>162</sup> Queensland Government, submission no. 42, p.22.

## Electricity Tariff Reforms

A number of submissions and witnesses who gave evidence commented on the role of energy pricing and the need to provide more cost-reflective pricing for energy as a strategy to encourage energy efficiency.<sup>163</sup>

The Queensland Competition Authority (QCA) reported in November 2009 findings from its comprehensive review of electricity pricing and tariff structure in Queensland. The first stage of the review concluded that:

- a. retail tariffs should be made as cost reflective as possible;
- b. network and retail tariffs should be aligned;
- c. a voluntary time-of-use tariff should be introduced for those retail customers with interval meters; and
- d. a new set of cost reflective tariffs should be developed rather than seeking to amend the existing tariff structure. However, should the government choose to retail the existing tariff schedule, a number of existing tariffs should be removed and/or consolidated and prices rebated to reflect costs.

The second stage of the review examined alternative tariff structures that:

- a. support cost reflective tariffs; and
- b. encourage more efficient use of electricity, including encouraging demand-side management.

In undertaking the review, the QCA was required to consider:

- a. the level of tariffs necessary to promote competition for each customer class;
- b. the impact of changing tariff structures on different classes of customers;
- c. the merits/issues associated with the introduction of:
  - i. inclining block tariffs;
  - ii. peak demand or time-of-use pricing;
  - iii. additional interruptible tariffs suitable for demand-side management; and
- d. the timing issues associated with the implementation of any proposed changes to tariff structures and to recommend any transitional arrangements.

On 30 November 2009, the QCA provided its Final Report on Stage 2 of the Review to the Government. Consistent with the findings in its Draft Report, the QCA concluded that:

- retail tariffs should be made as cost reflective as possible;
- network and retail tariffs should be aligned; and
- a voluntary time-of-use tariff be introduced for those residential customers with interval meters.

In its Final Report, the QCA recognised that adding a seasonal component to some tariffs could be warranted.<sup>164</sup> The QCA also concluded that any welfare considerations for vulnerable customers (related to cost reflective tariffs) are best handled via a targeted approach by government and not

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<sup>163</sup> Submissions nos: 6, 11, 14, 27 and 28; hearing transcript, 11 September 2009, pp.33-35.

<sup>164</sup> Qld Competition Authority, 2009, *Review of Electricity Pricing and Tariff Structures*, media release, 2 December 2009, QCA, Queensland, [www.qca.org.au/electricity-retail/RevEPandTS/stage2rev.php](http://www.qca.org.au/electricity-retail/RevEPandTS/stage2rev.php).



via general tariff adjustments. This view was supported by Ergon Energy, EnergyAustralia and the Queensland Consumers Association in their submissions to the QCA review.<sup>165</sup>

The committee welcomes the findings of the QCA. The committee also acknowledges the inelastic nature of energy pricing and vulnerability of low-income households to the effects of rising energy prices, as cautioned by QCOSS in their evidence:

*... price is a very blunt instrument for achieving the effect of people saving energy. I would also add that I do not believe that it is a very effective means of changing people's habits. There is just such a huge amount of research and, most recently, there was a piece of research — and I think it was by the Australia Institute, but I might have that wrong — that has looked again at the issue and concluded that, basically, energy pricing does not create reduced demand. They talk about it being inelastic to price. Some research that I know of from Victoria estimated that you needed to effect about a 40 per cent increase in pricing to get just a four per cent reduction in use.*<sup>166</sup>

In our view, it is imperative that the government ensures that low-income households have access to adequate information and other support so that they may implement energy efficiency improvements should cost reflective electricity tariffs be introduced.

<b>Recommendation 13.</b>
That the government ensures that low-income households have access to adequate information and other support, so that they may implement energy efficiency improvements should cost reflective electricity tariffs be introduced.  <b>Minister responsible: Minister for Natural Resources, Mines and Energy and Minister for Trade</b>

## Energy Efficiency Improvements for Low-Income Households

An important consideration for the government's work on energy efficiency is how to ensure that its policies and initiatives are inclusive of people on low-incomes who would benefit greatly from energy efficiency improvements, and who are also least able to afford them.

Approximately 460 000 Queenslanders, 10.6 per cent of the population, live below the poverty line (defined as 50 per cent of the median disposable household income).<sup>167</sup> These people live in households that spend a higher proportion of their budgets on energy, and are more vulnerable to stresses caused by rising energy prices. According to evidence from QCOSS, it is around 6.8 per cent of budget for the lowest income quintile.<sup>168, 169</sup> The Queensland Government provides a rebate of \$190.85 to eligible pensioners, seniors and some other concession card holders to help meet their electricity costs. The rebate is deducted from their electricity bills.

In their evidence, QCOSS told the committee that, for low-income households, the first and foremost barrier to energy efficiency relates to the lack of financial resources.<sup>170</sup> Major appliances such as refrigerators or hot water systems are not replaced until failure and, in such circumstances, replacing the appliance within the available budget is likely to be prioritised over

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<sup>165</sup> Qld Competition Authority, 2009, Final Report-Review of Electricity Pricing and Tariff Structures – Stage 2, QCA, Brisbane, 2009, p.15.

<sup>166</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.7.

<sup>167</sup> QCOSS, 2009, *Poverty in Queensland*, QCOSS, Brisbane, 2009, pp.ii, iii.

<sup>168</sup> The lowest income quintile is the group with incomes in the bottom 20 per cent of the income range.

<sup>169</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.7.

<sup>170</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.4; Ralph, Ipswich Regional Tenants Group Incl. hearing transcript, 11 September 2009, p.4.

energy efficiency.<sup>171</sup> Queensland households in the lowest income quintile are more than twice as likely as the general population to be unable to raise \$2000 within a week for something important (24.9 per cent compared to 11.6 per cent of all households).<sup>172</sup> The committee notes that for this reason low-income households are more likely to purchase second-hand appliances that are less energy efficient than new appliances.

For refrigerators, the running costs of a four star model could be less than half the costs to run an older one star model.<sup>173</sup> The efficiency benefits offered by new models that conform to more stringent energy performance requirements may not reach low-income households until some years after other households. The committee notes that there are no energy efficient labeling requirements in place for second-hand appliances.

As in other states, low-income households struggling to fund the purchase of new major appliances can access interest-free loans through a communities sector program. The national No Interest Loan Scheme (NILS) first developed by Good Shepherd Youth and Family Service in Victoria in 1981 offers small no interest loans in the region of \$800 to \$1200 for people on low-incomes for the purchase of essential household goods. Loans are fee-free and must be repaid over a 12-18 month period. The NILS repayments are used to fund loans to other NILS clients. Good Shepherd Youth and Family Service accredits community organisations to be NILS providers and co-ordinates the national NILS network, currently consisting of 280 NILS programs around Australia. Eligibility criteria vary between each participating organisation.<sup>174</sup> The operating capital for NILS is provided by donors such as the National Australia Bank.<sup>175</sup> The Queensland Government is also supporting NILS. In April 2009, the Premier announced a funding commitment of \$1.2 million over two years to provide necessary support and infrastructure to Good Shepherd Youth and Family Service to help community groups administer and expand its no interest loan schemes across Queensland.<sup>176</sup> The committee acknowledges the invaluable assistance provided by the Good Shepherd Youth and Family Service and NILS providers to low-income households.

A further option is rebates to assist low-income households purchase new energy efficient appliances. The Victorian Government works with the NILS program to provide rebates of \$100 to low-income households to assist purchases of new refrigerators or freezers with a minimum 4 star energy efficiency rating or a washing machine with a minimum 3.5 star energy efficiency rating and four star water efficiency rating. The rebates, where eligible, are credited against NILS loan balances.<sup>177</sup>

The committee looked at other options to make energy efficient appliances accessible to low-income households. We noted the achievements of the Phoenix Fridge Project conducted by the Moreland Energy Foundation in Victoria. The Phoenix project sought to increase the energy efficiency of donated second hand refrigerators distributed to low-income households through low-cost improvements. Improvements typically achieve between 10 and 50 per cent gains in energy efficiency through replacement of seals, improved insulation and in compressor upgrades where

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<sup>171</sup> QCOSS, submission no. 39.

<sup>172</sup> ABS, General Social Survey, Queensland, 2006.

<sup>173</sup> Moreland Energy Foundation, 2004, *The Phoenix Fridge Project*, Moreland Energy Foundation, 2010, viewed 9 February 2010 <http://mefl.com.au>.

<sup>174</sup> No Interest Loans Scheme [www.nilsnsw.org.au](http://www.nilsnsw.org.au).

<sup>175</sup> Good Shepherd Youth and Family Service, 2009, *Good Shepherd Youth and Family Service Annual report 2008-2009*, Good Shepherd Youth and Family Service, Victoria.

<sup>176</sup> The full motion is reported in the Record of Proceedings, First Session of the 52<sup>nd</sup> Parliament, 16 April 2008 available from the Queensland Parliament website [http://www.parliament.qld.gov.au/view/legislativeAssembly/hansard/documents/2008.pdf/2008\\_04\\_16\\_WEEKLY.pdf](http://www.parliament.qld.gov.au/view/legislativeAssembly/hansard/documents/2008.pdf/2008_04_16_WEEKLY.pdf).

<sup>177</sup> Sustainability Victoria, 2010, *Whitegoods Appliance Rebate*, Sustainability Victoria, 2010, viewed 16 February 2010 [http://www.resourcesmart.vic.gov.au/for\\_households/rebates\\_3740.html](http://www.resourcesmart.vic.gov.au/for_households/rebates_3740.html).

required.<sup>178</sup> The committee could not identify a similar project operating in Queensland. The committee notes the obvious benefits and savings that the project offers to low-income Victorian households.

The committee recommends that the government continues to support the NILS program and explores the feasibility of offering targeted rebates of \$100, modelled on the Victorian scheme, to NILS loan clients who purchase energy efficient whitegoods such as refrigerators, freezers and washing machines. The committee also recommends that the government explores the feasibility of establishing a program in the community sector modelled on the Phoenix project.

**Recommendation 14.**

That the government continues to support the No Interest Loan Scheme program and explores the feasibility of offering targeted rebates of \$100, modelled on the Victorian scheme, to No Interest Loan Scheme loan clients who purchase energy efficient whitegoods such as refrigerators, freezers and washing machines. The committee also recommends that the government explores the feasibility of establishing a program in the community sector, modelled on the Phoenix project to assist low-income households access energy efficient second-hand appliances.

**Minister responsible: Minister for Natural Resources, Mines and Energy and Minister for Trade**

***Encouraging Investment by Energy Providers in Energy Efficiency Research and Development***

Investing in technologies which achieve energy efficiency gains often requires funding on a speculative investment basis. Currently, the extent of funding available is limited and advancement in this area of research and development is, accordingly, also limited. Major beneficiaries of energy efficiency gains are energy distributors (and ultimately energy users and consumers). However, Queensland energy distributors (as government owned corporations) have strict limits on the extent and nature of investments in research and development. In most instances, speculative investments are prohibited.

On one view, further advancements in energy efficiency technologies can be achieved through greater investment in research and development projects.

The committee heard that Ergon Energy's investment in research and development tends to focus more on commercialised products or products nearing commercialisation, due to requirements of the Australian Energy Regulator.<sup>179</sup> In evidence, an Ergon representative told the committee:

*They have requirements around us as regulated businesses to make sure that our investments are prudent and efficient. That tends to drive us towards a preference of investing in more near commercial type technologies. Having said that, Energex and ourselves are putting quite a lot of effort into demand management and with that comes energy efficiency because a more efficient air conditioner still places less demand on the system, so that is still good for us.*

*We are investing in partnering with companies around battery storage or storage elements for energy because we think these things will have a big advantage in us managing our network better.<sup>180</sup>*

<sup>178</sup> Moreland Energy Foundation, 2004, *The Phoenix Fridge Project*, Moreland Energy Foundation, 2010, viewed 9 February 2010 <http://mefi.com.au>.

<sup>179</sup> Lee, Ergon Energy Corporation Ltd, hearing transcript, 11 September 2009, p.39.

<sup>180</sup> Lee, Ergon Energy Corporation Ltd, hearing transcript, 11 September 2009, p.39.

Ergon and Energex have agreed to jointly pool funding, agreed by the Australian Energy Regulator, and totalling \$10 million for demand management programs for the current regulatory period which begins on 1 July 2010. A further submission has sought funding approval for other innovative measures aimed at air conditioning, peak demand and cost reflectivity.<sup>181</sup>

The committee notes the constraints that apply to energy distributors seeking to direct funds to implement energy efficiency programs. We appreciate that the regulatory processes administered by the Australian Electricity regulator are in the best interest of ensuring a competitive electricity market. However, we remain concerned that these controls may discourage energy distributors from researching, developing and implementing efficiency improvements that are in the best interest of all electricity users. We therefore recommend that the government, through the Ministerial Council on Energy, seek the establishment of strict guidelines which allow Government Owned Corporations (GOCs) in the energy generating sector to invest in appropriate and/or speculative investments for the purposes of energy efficient research and development.

<b>Recommendation 15.</b>
That the government, through the Ministerial Council on Energy, seeks the establishment of strict guidelines which allow Government Owned Corporations in the energy generating sector to invest in appropriate and/or speculative investments for the purposes of energy efficiency research and development.
<b>Minister responsible: Minister for Natural Resources, Mines and Energy and Minister for Trade</b>

## Supporting Distributed Energy and Co-Generation Systems

Distributed energy refers to a number of small-scale energy technologies that generate electricity close to where it is actually consumed. This avoids the losses associated with the transmission of electricity from remote generators in a centralised system, and makes distributed energy highly efficient with substantial savings in greenhouse gases. Electricity from distributed generation projects can be generated using different systems such as wind turbines, solar panels, hydro turbines, geothermal heat, bio-energy (eg bio-gas or wood energy) or diesel turbines or gas turbines.

One of the key benefits of distributed generation over centralised generation is the ability to capture waste heat, known as co-generation, and convert it to other uses such as heating, the production of steam or cooling.<sup>182</sup>

The committee was told that the increased availability and utilisation of distributed energy systems by households and by the commercial, government and industrial sectors would increase energy efficiency, reduce demand for electricity from the grid and delay the need for new power stations.<sup>183</sup> Ceramic Fuel Cells Limited (CFCL) told the committee that, with very high electrical efficiency, a home with a fuel cell co-generation unit can actually deliver greater carbon savings than a home with a similar sized solar photovoltaic cell installation.<sup>184</sup> The benefits may be particularly attractive for encouraging the use of renewable energy sources and meeting electricity needs in remote areas.<sup>185, 186</sup>

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<sup>181</sup> Dodson, Energex Ltd, hearing transcript, 11 September 2009, p.39.

<sup>182</sup> CSIRO, 2009, *Intelligent Grid: A value proposition for wide scale distributed energy solutions for Australia*, CSIRO, Canberra, p.35.

<sup>183</sup> Eco Investor Media, submission no. 36.

<sup>184</sup> Ceramic Fuel Cells Limited, submission no. 10, p.4.

<sup>185</sup> Environmental Industries Sunshine Coast Group, submission no. 44.

Research by the CSIRO found the value of wide-scale deployment of distributed energy solutions to Australia could be as much as \$130 billion by 2050 in present value cost savings (discounted by seven per cent) in meeting a Garnaut 450 ppm CO<sub>2</sub> scenario. Another key finding was that through a combination of distributed energy technologies and renewables, water usage associated with energy generation could be reduced by up to 75 per cent.<sup>187</sup>

Despite the potential benefits, there are impediments to the implementation of distributed energy solutions such as cost and lack of understanding. A further potential barrier is the lack of a feed-in tariff for the purchase of surplus electricity that may be exported to the grid.

It was put to the committee that governments need to encourage the development of commercialising innovative distributed energy technologies. Some examples are: photovoltaics, small wind, mobile biogas, fuel cells, small scale hydro, passive home heating and cooling technologies. It was further suggested that governments need to educate and encourage consumers to take up distributed energy systems.<sup>188</sup> The Property Council of Australia's submission called for new policies to free up the energy market in Queensland for regional and micro electric power stations.<sup>189</sup> CFCL suggested that the government should press energy regulators to properly recognise the public benefits of distributed or embedded generation, by creating appropriate incentives for the network companies (and at least removing incentives which can encourage investment in more network upgrades at the expense of non-network or embedded generation alternatives).<sup>190</sup>

The committee notes that the NSEE includes consideration of measures to maximise the potential for the application of commercial co-generation.<sup>191</sup> The committee recommends that the government examines the potential benefits of utilising distributed generation in Queensland as a priority.

#### **Recommendation 16.**

That the government examines the potential benefits of utilising distributed generation in Queensland.

**Minister responsible: Minister for Natural Resources, Mines and Energy and Minister for Trade**

## **Market-Based Energy Efficiency Incentives**

Arguably the best placed stakeholders to encourage energy users to use energy more efficiently are energy retailers. The IEA made a similar observation in their advice to G8 member nations on best practice policies to improve energy efficiency.<sup>192</sup> Energy retailers already have accurate knowledge of users' energy consumption patterns as well as the resources and technical expertise to identify potential efficiency improvements. Energy retailers in Queensland are advising customers on energy efficiency opportunities now, though have no financial incentive for doing so.

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<sup>186</sup> Queensland Conservation Council (2008), *Climate Neutral Queensland 2050 – a QCC Position paper*, Queensland Conservation Council, Brisbane.

<sup>187</sup> CSIRO, 2009, *Intelligent Grid: A value proposition for wide scale distributed energy solutions for Australia*, CSIRO, Canberra, pp.10-2.

<sup>188</sup> Eco Investor Media, submission no. 36.

<sup>189</sup> Property Council of Australia, submission no. 47.

<sup>190</sup> Ceramic Fuel Cells Limited, submission no. 10, p.7.

<sup>191</sup> Queensland Government, correspondence dated 11 December 2009, p.22.

<sup>192</sup> IEA, 2008, *Energy Efficiency Policy recommendations*, IEA, Paris, Chapter 7.

It could be argued that, by assisting their customers to use less energy, energy retailers are forgoing revenue.

Three states, Victoria, New South Wales and South Australia have introduced white certificate schemes partly to address this problem. These schemes are market-based mechanisms that operate similarly to the proposed CPRS, to encourage private sector investment in energy efficiency and overcome barriers such as bounded rationality, information failures, split incentives and a lack of access to electronic information regarding energy efficient products.

Victoria's Energy Saver Incentive – the public name of a mandatory energy efficiency target introduced under the *Victorian Energy Efficiency Target Act 2007* (VEET) – launched on 1 January 2009, attempts to address market failures in order to deliver an economically optimal degree of investment in energy efficiency. The VEET seeks to achieve this optimal investment by introducing a third party, certificate creators, to 'incentivise' households to improve their energy efficiency.<sup>193</sup>

Under the scheme, each electricity and gas retailer is subject to an individual target set for reductions in energy use in relation to their imputed greenhouse gas emissions. Energy retailers must meet those targets by achieving energy efficiency improvements in customer households. Tradeable Victorian Energy Efficiency Certificates (VEECs) are created for each tonne of greenhouse gas abatement energy saved. Energy retailers can comply with their energy efficiency targets by creating their own VEECs through energy efficiency, or may purchase certificates from other certificate creators where it is cost-effective. VEECs are surrendered to the scheme administrator to achieve compliance.

A key feature of white certificate schemes is the role of third party energy service providers. These energy service providers enter the market and provide a service which makes it easy for residential customers to reduce greenhouse gas emissions. VEECs can be issued for the following energy efficiency improvements:

- Water heating - decommissioning of low efficiency water heating products and the installation of high efficiency water heating products. This category also includes the installation of solar pre-heaters or solar retrofit kits;
- Space heating - decommissioning of low efficiency ducted heating products and the installation of high efficiency ducted heating products, and the installation of high efficiency space heating products;
- Space conditioning - installation of insulation, thermally efficient windows and weather sealing products;
- Lighting – installation of low energy lamps;
- Shower rose - decommissioning of non-low flow shower rose and the installation of low flow shower rose; and
- Refrigerators/freezers – purchase or high efficiency refrigerator or freezer (refrigerator purchase) and destruction of pre-1996 refrigerator or freezer (refrigerator destruction).<sup>194</sup>

In its first three years of operation, the Victorian scheme is expected to result in 8.1 million tonnes of greenhouse gases abated, resulting in an average annual household energy savings of \$45.<sup>195</sup>

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<sup>193</sup> Hon Peter Batchelor MP, Minister for Energy and Resources, submission no. 50, Attachment: - Proposed Victorian Energy Efficiency Target Regulations Regulatory Impact Statement - September 2008.

<sup>194</sup> Victorian Essential Services Commission, Victorian Energy Efficiency Certificates, viewed 2 February 2010, [www.esc.vic.gov.au](http://www.esc.vic.gov.au).

<sup>195</sup> Hon Peter Batchelor MP, Minister for Energy and Resources, submission no. 50, Attachment: - Proposed Victorian Energy Efficiency Target Regulations Regulatory Impact Statement - September 2008.

The South Australian and New South Wales governments have since introduced their own energy efficiency schemes, and the three governments have established a Retailer Energy Efficiency Working Group to harmonise and enhance their respective schemes.<sup>196</sup>

White certificate schemes complement emissions trading schemes by encouraging the implementation of low cost abatement measures in households that would not be covered by an Emissions Trading Scheme. They also help to stimulate energy efficiency improvements in existing commercial buildings.

White certificate schemes also offer a mechanism to provide a potential remedy for the problem of split incentives which hampers investment in energy efficiency improvements by owners/landlords to leased/rented premises. A major barrier to energy efficiency for low-income households arises because they are much more likely than other households to be renters in the public or private rental market.<sup>197</sup> Given the problems caused by split incentives, rental accommodation is less likely to incorporate energy efficient improvements such as ceiling insulation or energy efficient water heaters. This effectively locks in higher energy costs for these households.

The Queensland Government informed the committee that it will investigate options for a market-based scheme during the development of the QEMP and in the context of the Australian Government's recent announcement (under the CPRS) to develop a new energy efficiency mechanism in 2010.<sup>198</sup> The committee welcomes this move.

The committee recommends that the government, when investigating options for a market-based scheme as part of the QEMP, considers the feasibility of a Queensland white certificate scheme consistent with schemes operating in New South Wales, Victoria and South Australia, and which also includes building energy efficiency improvements that are appropriate to Queensland's tropical climate. The committee notes that increasing ventilation and shade and painting rooves light colours may be as beneficial as ceiling insulation for comfort and thermal efficiency.

The committee also recommends that the government canvas through the MCE the feasibility of a national white certificate scheme.

**Recommendation 17.**

That the government explores the feasibility of a Queensland white certificate scheme consistent with schemes operating in New South Wales, Victoria and South Australia, and which includes energy efficiency improvements that are appropriate to Queensland's tropical climate.

**Minister responsible: Minister for Natural Resources, Mines and Energy and Minister for Trade**

**Recommendation 18.**

That the government canvases the feasibility of a national white certificate scheme through the Ministerial Council on Energy.

**Minister responsible: Minister for Natural Resources, Mines and Energy and Minister for Trade**

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<sup>196</sup> Hon Peter Batchelor MP, Minister for Energy and Resources, submission no. 50, p.1.

<sup>197</sup> Parmenter, QCOSS, hearing transcript, 11 September 2009, p.9.

<sup>198</sup> Queensland Government, correspondence dated 11 December 2009, p.21.

## Conclusions

The committee welcomes the development by the government of a Queensland energy efficiency strategy to be called the Queensland Energy Management Plan. This plan will provide an opportunity for the government to set a clear direction, objectives and timeframes for its future initiatives to encourage energy efficiency improvements, to specify roles and responsibilities of agencies involved and to explain linkages with other policies and programs.

In the committee's view, energy efficiency should be viewed as Queensland's first energy resource, and attract funding ahead of other programs to meet the state's future energy needs. The committee also recommends annual reporting by the Office of Clean Energy, as lead agency responsible for energy efficiency, on energy usage trends, emerging issues and progress to implement the actions in the plan. As a starting point for the government's consultation with industry and community groups about the plan, the committee recommends that the priority actions should include: expanded public education designed to achieve attitudinal change about energy use and efficiency; a program for the independent evaluation of the government's major energy efficiency programs and initiatives; and assistance for low-income households to access energy efficiency improvements.

The committee welcomes the commitment by the government to investigate options for an overarching framework and/or a single point of contact for its energy efficiency programs. The committee encourages the government to utilise existing networks, and partnerships with industry peak bodies to distribute energy efficiency information. It is imperative that information is tailored to suit the needs of the target audiences.

The structure and form of electricity tariffs have an important influence on energy usage. The committee notes the findings from the Queensland Competition Authority's reviews of electricity pricing and tariff structures. The committee recommends that the government ensures that low-income households have access to adequate information and other support so that they may implement energy efficiency improvements should cost reflective electricity tariffs be introduced.

The committee notes the difficulties faced by around 10.6 per cent of the Queensland population who live below the poverty line in low-income households. These households are more susceptible to the impacts of higher energy costs and struggle to afford to purchase new energy efficient appliances. That the government continues to support the NILS program and explores the feasibility of offering targeted rebates of \$100, modelled on the Victorian scheme, to NILS loan clients who purchase energy efficient whitegoods such as refrigerators, freezers and washing machines, and explores the feasibility of establishing a program in the community sector modelled on the Phoenix Project from Victoria to make second-hand appliances more energy efficient.

The committee notes the potential benefits of distributed energy and co-generation to improve energy efficiency. Research by the CSIRO suggests the value of wide-scale deployment of distributed energy solutions to Australia could be as much as \$130 billion by 2050 in present value cost savings, and reduce water use for generating electricity by 75 per cent. The committee recommends that the government examines the potential benefits of distributed energy.

White certificate schemes as established in NSW, Vic and SA provide a market-based mechanism to overcome some of the barriers to investment by the private sector in energy efficiency improvements. The committee notes that the government has agreed to consider options for a market-based scheme during its work on the Queensland Energy Management Plan. The committee welcomes this initiative by the government. The committee recommends that the government consider the feasibility of a Queensland white certificate scheme consistent with schemes in NSW, Vic and SA and which includes energy efficiency improvements that are appropriate to Queensland's tropical climate. The committee further recommends that the government canvases the feasibility of a national white certificate scheme through the Ministerial Council on Energy.





## CHAPTER 5 ~ THE CARBON POLLUTION REDUCTION SCHEME

### Background

In late 2007, the Federal Government committed Australia to cutting greenhouse gas emissions by 60 per cent from 2000 levels by 2050 in line with international moves to mitigate global emissions and climate change risks. The Federal Government's primary policy response to the problems of greenhouse gas emissions has been to seek to establish an emission trading scheme called the Carbon Pollution Reduction Scheme (CPRS).<sup>199</sup> The CPRS would effectively impose a cap and trade mechanism to limit carbon emissions. At the time of writing this report, Federal Parliament had twice considered and rejected the Federal Government's proposed CPRS, and was considering a revised version of the bill after it was introduced a third time.<sup>200</sup>

If the CPRS is adopted nationally, companies that must emit carbon to do business will be required to purchase (or may be issued with) permits that represent the right to emit prescribed amounts of carbon pollution. Businesses will be able to trade permits ensuring that overall emissions reduction occurs at the least economic loss.<sup>201</sup> To oversee the operation of the CPRS, the Federal Government proposes to establish an Australian Climate Change Regulatory Authority. The authority's role will include the calculation and allocation of permits to eligible businesses.<sup>202</sup> The total number of permits issued will not be permitted to exceed the government-set carbon emissions cap. The Federal Government will set an annual limit on the total amount of carbon pollution that can be emitted under the scheme, which will be gradually lowered, reducing the level of carbon pollution Australians produce each year.

The CPRS will cover around 75 per cent of Australia's total emissions and will directly affect around 1 000 businesses and organisations, mainly large industrial facilities such as power stations that are the originators of carbon emissions. This means that a large portion of Australia's 7.6 million registered businesses will not face new regulatory obligations as a result of the CPRS. Given that the CPRS is expected to impact on prices, the Federal Government has indicated that it will provide assistance to help households and businesses adjust.<sup>203</sup>

According to the Federal Government, the CPRS will ensure that Australia can achieve its unconditional target of five per cent reduction in carbon emissions, the conditional target of up to 15 per cent and top-end target of 25 per cent off 2000 carbon levels by 2020. Australia's carbon emissions levels under the CPRS are conditional on world agreement on greenhouse gas emissions targets. World governments met in Copenhagen in December 2009 to negotiate these targets. At the summit, international parties to the United Nations Framework Convention on Climate Change negotiated new targets of atmospheric CO<sub>2</sub>-e at 450 ppm or lower for developed countries. These new targets were to supersede the Kyoto Protocol targets, which will conclude in

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<sup>199</sup> Federal Department of Climate Change, *Carbon Pollution Reduction Scheme*, DCC, Canberra, viewed 28 October 2009 <http://www.climatechange.gov.au/government/initiatives/cprs.aspx>.

<sup>200</sup> Details of the key changes to the design of the CPRS, as negotiated by the government and Opposition are set out in the Minister for Climate Change's media release 24 November 2009, *A Carbon Pollution Reduction Scheme in the national interest*, viewed 24 November 2009 <http://www.climatechange.gov.au/en/minister/wong/2009/media-releases/November/mr20091124.aspx>.

<sup>201</sup> Federal Department of Climate Change, *Carbon Pollution Reduction Scheme*, DCC, Canberra, viewed 28 October 2009 <http://www.climatechange.gov.au/government/initiatives/cprs.aspx>.

<sup>202</sup> Federal Department of Climate Change, *Carbon Pollution Reduction Scheme*, DCC, Canberra, viewed 28 October 2009 <http://www.climatechange.gov.au/government/initiatives/cprs.aspx>.

<sup>203</sup> Federal Department of Climate Change, *Carbon Pollution Reduction Scheme*, DCC, Canberra, viewed 28 October 2009 <http://www.climatechange.gov.au/government/initiatives/cprs.aspx>.

2012. Unfortunately, governments failed to reach agreement on post-2012 CO<sub>2</sub> emissions targets, leaving Australia's commitment to conditional targets in limbo.<sup>204</sup>

## Impacts of a CPRS on Energy Efficiency

There are important linkages between energy efficiency and carbon abatement. As noted, the CPRS is the centerpiece of the Federal Government's response to climate change, and energy efficiency will form the second plank policy response. This section discusses the implications of the CPRS for energy efficiency in Queensland.

It is firstly important to note the energy impacts of the CPRS. Queensland is expected to experience the greatest impacts from the CPRS by 2030 due to its heavy reliance on coal fired electricity, aluminum smelting and strong concentration of exported coal mining production.<sup>205</sup>

Spending on domestic fuel and power is expected to experience the largest price increase due to the introduction of the CPRS. For Queensland, the price increase is expected to be around 24 per cent by 2025. Low-income households that spend proportionally more of their income on energy and fuel are expected to experience a larger proportional rise in their household expenditure under current expenditure patterns.<sup>206</sup>

There is likely to be a shift of employment away from emissions-intensive sectors (such as energy), which will experience slowing growth. Ultimately, Australia could benefit greatly from promotion of green jobs and green businesses and the potential growth this can spur.<sup>207</sup> Energy efficiency is one of these potential green skill areas.

A joint report between Australian Conservation Foundation (ACF) and the Australian Council of Trade Unions (ACTU) found that within the six key business areas of renewable energy, energy efficiency, sustainable water systems, biomaterials, green buildings, and waste and recycling, an additional 500 000 jobs could be created by 2030 compared to the reference scenario (ACF and ACTU 2008).<sup>208</sup> The ACTU and ACF report estimates that if Australia achieved five per cent of the world market in energy efficiency by 2030, this would create an additional 75 000 jobs.<sup>209</sup> Practices such as differentiation of green buildings in the planning and approvals process can help in creating a green building sector in 2030 valued at over \$US80 billion with over 230 000 jobs in Australia (ACF & ACTU, 2008).<sup>210</sup>

Modeling suggests that an emissions trading scheme such as the CPRS may present considerable opportunities. Potential growth areas include the development of energy efficient technologies, bio-fuels and energy efficient vehicles.

The opportunities themselves arise because pricing carbon stimulates the market to, amongst other things:

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<sup>204</sup> Accessed 19 October 2009 from: <http://www.climatechange.gov.au/en/government/national-targets.aspx> and <http://www.climatechange.gov.au/government/international/international-climate-change-negotiations.aspx>.

<sup>205</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.ii.

<sup>206</sup> Access Economics, 2009, *Report 2: Impact on disadvantaged regions*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.1.

<sup>207</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.iii.

<sup>208</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.62.

<sup>209</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.64.

<sup>210</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.64.

- reduce emissions to save paying the cost of carbon (having to purchase permits);
- alter future investment decisions in favour of lower emission technologies;
- restructure production away from high emission/energy intensive production toward lower emission/energy intensive activities; and.
- research and develop new, lower emission intensive technologies.<sup>211</sup>

The imposition of an emissions price should provide incentives towards lowering emissions via changes in transport modes, fuel mix and types of vehicles. Since transport is a non-trade exposed, emissions intensive sector, the passing of increased costs to consumers via higher prices is likely to occur and encourage the shift toward a less emissions-intensive and more energy efficient transport sector.<sup>212</sup>

Emissions pricing is likely to affect transport modes differently. The Commonwealth Treasury modelling indicates that road transport will respond most strongly to emissions pricing while water transport will be least affected.<sup>213</sup> Under the Commonwealth Treasury modelling, road fuel consumption is projected to fall by 20 per cent in the CPRS-5 scenario, as compared to the reference (business as usual) scenario. Petrol use is projected to fall the most, while electric and hybrid-electric cars will increase electricity's share in the road transport sector by 10 per cent in 2050.<sup>214</sup> Garnaut estimated that by 2050, hybrid petrol-electric vehicles and plug-in hybrids will account for 50 per cent and 13 per cent respectively, of the road transport undertaken in Australia. The CSIRO assumes petrol engine vehicles to be 25 per cent more efficient and diesel engines to be 14 per cent more efficient from 2006 to 2050, independent of changes related to fuel type and hybrid drivetrain (Garnaut 2008, CSIRO 2008c).

Rail is predicted to become a preferable alternative due to its high energy efficiency - up to five times that of private road transport.<sup>215</sup> Being connected to the electricity grid opens up opportunities for the energy to be sourced from renewables.<sup>216</sup>

The imposition of the scheme, by providing incentives for lower emissions and energy efficiency, highlights the prospective importance of the areas of bio-fuels and low-emission vehicles. The CSIRO notes the potential for second generation bio-fuels made out of 'woody waste' or non-food waste such as garden or plantation waste as a future fuel (2008a).<sup>217</sup>

There is a large potential for increases in the market for energy efficient goods, especially in electrical equipment (white appliances), and design (building materials and design such as hot water systems and insulation improvements).<sup>218</sup>

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<sup>211</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.48.

<sup>212</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.54.

<sup>213</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.55.

<sup>214</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.55.

<sup>215</sup> Electric passenger trains emit 19 grams of CO<sup>2</sup>-e per seat kilometre and diesel trains emit approximately 36 grams of CO<sup>2</sup>-e per seat kilometre.

<sup>216</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.55.

<sup>217</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.57.

<sup>218</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.58.

Over time, firms will be under competitive pressure to switch towards low-emission and energy efficient technologies. The Commonwealth Treasury assumes that autonomous energy efficiency improvement occurs at a rate of 0.5 per cent per year.<sup>219</sup>

However, as outlined in the Garnaut Review, the take-up of energy efficiencies is slowed for two main reasons. Low-income households will be less able to fund the purchase of these goods, and though they may be cost-effective over the long term, they may have a high and unaffordable capital cost. Secondly, landlords will be unwilling to pay for the capital costs of efficient technologies such as insulation or hot watering systems when the tenants benefit through lower electricity bills. Around 29 per cent of Australian households rent their homes. Garnaut also recommends that additional direct financial support be given to assist low-income households to switch to energy-efficient technologies.<sup>220</sup>

## Conclusions

The Federal Government's proposed Carbon Pollution Reduction Scheme (CPRS) is the centerpiece of the Federal Government's policy response to climate change. Energy efficiency will form the second plank of the government's policy response.

The CPRS, if passed by the Federal Parliament and implemented, would have a significant effect on the Queensland economy. Queensland is expected to experience the greatest impacts from the CPRS by 2030 due to its heavy reliance on coal-fired electricity, aluminium smelting and strong concentration of coal mining.

Prices are expected to rise across the board for a wide range of goods and services. Prices for domestic fuel and electricity in Queensland are expected to be around 24 per cent higher by 2025. The Federal Government proposal includes compensation for households and businesses, electricity generators and key industries to assist their transition to a low-carbon economy.

The effects of rising fuel prices are expected to result in: a 20 per cent fall in fuel use by a more fuel-efficient vehicle fleet; a shift to hybrid and electric cars projected to account for 10 per cent of the road transport sector by 2050; a modal shift to public transport and rail freight; expansion of the bio-fuels industry. Overall, the proposed CPRS would serve to tax energy end users for the environmental costs of the carbon pollution associated with the energy used. This would in turn stimulate interest in reducing energy costs in part through energy efficiency improvements.

If implemented, the CPRS is expected to create business and employment opportunities in renewable energy, energy efficiency, sustainable water systems, biomaterials, green buildings; waste and recycling.

The scope and extent of impacts would depend on the passage of the bill through the Federal Parliament and, if passed, the final form of the CPRS that is implemented.

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<sup>219</sup> Access Economics, 2009, *Report 3: State and regional economic futures report*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.58.

<sup>220</sup> Access Economics, 2009, *Report 2: Impact on disadvantaged regions*, Report by Access Economics Pty Limited for the Council for the Australian Federation Secretariat, p.59.

## APPENDIX A ~ S 107 OF THE *PARLIAMENT OF QUEENSLAND ACT 2001*

### **107 Ministerial response to committee report**

- (1) This section applies if—
  - (a) a report of a committee, other than the Scrutiny of Legislation Committee, recommends the Government or a Minister should take particular action, or not take particular action, about an issue; or
  - (b) a report of the Members' Ethics and Parliamentary Privileges Committee recommends a motion be moved in the Assembly to implement a recommendation of the committee.
- (2) The following Minister must provide the Assembly with a response—
  - (a) for a report mentioned in subsection (1)(a)—the Minister who is responsible for the issue that is the subject of the report;
  - (b) for a report mentioned in subsection (1)(b)—the Premier or a Minister nominated by the Premier.
- (3) The response must set out—
  - (a) any recommendations to be adopted, and the way and time within which they will be carried out; and
  - (b) any recommendations not to be adopted and the reasons for not adopting them.
- (4) The Minister must table the response within 3 months after the report is tabled.
- (5) If a Minister can not comply with subsection (4), the Minister must—
  - (a) within 3 months after the report is tabled, table an interim response and the Minister's reasons for not complying within 3 months; and
  - (b) within 6 months after the report is tabled, table the response.
- (6) If the Assembly is not sitting, the Minister must give the response, or interim response and reasons, to the Clerk.
- (7) The response, or interim response and reasons, is taken to have been tabled on the day they are received by the Clerk.
- (8) The receipt of the response, or interim response and reasons, by the Clerk, and the day of the receipt, must be recorded in the Assembly's Votes and Proceedings for the next sitting day after the day of receipt.
- (9) The response, or interim response and reasons, is a response, or interim response and reasons, tabled in the Assembly.
- (10) Subsection (1) does not prevent a Minister providing a response to a recommendation in a report of the Scrutiny of Legislation Committee if it is practicable for the Minister to provide the response having regard to the nature of the recommendation and the time when the report is made.

#### *Example—*

If the committee recommends that a Bill be amended because, in the committee's opinion, it does not have sufficient regard to fundamental legislative principles and the Bill has not been passed by the Assembly, it may be practicable for the Minister to provide a response.

- (11) Subsection (6) does not limit the Assembly's power by resolution or order to provide for the tabling of a response, or interim response and reasons, when the Assembly is not sitting.
- (12) This section does not apply to an annual report of a committee.



## APPENDIX B ~ SUBMISSIONS RECEIVED

Submission number	Received from
1.	Timber Queensland Ltd
2.	Moreton Bay Regional Council
3.	James Cook University
4.	QR Limited
5.	Gold Coast City Council
6.	John Mabb
7.	Ipswich Regional Tenants Group Inc
8.	Australian Building Codes Board
9.	Sunshine Coast Regional Council
10.	Ceramic Fuel Cells Limited
11.	AGL Energy Limited
12.	Council of Mayors (SEQ)
13.	Airconditioning and Refrigeration Equipment Manufacturers Association (AREMA)
14.	Energex Limited and Ergon Energy Corporation Limited
15.	Microsoft Pty Limited
16.	CSR Limited
17.	Housing Industry Association Limited
18.	Ron Limpinkas
19.	Dell Australia Pty Limited
20.	Insulation Council of Australian and New Zealand (ICANZ)
21.	Chamber of Commerce & Industry Queensland (CCIQ)
22.	Queensland Youth Environment Council
23.	Jocelyn Clarkson
24.	Ngaire McGaw
25.	Energy Answers Pty Ltd
26.	Banana Shire Council
27.	Origin Energy Limited
28.	Redland City Council
29.	Green Building Council Australia
30.	Stanwell Corporation Limited
31.	Australian Petroleum Production and Exploration Association Limited
32.	Queensland Farmers' Federation Ltd
33.	Richard Aynsley
34.	Biolytix Water Pty Ltd
35.	TransLink Transit Authority
36.	Eco Investor Media
37.	Tropical Green Building Network
38.	ABC Carbon
39.	Queensland Council of Social Service Inc
40.	Think Brick Australia
41.	Clean Energy Council
42.	Queensland Government
43.	A Centre of Excellence in Tropical Design
44.	Energy Working Group, Environmental Industries Sunshine Coast Group
45.	Householder's Options to Protect the Environment Inc.
46.	Electricity Markets Research Institute
47.	Property Council of Australia
48.	Confidential
49.	Cement Australia Pty Ltd
50.	Hon Peter Batchelor MP, Minister for Energy and Resources





## **APPENDIX C ~ PUBLIC HEARINGS – LIST OF WITNESSES**

### **11 September 2009, Brisbane**

Ms Fiona Hawthorne, Energy Audit Worker, Lifeline Community Care Queensland  
Miss Nadja Kunz, CoChair, Research and Policy Group, Queensland Youth Environment Council  
Ms Linda Parmenter, Manager, Policy and Communication, Queensland Council of Social Service  
Mrs Bernice Ralph, President, Ipswich Regional Tenants Group Inc  
Mr Ken Hickson, Director, ABC Carbon  
Mr Robert Hudson, Managing Director, Energy Resources Corporation  
Mr Michael Roberts, Assistant Director, Environment and Planning, Housing Industry Association  
Mr Peter Casey, Assisting Council of Mayors, Principal Engineer, Brisbane City Council  
Ms Sarah Gardner, Acting Manager, Strategic and Environment Planning and Policy, Gold Coast City Council  
Mr Daniel McCoy, Energy Efficiency Officer, Moreton Bay Regional Council  
Ms Ngaire McGaw, Sustainable Jamboree  
Ms Erica Metcalfe, Senior Project Officer (Environment and Sustainability), Council of Mayors (SEQ)  
Mr Evan Raymond, Coordinator – Sustainable Services, Moreton Bay Regional Council  
Mr Dean Comber, Acting Group Manager Climate Change, Ergon Energy Corporation Ltd  
Mr Matthew Dodson, Network Command Manager, Energex Ltd  
Mr Mark Easton, Group Manager CSO & Strategic Projects, Ergon Energy Corporation Ltd  
Mr Gavin Lee, General Manager Demand Management, Ergon Energy Corporation Ltd

### **8 October 2009, Brisbane**

Mr Michael Ball, Acting Director, Technical Services Group, Department of Public Works  
Mr Glen Brumby, Executive Director, Building Codes Queensland, Department of Infrastructure and Planning  
Mr Richard Hawkes, Executive Director, Technical Services Group, Department of Public Works  
Mr Gregory Nielsen, Assistant Director-General, Office of Clean Energy  
Mr John Quinn, Director, Sustainable Industry Programs, Department of Environment and Resource Management



## APPENDIX D ~ QUEENSLAND GOVERNMENT POLICIES AND INITIATIVES TO PROMOTE ENERGY EFFICIENCY

### **Queensland energy efficiency and demand management strategy**

The Queensland Government is developing a state-wide energy efficiency and demand management strategy called the Queensland Energy Management Plan in the second half of 2009. This will set out the Government's strategic direction and priorities, will draw from the learnings from this Inquiry, and will complement the recently released Queensland Renewable Energy Plan.

### **Whole of Government Energy Efficiency Initiatives**

The Queensland Government has instituted a range of actions within government in order to reduce energy consumption and increase energy efficiency. Initiatives that have considerable impacts for all Queensland Government departments include:

- the *Strategic Energy Efficiency Policy for Government Buildings* (SEEP), which requires departments to develop Energy Management Plans to reduce energy consumption in their buildings, in line with mandated reduction targets and associated timeframes;
- the annual reporting of sustainable procurement targets and initiatives in each agency's Corporate Procurement Plan;
- *QFleet ClimateSmart Action Plan 2007-2010*, in which annual emissions from the QFleet fleet will be reduced by 15 per cent by 31 December 2010, 25 per cent by 2012 and 50 per cent by 2017 compared with the 30 June 2007 baseline;
- each agency is required to develop a waste management strategic plan to provide the framework and direction that the agency has chosen to adopt as its commitment to resource management, which may include energy efficiency measures. This Plan is reported against in the Agencies' Annual Report; and
- all Cabinet and Cabinet Budget Review Committee Submissions are required to include a Climate Change Impact Statement regarding proposed actions.

The *Strategic Energy Efficiency Policy for Queensland Government Buildings* is a whole of Government policy which, in part, requires each agency to:

- meet minimum energy consumption reduction targets of 5 per cent by 2010 and 20 per cent by 2015;
- develop and implement a Strategic Energy Management Plan for its building portfolio;
- report building-related energy consumption in a central register;
- incorporate energy conservation principles into new and refurbished buildings; and
- implement educational and training programs for staff to promote energy conservation.

The *Carbon Reduction Strategy for Government Office Buildings* is a whole of Government strategy to meet a commitment to achieve 'carbon-neutral' government-owned office buildings by 2020. This involves:

- minimising energy usage in these buildings;
- making these buildings more energy-efficient

- optimising the use of renewable energy for the buildings; and
- offsetting unavoidable linked emissions using accredited carbon-offsets.

Each year the Department of Public Works undertakes a whole of Government centralised or 'bulk' purchase of renewable energy to support the Government's commitment to using at least five per cent renewable energy in government buildings. The majority of the renewable energy is sourced from Queensland-based renewable energy sites. The continuing need for this type of purchase will be reviewed after 2009-10, once the national expanded National Renewable Energy Target and the CPRS are introduced.

The *Energy Smart Buildings Program* is a multi-faceted program managed by the Department of Public Works that promotes higher energy-efficiency and lower energy usage in government buildings, thus reducing the resultant greenhouse gas emissions linked to this energy use. The program supports agencies in achieving their energy management efficiency responsibilities under the Government's Strategic Energy Efficiency Policy for Government Buildings. Activities carried out include: lighting retrofit projects, trials of new technology, undertaking applied research (including a solar photovoltaic trial on a CBD building) and developing a central register for electricity consumption.

The *State Procurement Policy* requires agencies to integrate the practice of sustainability into the procurement of goods, services and construction and progressively increase the proportion of their procurement expended on sustainable goods and services from year to year. In order to achieve this, budget sector agencies must set sustainable procurement targets and measure and report annually to the Queensland Government Chief Procurement Office (QGCPO) on their sustainable procurement targets. Some areas of sustainable procurement relate to energy efficiency.

QGCPO supports agencies by providing information, training and advice to assist in the integration of sustainability into procurement processes; the development of sustainability criteria and minimum specifications; provision of training and other forums on sustainable procurement, and the provision of advice and guidance to agencies on sustainable procurement.

The *Green ICT Strategy* is a whole of government strategy being jointly developed by the Queensland Government Chief Information Office and the Queensland Government Chief Technology Office. Among other things, it aims to:

- reduce the environmental footprint of the government's personal computer and laptop fleet;
- utilise information and communication technologies to help 'green' government business unit services and processes through promoting telecommuting;
- enhance online service delivery;
- promote best practices relating to printers and printing; and
- implement a "smart-metering" pilot to explore web-based energy and environmental dashboards to actively engage government employees in reducing environmental impacts.

In regard to smart metering, a pilot program investigating web-based environmental dashboards will explore how to encourage government staff to engage in positive behaviour changes in energy-usage. For example, the dashboards could provide high level information on energy usage per floor. This presents an opportunity for Government to collaborate with industry to help solve a contemporary challenge. The concept is similar to the water shortage newspaper advertisements which displayed dam levels and encouraged water efficiency.

## Agency Specific Initiatives

Many Queensland Government Departments undertake energy efficiency actions above legislative or policy requirements; or, additional initiatives and projects that provide energy efficiency benefits to their business.

There are several areas where Departments have focussed their initiatives: Building design and retrofitting; incorporating energy efficiency requirements in business cases that seek government funding and education.

Many departments are looking to improve the energy efficiency of their work environments through best-practice design, as evidenced in the new Queensland Emergency Operations Centre, under construction at Kedron and the leasing of the newly refurbished building 63 George Street, Brisbane, which incorporates numerous sustainable design elements, such as rainwater harvesting, water and energy efficient air conditioning and smart lighting.

Additionally, some Departments require specific consideration of environmental and energy efficiency benefits for proposals that seek Government funding. For example, business cases for all of Department of Infrastructure and Planning's proposed infrastructure require specific consideration of greenhouse gas emissions for the proposed project. The program guidelines for Department of Communities' *Major Facilities Program* require that proposals incorporate energy efficient measures.

The Department of Education and Training (DET) are investing significantly in a range of energy efficiency and conservation measures across the areas of energy efficient design, use, and education. These measures include:

- the DET *Ecologically Sustainable Development (ESD) Design Requirements for State Schools* includes several aspects of energy efficiency in the design and construction of schools;
- the construction of seven new schools through a Public Private Partnership will meet the DET ecologically sustainable development guidelines and will meet a 4-star green-star Green Building Council of Australia rating which establishes these schools as best practice education facilities for all elements of ecologically sustainable development including energy management;
- the upgrading of lighting at TAFE Queensland campuses;
- the \$60m Solar and Energy Efficiency in State Schools Program, which includes the installation of a two kilowatt solar system in all eligible schools, IT energy monitoring package and energy efficient lighting upgrades to general classrooms and high use areas;
- working with the Department of Public Works in studies of new technologies in energy management including air-conditioning and lighting; and
- adopting the policy to install solar hot water in all new constructions to reduce the energy used in water heating.

DET is also developing environmental sustainable goals and targets for improved energy management practice through the establishment of school environmental management plans. By 2010, 315 schools will have participated in the *Earth Smart Schools Program*, awareness of the DET Statement on Sustainability - "Enough for all forever" will be increased, leading to increased capability of teachers and principles to implement environmental education and management initiatives with flow on benefits to students and communities.

Queensland Health implemented an *Eco Efficiency Program* in 2004 which has demonstrated significant energy savings by retrofitting facilities with lighting and controls, heating and air conditioning (HVAC), building management systems and renewable energy sources but not limited to these energy conservation measures.

The preferred methodology to manage these projects has been a Performance Contract which eliminated the technical and financial risk to Queensland Health

Queensland Health was the recipient of the Premiers Awards for excellence in Public Sector Management in the category of Sustainable Environment in 2006.

Queensland Primary Industries and Fisheries (QPI&F) provides \$80,000 funding to energy efficiency projects in primary production. These are mainly embedded in projects looking at broader issues and include: efficiencies in irrigation systems for horticultural industries and cotton, testing a more efficient drying system in hardwood timber processing and improving efficiency of cropping systems.

Many existing QPI&F projects and initiatives that do not directly targeting energy efficiency have outcomes that lead to increases in energy efficiency. An example may be a project that encourages more efficient or sustainable production systems, such as reduced tillage or no tillage crop ploughing systems, to protect soil from erosion, and lead to reduced fuel use. More efficient use of fertiliser also reduces fossil fuel use.

### **Government Initiatives to support household and community energy efficiency**

The Queensland Government is taking meaningful action to reduce the state's greenhouse gas emissions on a range of fronts and has set a target of reducing Queenslanders' carbon footprint by one-third by 2020. Energy efficiency will play a significant role in achieving this target.

Significant energy savings will be made through the DEEDI's *Queensland Solar Hot Water Program* (QSHWP). The QSHWP commenced on 1 July 2009 and will deliver up to 200,000 solar and heat pump hot water systems over three years. Under the QSHWP, eligible participants will have access to a standard installed and warranted, solar or heat pump hot water system for a payment of \$100 for eligible pensioners and low-income earners, and \$500 for other eligible participants. It is estimated that the impact of 200,000 households switching over to SHW will reduce greenhouse gas emissions by 630,000 tonnes over the three year life of the QSHWP and more than 4.9 million tonnes over the life of the 200,000 greenhouse efficient systems.

The *ClimateSmart Home Service* aims to reduce Queensland households' greenhouse gas emissions and improve energy efficiency. About 260,000 homes state wide will receive the Service and contribute to achieving the Q2 carbon footprint target. The Service only costs \$50 and provides the householder with:

- an energy audit from a licensed electrician;
- installation of a wireless energy monitor;
- up to 15 free energy efficient light globes supplied and installed;
- a free water and energy efficient shower head supplied and installed;
- a customised energy and water efficiency plan; and
- *My ClimateSmart Home*, a customised on line resource package.

The program will run from 1 January 2009 to December 2010.

The DEEDI's *Home EnergyWise kit* contains energy efficiency information and do-it-yourself auditing tools to help households identify energy use patterns and take positive steps to reduce energy consumption and lower energy bills. The kit contains no-cost, low-cost and added-cost energy saving ideas grouped according to how and where energy is used in the home keeping cool and keeping warm, lighting, kitchen, bathroom and laundry, outdoors and standby power.

The DEEDI's *Clean Energy Strategy for Queensland's Isolated Communities* will change the way electricity is supplied and used within 33 isolated electricity networks across Western Queensland, Cape York and Torres Strait Islands for the next five years and beyond. Initial funding of \$5M will be provided to Ergon Energy to undertake a one year trial of energy efficiency and conservation initiatives at select locations. The trial aims to reduce household electricity consumption by 20 per cent at each of the trial centres, translating into customer savings of up to \$200 annually.

A key purpose for undertaking the trial is to determine cost-effectiveness of the investment in energy conservation measures in isolated communities, as the cost of supplying electricity to these customers is considerably greater than for other parts of the State. Based on outcomes from the trial, a submission will be developed to recommend whether energy conservation measures should be provided to the remaining isolated communities.

The Queensland Government has also allocated \$5M to support the delivery of the *Townsville Solar City initiative* under the Commonwealth Government's *Solar Cities Program*. The main focus of the Townsville Solar City project is the transformation of Magnetic Island into a solar suburb through proactive energy conservation programs and the installation of solar photovoltaic panels in a concentrated regional area. During the seven year life of the project, Ergon Energy will conduct around 1,700 free energy assessments and install around 500 solar photovoltaic systems and 2,500 smart electricity meters.

Department of Infrastructure and Planning has a range of policies which will contribute to improving household and community energy efficiency through land-use and infrastructure planning. These include:

- *South East Queensland Regional Plan (SEQRP) 2009-2010*: Various strategies addressing energy efficiency and climate change are contained within the *South East Queensland Regional Plan 2009-2031*. The strategies include:
  - greenhouse gas monitoring and mitigation;
  - establishment of the *SEQ Climate Change Management Plan* (see below);
  - planning consolidated and integrated urban development;
  - protect the region's highly valued green space;
  - reducing car dependence; and
  - improving development in SEQ to respond to climate change risks.
- *SEQ Climate Change Management Plan*: As part of the *SEQRP 2009-2031* DIP is developing a *SEQ Climate Change Management Plan* to align actions to reduce greenhouse gas emissions (including energy efficiency measures) and build resilience to the impacts of climate change. It will establish the greenhouse gas emissions trend and emission reduction goals for land use and urban development in the region, and establish climate change adaptation priorities that can be influenced through land use planning and infrastructure decisions.
- *Far North Queensland Regional Plan 2025*: This plan addresses climate change issues (including energy efficiency) by:



- establishing a preferred settlement pattern that avoids new urban development in areas at risk from sea level rise and storm tide inundation;
  - maintaining 99 per cent of the region as 'green space';
  - promoting urban consolidation and self-sustaining communities;
  - encouraging alternative forms of transport, such as walking, cycling and public transport;
  - promoting good urban design that results in energy efficiencies and reduction in greenhouse gas emissions.
- Land-use planning including *Transit Oriented Developments (TODs)*: Land-use planning can offer dividends to energy conservation as well as energy efficiency gains. For example initiatives such as TODs create an urban form that requires fewer car trips or shorter trips.
  - *State Planning Policy on Climate Change*: The Queensland Government is continuing to work in the context of the release of the SEQRP on reviewing a number of options for a climate change planning instrument with the view to drafting early in 2010. The climate change planning instrument will ensure climate change risks and issues (including energy efficiency measures) are incorporated into Queensland's planning and development system.
  - *Local Government Grants for Greenhouse Gas Reduction and Climate Change Adaptation*: Local Government and Service Delivery Group are already working with the Office of Climate Change to ensure that by mid-2011, when the new *Local Government Grants & Subsidies program* commences, greenhouse gas emission reduction and climate change adaptation considerations are a key factor in the criteria used to assess which Councils are successful in receiving funding.
  - *Department of Environment and Resources Management's ClimateSmart Home Service* – a two year program focussed on installation of energy saving devices, providing customers with behaviour change tools and offering detailed advice on ways to reduce energy and water use. Local Government Infrastructure Services has been contracted to implement the program.

*DERM ClimateSmart Living (phase 2)* – focuses on large scale behavioural change. It includes the Low carbon Diet, Low carbon Diet Community Funding Program, the Premier's Awards for Climate Change and the ClimateSmart Living website. The ClimateSmart Living (phase 2) began in June 2008 as an outcome of the Premier's Council on Climate Change. It is a \$3M dollar program over two years focused on a range of communication and program elements to engage individuals, households, and communities to effect behavioural change to reduce greenhouse gas emissions. Some of the key community based activities include:

- '*1 Million Women*' campaign *Queensland target* has been set to account for one quarter of the national target, that is 250,000 women, equalling a potential saving of 250,000 tonnes of greenhouse gas. The Queensland Government has contributed \$44,000 cash sponsorship as well as in-kind support to the value of \$50,000.
- *Keep Australia Beautiful* is a key partner and their expertise and networks within the school community will greatly assist the ClimateSmart Living to connect within school communities.
- *Low carbon Diet and Low carbon Diet Community Funding Program* will be implemented over two years with a goal to have 500,000 Queenslanders take the Low carbon Diet by June 2010. As at 25 June 2009 120,000 proposed Queenslanders are engaged in the Low carbon Diet equalling a total saving of approximately 85,810 tonnes of Greenhouse

gas. On 1 July 2009, the second round funding of more than \$153,000 was allocated to 18 organisations. This round alone aims to involve 61,065 Queenslanders in the program, which is expected to save approximately 43,618 tonnes of greenhouse gas (based on 2.8 people per household) and will have a potential flow-on effect to approximately 142,000 Queenslanders through awareness-building programs undertaken by these organisations.

*DERM Queensland Solar Homes Program* is a Queensland Government initiative to make solar power systems more accessible to Queenslanders by reducing up-front costs. The Department has an agreement with the contractor, eco-Kinetics to secure a "guaranteed bulk purchase" price for up to 1000 one-kilowatt solar power systems. These systems are being installed in up to 1,000 homes in south-east Queensland, Toowoomba, Cairns, Rockhampton and the Fraser Coast.

*The Queensland Solar Bonus Scheme* is a feed-in tariff paid to residential and small business customers. Customers are paid for the surplus electricity generated from roof-top solar photovoltaic systems that is exported into the Queensland grid after the household load is met. The Solar Bonus of 44 cents per kWh is paid for the surplus electricity that is fed into the grid.

The *Cool Change – Energy Smart Suburbs Trial* is being undertaken by ENERGEX to help manage demand for electricity in households operating air conditioners and/or swimming pools. ENERGEX seeks to fit energy-saving devices on certain household appliances in eligible participating homes, enabling the appliances to be remotely cycled by ENERGEX over the few hours of peak demand. The aim is to reduce energy use in peak times without impacting on customer convenience. The trial is limited to approximately 1,800 homes in the trial area – Albany Creek, Arana Hills, Bridgeman Downs, Bunya, Everton Hills, Everton Park, Ferny Hills, Ferny Grove and McDowall.

### **Government Initiatives to support commercial and industrial energy efficiency**

Government has also implemented a range of initiatives that support Queensland industry and businesses adopt more energy efficient behaviours.

The Queensland Government's *Smart Energy Savings Program* is a legislative initiative effective from 1 July 2009 introduced through the *Clean Energy Act 2008*. The program aims to drive energy saving improvements in Queensland businesses. The program will require participating businesses to undertake an energy audit, develop an Energy Savings Plan and publish their actions for each relevant site, on a five-yearly cycle.

The Smart Energy Savings Program seeks to:

- increase the adoption of energy efficient technologies and practices by business drive organisational behaviour change towards positive energy management practices;
- improve business competitiveness by reducing energy costs;
- reduce growth in Queensland's electricity demand; and
- reduce greenhouse gas emissions from Queensland's commercial and industrial sectors.

To complete the Smart Energy Savings Program process, businesses will be required to:

- verify their energy use;
- register to participate in the program;
- audit energy use and identify energy savings measures;
- produce an Energy Savings Plan of measures to implement;
- publish a public commitment on the actions to be taken;

- annually update the public commitment;
- in the third year, review progress and report; and
- in the fifth year, collect baseline data for the next cycle.

The recently announced *ClimateSmart Business Service* will assist Queensland's small to medium size enterprises reduce their emissions and prepare for the introduction of carbon costs coming from the *Carbon Pollution Reduction Scheme*. DEEDI will lead and administrate this project and has been allocated \$15M over four years to deliver.

*DERM ecoBiz Program* - a holistic program supporting business to identify efficiencies in energy, water, waste and materials for economic and environmental benefits. Rebates of up to \$150,000 per project are provided for participants in the ecoBiz program to undertake innovative or best practice eco-efficient initiatives.

*DERM Queensland Sustainable Energy Innovation Fund (QSEIF)* - the QSEIF provides financial assistance of up to \$200,000 to businesses to develop innovative technologies that reduce the use of fossil fuels or water.

*DERM ClimateSmart Retail* is expected to benefit both retailers and households with 40 white goods retailers currently in partnership with the DERM program. Through training and educating sales staff of the benefits of energy efficiency, and interpreting energy labelling information, the program is anticipated to bolster sales of energy efficient whitegoods and consequently reduce household greenhouse gas emissions. Consumers will benefit considerably in economic terms through avoided energy costs. Higher up-front costs to consumers for energy efficient products are anticipated to be offset by the resultant avoided energy costs. It is also expected that the program will influence households to undertake other energy efficiency initiatives.

Operating on an annual budget of \$0.632M, the four year program is anticipated to deliver greenhouse gas savings of 172,713 tonnes over the life of the products, based on retailer uptake of 10 per cent across Queensland and a 10 per cent increase in sales of energy efficient whitegoods, ClimateSmart Retail is anticipated to deliver greenhouse gas savings of 172,713 tonnes over the life spans of the products.

*ClimateSmart Business Clusters* - It is anticipated that implementing eco-efficiency improvements among business clusters will reap considerable economic and environmental benefits. Under this initiative, businesses can organise themselves to form a 'cluster', with a 'cluster leader' who receives resource efficiency training from the Queensland Government. The cluster group is then eligible for grants of up to \$10,000 to implement a specific resource efficiency initiative; and the cluster leader shares the training and information received from the Government to all participating businesses. The Queensland Government expects that more than 400 companies will take part in the program and as a result it is expected that the resultant benefits are likely to be significant.

*Queensland Water and Energy Sustainable Technology Network (QWESTNet)* - by providing a platform to showcase and broker energy efficiency technologies, QWESTNet forums have contributed to enhancing business profitability and a reduction in energy usage costs. QWESTNet has also bolstered uptake of other government initiatives such as ecoBiz and QSEIF. As indicated in the November 2008 QWESTNet Survey, the forums have been successful in brokering energy efficient technology, encouraging partnerships, increasing sales growth and encouraging change in resource efficiency practices.

*ClimateSmart Business – Associations* - By targeting industry associations and driving the diffusion and implementation of resource efficiency best practice from the top down it is expected that energy efficiency improvements will be achieved across entire industry sectors. Furthermore, it is envisaged that the program will provide opportunities to capitalise on other DERM programs, for example, by brokering the uptake of technologies supported through QSEIF funding and diffusing best practice case studies developed through the ecoBiz program.

*DERM Business Carbon Guide* – provides the basic information required by small and medium enterprises on how to manage greenhouse gas emissions and reduce their costs.

*DERM Sustainable Industry Awards* – an annual event showcasing the achievements of a range of Queensland industry sectors and champions.

*The Queensland Energy Efficient Street Lighting Trial* - is a multi-stakeholder group including five local councils working in partnership with the Queensland Government and energy distribution businesses, ENERGEX and Ergon Energy. The Trial is testing various lighting products to identify the most efficient and cost effective street lighting options. In 2006, the Queensland Government committed energy distributors Ergon Energy and ENERGEX to test various lamp products to identify the most efficient street lighting options in a range of environment and network conditions in both south east Queensland and regional Queensland.

The three year trial will involve a world-first monitoring device that measures the performance of 400 new types of energy efficient lighting in “real world” climatic and network conditions. To demonstrate its support, the Commonwealth Government has now committed \$240,000 to the trial. In September 2008, full deployment of all lighting technologies was completed in the south east Queensland trial.



## APPENDIX E ~ LOCAL GOVERNMENT INITIATIVES TO IMPROVE ENERGY EFFICIENCY AND/OR SUSTAINABILITY

### Brisbane City Council (BCC)

BCC has a Green Heart CitySmart program to support Council's intention for Brisbane to be carbon neutral by 2026. The CitySmart website offers advice and resources for residents and industry including energy saving ideas, grants and rebates, information on sustainable housing and transport, and a carbon calculator (in development) to help households identify their carbon footprint based on Brisbane data. Specific initiatives relating to energy efficiency include:

- providing a discounted plumbing inspection fee for residents replacing an existing hot water system with a new solar hot water system;
- providing a \$50 rebate to residents who use the Queensland Government ClimateSmart Home Service; and
- capturing waste methane from landfill sites and waste water treatment plants to use as a fuel for electricity generation.

### Gold Coast City Council (GCCC)

In December 2007, GCCC released *Carbon Neutral by 2020: Gold Coast City Council Responding to Climate Change*. This paper outlines actions taken to date including initiatives to reduce greenhouse gas emissions associated with council buildings and services, educational initiatives in SEQ schools; and working with the State and industry on planning and development initiatives. A range of new initiatives focus on avoiding emissions by minimising energy use and using renewable energy, increasing use of energy-efficient products, re-using waste heat or cogeneration; and where emissions cannot be avoided, offsetting emissions by use of carbon sinks or trading.

### Townsville City Council

Townsville City Council maintains an Office of Sustainability with a mission to progress the vision of a Sustainable Townsville by working to facilitate and support the city's response to the challenges and opportunities posed by climate change and ecologically sustainable development through efforts in total water cycle, sustainable transport, waste management, sustainable development, and urban nature. Household rebates and incentives are offered for energy efficiency, water efficiency and the use of renewable energy.

### Other Councils

The following councils have joined the International Council for Local Environmental Initiatives Cities for Climate Change Program:

- BCC, Ipswich, Logan, Redland, GCCC;
- Townsville, Cairns, Cassowary Coast, Fraser Coast, Gladstone, Mackay, Moreton Bay, Rockhampton, Scenic Rim, Sunshine Coast, Tablelands, Toowoomba and Whitsunday Regional Councils; and
- Burdekin, Cook, Hinchinbrook and Murweh Shire Councils.

A number of councils assist the delivery of the Department of Environment and Resource Management's ecoBiz Program as part of a network of allies by providing on-ground support.



**STATEMENT OF RESERVATIONS**



## **STATEMENT OF RESERVATIONS**

### **Environment and Resources Committee**

February 2010

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#### **Terms of Reference:**

**Investigation into the economic and environmental potential provided by energy efficiency improvements for households, communities, industry, and government.**

**In undertaking this inquiry, consideration should be given to:-**

- a. the economic and environmental costs and benefits arising from energy efficiency improvements;**
- b. potential barriers and impediments to improved energy efficiency;**
- c. potential policy options for energy efficiency improvements, with an emphasis on initiatives that are cost effective for individual producers and consumers; and**
- d. the role of the Carbon Pollution Reduction Scheme and other Commonwealth Government initiatives in encouraging energy efficiency.**

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This Statement of Reservations is submitted on behalf of the following members of the Environment and Resources Committee:

**Mr Jeffery Seeney MP** Deputy Chair & Member for Callide

**Mr Peter Dowling MP** Member for Redlands

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We, as the LNP members of the Environment and Resources Committee, have considerable reservations about the Committee's Report and the recommendations within the report.

#### **Terms of Reference**

Before addressing the terms of reference that are the subject of this Committee Report, we would like to record our disappointment in the practical outcome of the recent changes in the Queensland Parliamentary Committee system which has moved the focus of committee deliberation from the scrutiny of government action onto a policy focus. This is particularly disappointing when government dominated committees do not use the opportunity of Parliamentary Committee Reports to independently and comprehensively evaluate the effectiveness of current Government Policy.

We note the Clerk of the Parliament has also reflected this view;

*“The reforms, sponsored by the government, have ensured that parliamentary committees are focussing on policy rather than the scrutiny of government action. Indeed, such committees are effectively hampered in scrutiny activities by their terms of reference.”*

*Submission on integrity and accountability in Queensland*

*The Clerk of the Parliament 16 September p21*

In future we would recommend terms of reference focus on scrutiny of government actions and are set by the Committee.

## **Energy Efficiency**

In a global environment where there are ongoing concerns about the long-term security of traditional energy sources, coupled with international action towards cutting greenhouse gas emissions, achieving greater energy efficiency will be a vital aspect of the response by Government, industry and consumers.

The LNP members of the Environment and Resources Committee have strong reservations that the recommendations made in this report will be effective in achieving this aim.

Unfortunately, it became increasingly clear during the investigation by the Committee that the State Labor Government's approach to the energy efficiency issue is an approach based on using the issue for political gain. The Labor Government announces and promotes a continually growing list of programs and initiatives from a number of Government agencies without any consideration for the real affect or measurable outcomes from any of those programs.

Indeed this plethora of Government agencies in and of itself raises questions about the Governments approach. In particular the roles of the Office of Climate Change, the Office of Clean Energy, and the Premiers Council on Climate Change seemed to be unclear and indistinct and the outcomes for these agencies were impossible to define.

In particular, we hold the following concerns and subsequently propose alternative recommendations:

### **1. INDEPENDENT EVALUATION OF ENERGY EFFICIENCY PROGRAMS**

The Government advised the committee that none of its energy efficiency programs had been independently evaluated due to timing and data constraints and most programs were evaluated using internal monitoring processes.

We have grave reservations about the expenditure of such amounts of public money with no attempt to quantify the outcomes achieved and no discernable

attempts to evaluate or independently verify the effects of any of the programs.

#### **ALTERNATIVE RECOMMENDATION 1**

The Government immediately subject all government energy efficiency programs to independent evaluation to ensure government funding is spent in the most cost-effective manner to gain the maximum outcomes for Queensland.

### **2. GOVERNMENT TO INVEST IN ENERGY INFRASTRUCTURE**

While LNP members of the Committee believe Governments must pursue energy efficiency as a central plank of energy policy, this should not allow Government's to shirk their core responsibilities of investing and delivering the generation and transmission capacity that supports Queensland's economy and way of life.

For too long the current Queensland Government has ignored these fundamental responsibilities, which has most recently resulted in massive increases in the price of electricity in this state.

As can be seen in the following table these cost increases have resulted in Queenslanders facing electricity bills over 50 percent higher than four years ago.

<b>Original Electricity Bill - 30 June 2006 - \$250 Quarterly Bill</b>	<b>% rise</b>	<b>Quarterly \$250</b>	<b>Annual \$1000</b>
1 July 2007 (QCA)	11.37%	\$278.43	\$1113.70
1 July 2008 (applied 5 June 2009) (QCA)	9.06%	\$303.65	\$1214.60
1 July 2009 (QCA)	11.82%	\$339.54	\$1358.17
1 July 2010 (QCA)	13.83%	\$386.50	\$1546.01

#### **ALTERNATIVE RECOMMENDATION 2**

The Government fulfils its responsibility to invest in and deliver the generation and transmission capacity required to meet Queensland's current and future energy needs. Concurrently the Government should invest in programs that will realise real energy efficiency gains.

### **3. IMPLICATIONS OF CPRS AS PROPOSED**

We do not support the commentary regarding the Carbon Pollution Reduction Scheme (CPRS) set out in chapter 5 of the committee's report.

We believe that, if the Federal Labor Government's CPRS is implemented as currently proposed, it will have a devastating affect on the resource based

Queensland economy as well as on the livelihoods and lifestyle of every individual Queenslanders.

The committee heard no evidence that the concept of imposing a new range of taxes via the CPRS will produce any significant energy efficiency gains.

We urge the State Labor Government to do more to ensure the significant impacts of the proposed CPRS on Queensland are more forcefully communicated to their Federal colleagues and that this scheme is opposed by the Government in its present form.

### **ALTERNATIVE RECOMMENDATION 3**

Queensland Government to ensure the Commonwealth Government is fully aware of the negative impact on Queensland's economy, jobs and way of life of the CPRS as currently proposed and on these grounds oppose it in its present form.

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The reservations held by LNP members in relation to specific recommendations contained in the main report are as follows:

#### **Recommendation 1**

The Government advised the Committee that none of its energy efficiency programs had been independently evaluated due to timing and data constraints and most programs were evaluated using internal monitoring processes.

We have grave reservations about the expenditure of such amounts of public money with no attempt to quantify the outcomes achieved and no discernable attempts to evaluate or independently verify the effects of any of the programs.

In light of the lack of an independent evaluation of the Climate Smart Home Service (which is now belatedly to be reviewed) we have strong reservations about the recommendation that the Government provide funding to extend this program prior to its assessment.

The committee was presented with no evidence that the Government's Climate Smart Home Service has brought about any significant improvement in energy efficiency or is producing any real value for money for the Queensland taxpayer.

The Committee's report outlines that the service is valued at \$450 per household with the State Government contributing a \$400 subsidy for each home service. The committee was informed that 115,000 home services were completed up until 30/11/09.

That represents a subsidy expenditure of \$46 million on behalf of the Queensland taxpayer.

No evidence was available to the Committee to provide any guidance as to the effect of the expenditure of that \$46 million and no evidence of any real evaluation of the program was available.

The report canvases the effectiveness of a follow up visit as part of the service to reinforce the supposed behavioural change achieved through the program and the Committee was advised that this would require an additional subsidy of \$400 per household.

Until any positive outcomes from the current program can be quantified we have reservations about any further allocation of funds to its extension.

In addition it should be noted that at the 2009-10 Estimates the Shadow Minister for Climate Change and Sustainability asked a series of questions raising concerns about the quality of training for electricians involved in this course, their lack of ongoing involvement as well as the effectiveness of this program. It is clear from the evidence presented to the committee these issues have not been addressed.

### **Recommendation 2**

As outlined above, we have reservations about the lack of evidence that the current level of subsidy within the Climate Smart Home Service is producing any value for money for Queensland taxpayers. We therefore do not support this recommendation to encourage Local Governments and energy retailers to allocate their own funds to increase the level of subsidy paid, particularly as the Government has not as yet independently evaluated this program.

### **Recommendation 4**

As per Alternative Recommendation 1 the LNP would strongly advocate an independent evaluation be performed on the smart meter program before it is extended further.

We have reservations that an, as yet, un-proven Labor initiative would continue to be rolled out.

Electricity suppliers should take a lead roll to ensure that a fair user pay system is in place and that each tenancy is able to manage their own behaviours and benefit from any gain and likewise be penalised financially for any poor practices.

### **Recommendation 9**

The proposition in this recommendation that energy efficiency should be considered Queensland's "first energy resource" and that the Government consider investing in energy efficiency programs before investing in new generating or transmission capacity is of grave concern.

With no evidence that the Government's current energy efficiency programs have produced any quantifiable outcomes we believe this recommendation

will provide an opportunity for the Government to continue its track record of failing to meet its obligation to ensure investment in the States generating and transmission infrastructure adequately meets the demands of the State's continuing growth.

We do not support this recommendation and urge the State Government to ensure the investment in generating and transmission infrastructure is sufficient to ensure a reliable power supply to all Queensland consumers at all times.

Please see Alternative Recommendation 2.

### **Recommendation 10**

LNP members of the Committee reassert their belief that properly implemented, evaluated and administered energy efficiency policies should be encouraged.

We have reservations that the proposed Queensland Energy Management Plan (QEMP) as outlined in Chapter 4 of the report and referred to in recommendation 10 is anything more than another attempt by the Government to take advantage of the energy efficiency issue for short term political gain.

We have not been reassured that the QEMP will be any more effective or accountable or produce any more quantifiable outcomes than any of the previous programs announced by the Government at various times.

While we support the need for the accountability elements set out in recommendation 10 we have concerns that this level of accountability is not an automatic part of all Government programs.

In particular we have grave reservations about the proposition again repeated in Chapter 4 that energy efficiency is Queensland's "first energy resource" and that the Government consider investing in energy efficiency programs before investing in new generating or transmission infrastructure.

### **Chapter 5**

We do not support the commentary regarding the carbon pollution reduction scheme CPRS set out in Chapter 5 of the committee's report.

We believe that if the Federal Labor Government's CPRS is implemented it will have a devastating affect on the resource based Queensland economy and on the lifestyle of every individual Queenslanders.

The committee heard no evidence that the concept of imposing a new range of taxes via the CPRS will produce any significant energy efficiency gains.

We urge the State Labor Government to do more to ensure the significant impacts of the proposed CPRS on Queensland are more forcefully communicated to their Federal colleagues and that this scheme is opposed by the Government in its present form.

**Appendix D**

We do not support the attachment of Appendix D to the Committee's report.

Appendix D is a purported outline of the Queensland Governments policies and initiatives to promote energy efficiency. It is a list of programs and policies with no evidence that any of them have produced any meaningful outcome.

**Conclusion**

The State Labor Government's approach to the energy efficiency issue has become clear to us during the time the Committee has examined the issue.

It is an approach based on using the issue for political gain by announcing and promoting a continually growing list of programs and initiatives from a number of Government agencies without any consideration for the real affect or measurable outcomes from any of those programs.

Indeed this plethora of Government agencies in itself raises questions about the Governments approach. In particular the roles of the Office of Climate Change, the Office of Clean Energy, and the Premiers Council on Climate Change seemed to be unclear and indistinct and the outcomes for these agencies were impossible to define.

None of the Queensland Governments Energy Efficiency programs have any independently verifiable, measurable outcomes despite being funded with considerable amounts of public money.

It is our conclusion that these energy efficiency schemes and the associated Government agencies have been used as expedient political opportunities rather than any realistic attempt to achieve any meaningful impact on the energy industry.

The continuance of further funding to should first be, in our view, contingent on the establishment of quantifiable meaningful outcomes being established.



Mr Jeff Seeney MP  
Member for Callide



Mr Peter Dowling MP  
Member for Redlands



February 2010