Senator Mathias Cormann
Chair, Senate Select Committee on Fuel and Energy
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9 April 2010

Dear Senator

The Energy Efficiency Council welcomes the opportunity to provide further information to the Senate Select Committee on Fuel and Energy.

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

Representatives from the Energy Efficiency Council presented to the Select Committee on Fuel and Energy on 26 February 2010. The Select Committee requested further information from the Council in a letter dated 17 March 2010. This letter sets out responses to those questions.

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

Yours sincerely

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Chief Executive Officer

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The Energy Efficiency Council

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

In responding to the Senate Committee's questions, the Energy Efficiency Council has focussed on its areas of core expertise. Where the Senate Committee asked questions on topics outside the Energy Efficiency Council's core focus the Council has only provided limited comment.

Overview

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

The drivers for energy efficiency are more substantial in a carbon constrained economy. Energy efficiency is the largest source of emission reduction available to 2020 (see p3) and is widely acknowledged as the most cost-effective form of abatement. The 'McKinsey curve' (below) indicates that the most cost-effective opportunities for cutting greenhouse gasses are in energy efficiency, to the left of the curve. As a result, the economic cost of tackling climate change in Australia will be substantially higher if we fail to mobilise the potential for energy efficiency.

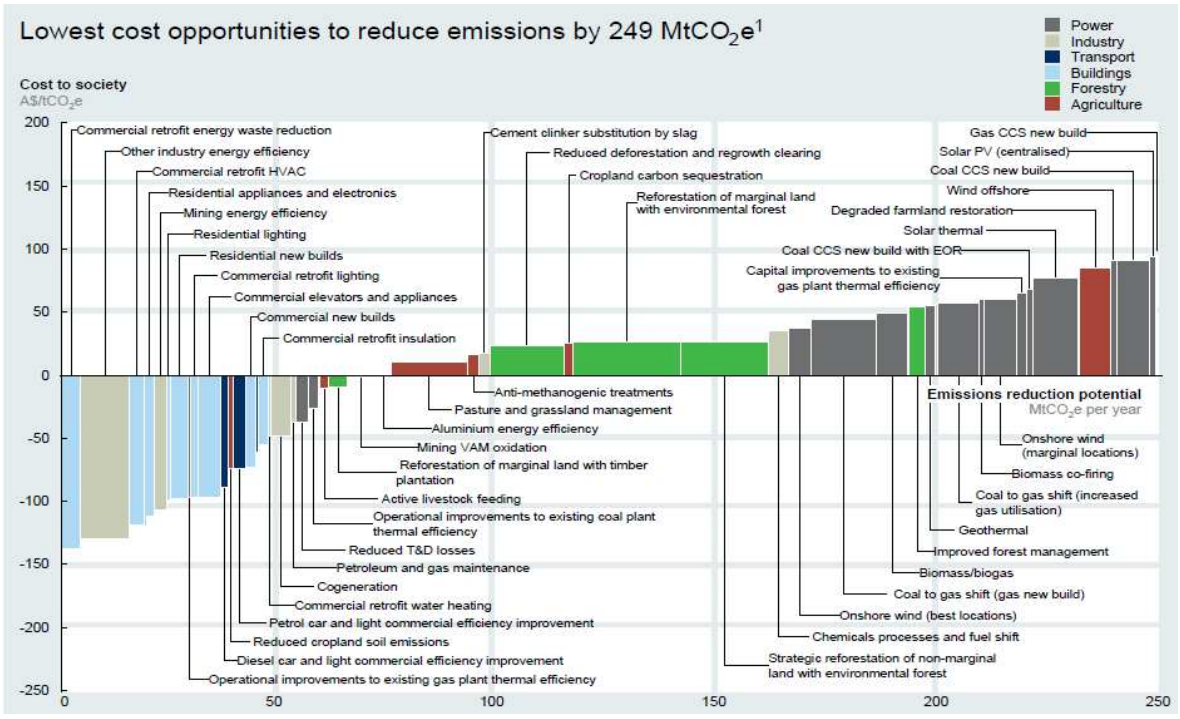

Figure 1: An abatement cost curve for Australia, from ClimateWorks 2010

Energy efficiency is not only critical for protecting the economy, it is also a substantial economic opportunity. One of the world's largest financial institutions, HSBC, estimates that global revenue from energy efficiency reached US$164 billion in 2009. HSBC also state that revenue from energy efficiency more than doubled between 2008 and 2009, increasing by 126 per cent in one year.

If Australia can position itself as a regional hub for exporting energy efficiency technology and services it would significantly benefit the economy. However, to become an export market it will need to have a strong domestic market for energy efficiency.

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Question 1: Is the EEC able to quantify the contribution that energy efficiency measures can make to reducing greenhouse gas emissions in Australia?

Energy efficiency could deliver around half of Australia's emission reductions to 2020. The Australian Bureau of Agricultural and Research Economics estimates that energy efficiency will account for around 55 per cent of Australian emission abatement to 2050 (Gurney et al 2007). Similarly, the International Energy Agency (IEA) estimates that energy efficiency will account for around 54 per cent of global emission abatement to 2030 in a scenario where global carbon dioxide levels stabilise at 450ppm, and 65 per cent of the abatement to 2020.

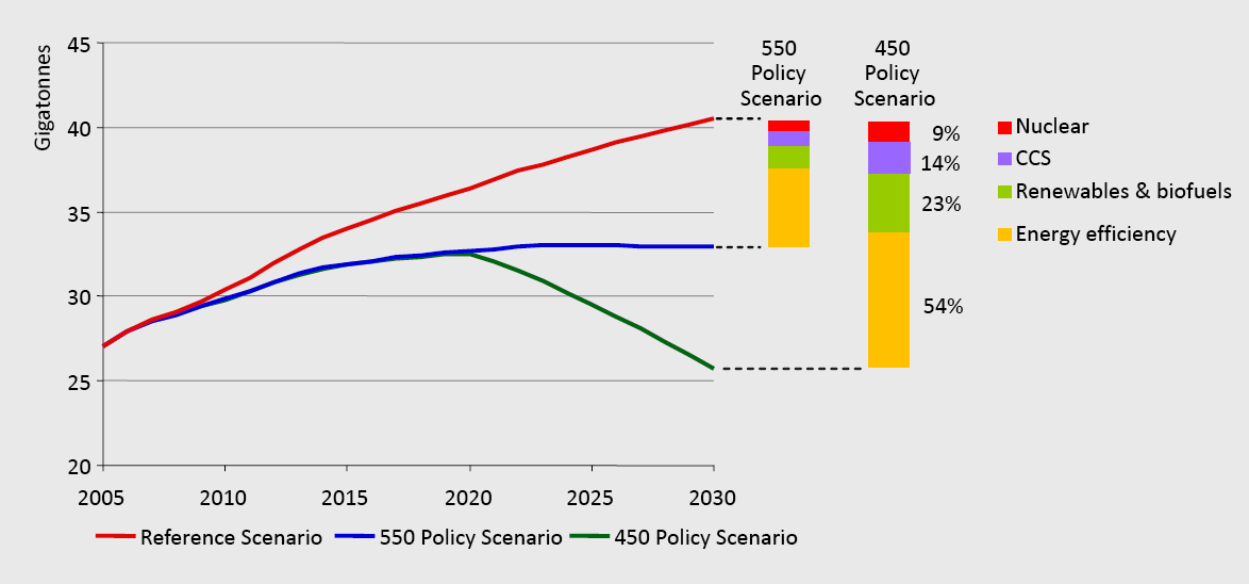

Figure 2: The proportion of global abatement from different sources, from IEA World Energy Outlook 2008

However, Australia won't be able to tap into its full energy efficiency potential without additional policies. Both the Energy Efficiency Council and ClimateWorks Australia estimate that additional energy efficiency policies are required to drive around 50 Megatonnes per annum by 2020 of the abatement that is possible from energy efficiency. Figure three helps to explain this concept, and indicates that will additional policies, energy efficiency could deliver around half of Australia's abatement challenge between 2000 and 2020.

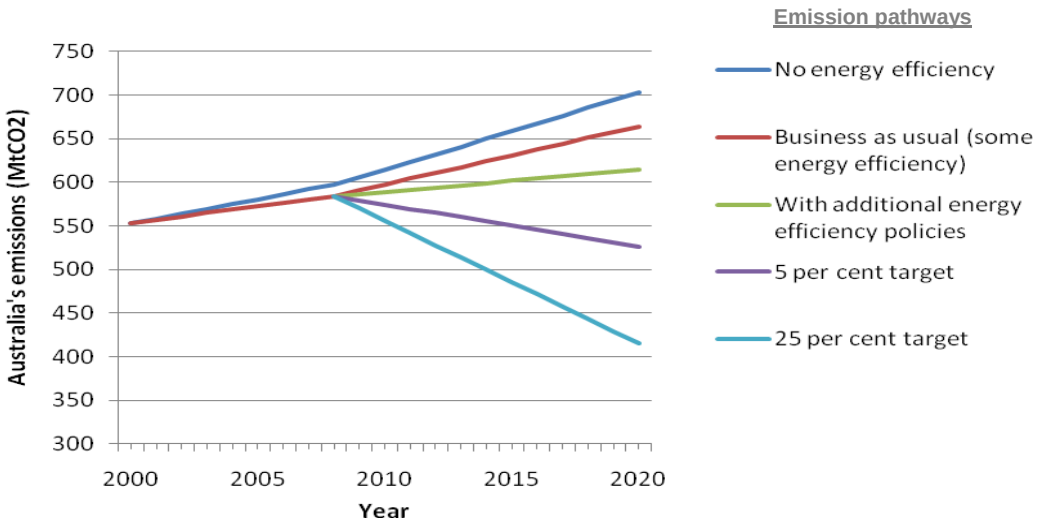

Figure 3: The impact of various levels of energy efficiency on Australia's emission pathways (indicative only)

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Question 2. Regarding the energy industry, does the EEC observe any tensions between supply side projections going forward, demand side projections going forward, and the obligation to reduce greenhouse gas emissions into the future? In the EEC's view, how can this best be addressed?

Most projections of energy demand and supply in Australia assume that Australia's total energy demand will continue to grow at around 1.6 per cent per annum. If this occurs, it will place an enormous burden on Australia's economy and significantly reduce the likelihood that Australia meets its emission reduction targets.

Firstly, if energy demand continues to increase at this rate Australia would need to invest billions of dollars in transmission and distribution infrastructure. Regulators are in the process of approving $42 billion of expenditure over five years to expand the electricity grid network ('poles and wires'). Electricity consumers will have to pay for this expansion through their energy bills, despite the fact that many of them will not have contributed to the need to expand the grid network.

Secondly, if Australia tries to meet its emission reduction targets while energy demand is growing rapidly it will need to invest billions in new generation assets.

Much of this expenditure on transmission, distribution and generation infrastructure is avoidable if Australia invests in energy efficiency and distributed generation (see page 5 of this submission). This would reduce the cost to energy consumers while strengthening Australia's economy. If Australia significantly invested in energy efficiency, total energy demand will grow at substantially less than one per cent per annum. In fact, the Energy Efficiency Council estimates that energy efficiency could offset all growth in energy demand over the next decade.

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Question 3. In the EEC's view, how can energy efficiency measures contribute to Australia's future energy security? Is the EEC able to articulate for the committee specific energy efficiency measures that should be implemented, both in the short-term and in the long-term?

Energy efficiency will significantly improve Australia's energy security, particularly if the term "security" includes both the price and availability of energy. Energy efficiency improves energy affordability in two ways:

- Increasing the efficiency of energy use decreases the cost of energy per unit of 'output' (e.g. heat, light, production)
- Energy efficiency can decrease the cost of each unit of energy by reducing the need to invest in more expensive generation and transmission infrastructure.

The Energy Efficiency Council has developed a number of major recommendations on energy efficiency. These include:

1. **Set an energy efficiency goal**

   Set a goal for Australia to reduce stationary energy demand by 20 per cent below business as usual by 2020.

2. **Require Electricity Distributors to invest in energy efficiency (see page 5)**

   Where distribution networks are constrained, investing in energy efficiency and distributed generation can offset more expensive investment in expanding the network. However, well-known regulatory problems in the National Electricity Market limit the incentive to invest in energy efficiency and distributed generation. The Energy Efficiency Council recommends that distributors be required to invest 10 per cent of the $42 billion that they have been allocated over the next 5 years in demand-side measures.

3. **Establish a national energy efficiency scheme**

   Set up a national incentive scheme to invest in energy efficiency in commercial buildings, industry and households. The scheme would replace or harmonise existing schemes in New South Wales, Victoria and South Australia.

4. **Drive energy efficiency in industry**

   There are potentially billions of dollars worth of energy savings available from just the top 200 energy users in Australia. However, there is overwhelming global and local evidence that industry won't invest in energy efficiency without a combination of the national energy efficiency scheme and goals for major energy users. The Energy Efficiency Council is about to release detailed policy recommendations for industry.

5. **Drive energy efficiency retrofits of existing commercial buildings**

   Energy efficiency retrofits in commercial buildings could reduce Australia's emission while saving the economy $38 billion per annum by 2050. The national demand-management scheme and national energy efficiency scheme will play a key role in driving these retofits, but governments will also need to implement a scheme to finance energy efficiency retrofits and build the capacity of the property and energy efficiency sectors. The Energy Efficiency Council is about to release detailed policy recommendations for commercial buildings.

6. **Cogeneration**

   The Energy Efficiency Council is currently finalising its policy recommendations around cogeneration

7. **Government leadership**

   The Australian Government could save $130 million *each year* through energy efficiency in its own operations. Investing in energy efficiency is not just prudential financial management, it could transform the market for energy efficient services and products, with governments occupying 32 per cent of Australia's commercial building market. Driving energy efficiency in governments requires a number of steps, including a clear funding path for agencies to access capital for efficiency upgrades.

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Questions 4-8:

- *In the EEC's view, how can Australia best improve the energy efficiency of its transmission grid? What role should the government take in this regard?*
- *Can the EEC provide the committee with a comparative assessment of the energy efficiency, cost effectiveness, and emissions of High Voltage Direct Current (HVDC) transmission and High Voltage Alternating Current (HVAC) transmission?*
- *In the EEC's view, would the implementation of a HVDC transmission system contribute to the security of Australia's energy supply?*
- *Are current policy settings conducive to the implementation of HVDC transmission in Australia? If not, how can this best be addressed?*
- *What do you see as the most effective way of providing secure energy supply in remote locations?*

The Energy Efficiency Council strongly advocates interventions to address serious problems in way that electricity distribution and transmission companies are regulated. These flaws prevent investment in energy efficiency and distributed generation and increase the cost of electricity supply. Addressing these flaws may also promote investment in more efficient transmission and distribution infrastructure, but the Energy Efficiency Council does not currently have any position on specific transmission technologies, such as HVDC.

The rules and regulations of Australia's National Electricity Market (NEM) govern the operation of the electricity network that delivers electricity from generators to end users, according to specified objectives for optimizing price, quality, safety, reliability and security of supply. The way in which the NEM is regulated has a pivotal role in influencing the way our energy needs are met, because it sets up a system of incentives that drive energy behavior and affect many activities including:

- How the cost of electricity generation is reflected to consumers, including the cost of energy use at different times of the day
- Linking to the grid to access or supply energy, and the costs of transporting electricity
- If consumers use more energy in specific locations it either requires other users to lower their demand, or an expansion of network infrastructure.
- The way that utilities make investments in acquiring network capacity that is required to meet current or future electricity demand.
- The cost to connect distributed generation at specific points in the grid.

A wide variety of experts, including the Parer Review and Professor Garnaut, have identified flaws in the current NEM rules. These flaws favour established supply-side options over distributed generation and energy efficiency.

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

Even in the absence of climate change these flaws should be tackled as they distort the energy market, increasing energy supply costs for households and businesses.

With an aim to reduce Australia's emissions by 5 to 25 per cent by 2020, the economic implications of these flaws are more severe. The NEM rules create incentives for activities that increase emissions and artificially inflate the cost of low-cost emission abatement options. This distorts the market for carbon abatement.

Addressing the failures in the NEM is critical to helping Australia lower the cost of meeting its greenhouse targets. Tackling these failures will remove impediments to abatement, allowing a carbon price or 'abatement purchasing' system to drive abatement more effectively.

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Given the time horizon for asset decisions already and price determinations already made, full NEM reform to achieve this will take at least a decade to address issues like time-of-use pricing and full marginal pricing for increased peak demand. However, there is enough evidence to warrant designing schemes that reallocate existing spending on network augmentation to less greenhouse intensive, more cost effective activities.

The Energy Efficiency Council recommends that distributors be required to invest 10 per cent of the $42 billion that they have been allocated over the next 5 years into demand-side measures.

Question 9. The committee has heard some evidence noting the benefits of distributed generation. What are the EEC's views on this?

Distributed generation, such as cogeneration, could deliver significant benefits to the economy while allowing Australia to reduce its greenhouse gas emissions. CSIRO's recent extensive 'Intelligent Grid' project estimated that distributed generation could deliver savings to the economy of around $800 billion over the period 2006 to 2050.

Distributed generation such as cogeneration can be significantly more efficient than centralised generation. Firstly, there are no transmission losses. Secondly, the waste heat from the generation process can be used to provide on-site services such as heating and cooling. This means that cogeneration can be over 70 per cent efficient at turning fuel into useful services, in comparison with Australia's coal fired generators that are often less than 30 per cent efficient at converting fuel into electricity.

Questions 17. In the EEC's view, can the implementation of smart grid technology contribute to improved energy efficiency? How would this work?

Smart Grid technology, if it is well implemented, can gather data that helps to identify opportunities where investing in energy efficiency and distributed generation could offset more expensive investments in expanding the electricity grid. This issue is discussed on page 6.

Question 18. There has been some public comment regarding the potential of smart grids in addressing issues relating to peak demand. Can you elaborate on this for the committee?

Smart Grid technology can identify and facilitate opportunities for 'demand-management'. Demand management can involve energy consumers, particularly large energy users, reducing their demand in periods of peak demand. This can benefit a wide range of energy consumers by reducing the need to build and use expensive electricity generation and distribution infrastructure.

However, demand management does not always result in a reduction in total energy use, as it can simply involve an energy consumer shifting their energy use from a period of peak demand to a period of low demand. In some cases this can actually reduce energy efficiency and increase total energy use. For example, off-peak water heaters are less efficient than instant water heaters, because water is heated at a time when it is not needed and much of that heat is lost overnight.

Question 20. Are there any issues regarding regulation or taxation that the EEC would like to raise with the committee?

The Energy Efficiency Council believes that rules and regulation of the National Electricity Market act as a major barrier to investment in energy efficiency and distributed generation, which increases energy prices in Australia. The Council strongly argues for reform, as detailed in page 6.

Questions 10, 11, 12, 13, 14, 15, 16 and 19

The Energy Efficiency Council has no comment on these issues at present.

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