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26 July 2019

Re: Final Report of the Independent Expert Panel on Interim Emissions Reduction Targets for Victoria (2021-2030)

Dear Clare

Thank you for the opportunity to comment on the Independent Expert Panel's Final Report (referred to in this submission as the 'Final Report').

The Energy Efficiency Council (EEC) is the peak body for energy efficiency, energy management and demand response. Our members include energy management companies, independent experts and various levels of government. We use the terms 'energy management' to refer to any form of managing energy use, including energy efficiency and demand response. Energy efficiency refers to getting more of a service (e.g. comfortable homes) for less energy, and demand response means changing when we use energy.

Energy management is one of the largest opportunities for greenhouse gas abatement in Victoria. The Victorian Government's climate change strategy must have a strong focus on energy management in order to meet the state's emission reduction targets and ensure that energy remains affordable and reliable. If the Victorian Government introduces ambitious energy management policies, the emission reduction targets proposed in the interim Report are not just possible and affordable – they will also be associated with a faster rate of economic growth, new jobs, improved productivity and improved health and wellbeing.

The EEC will provide comprehensive policy recommendations later in the process, but at a bare minimum Victoria's greenhouse gas abatement strategy must include:

- Targets for energy efficiency improvement;
- Adopting the principle 'Energy Efficiency First';
- Investing at least $500 million in the Greener Government Buildings (GGB) Program;
- Comprehensive programs to improve the energy efficiency of homes, commercial buildings and manufacturers; and
- Facilitating the adoption of more fuel-efficient vehicles.

We look forward to working with the Victorian Government on this strategy. For further information please contact me on rob.murray-leach@eec.org.au or 0414 065 556.

Yours sincerely

Rob Murray-Leach
Head of Policy, Energy Efficiency Council

energy efficiency
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Energy Efficiency Council submission to the Final Report of the Independent Expert Panel on Interim Emissions Reduction Targets for Victoria (2021-2030)

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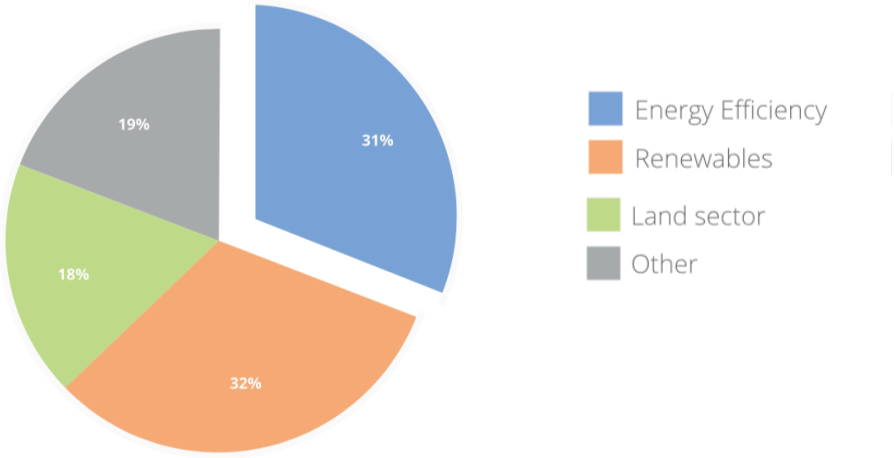
Energy management is a huge source of abatement

The International Panel on Climate Change concluded that energy efficiency was the most significant source of global emission reductions in the first decade of this century.[1] In the period 2014 to 2016, improvements in energy efficiency were responsible for 75 per cent of the stabilisation of emissions from the global energy system. In contrast, renewable generation and fuel switching delivered less than 25 per cent of emissions stabilisation.[2]

While renewable generation can and will deliver far more abatement in the next decade than the last two decades, energy efficiency will still be the first or second largest source of abatement available to Australia to 2030 (see Figure 1).

Figure 1. Abatement potential in Australia to 2030



Source: ClimateWorks Australia and WWF 2015, *A prosperous, net zero pollution Australia starts today.*

Given the widely accepted importance of energy management, the omission of energy management in the Final Report's executive summary and the summary of Chapter 6 is both surprising and deeply concerning. This omission is likely to be a consequence of the Final Report's approach to analysing emission reduction opportunities, where emissions from the electricity sector are framed as 'electricity generation' and, therefore, the analysis focuses on generation. The EEC looks forward to working with the Victorian Government to ensure that future work on Victoria's emissions reduction strategy incorporates the latest global thinking on energy management.

In addition to directly delivering abatement, energy management facilitates abatement from higher penetration of renewable energy and delivers major benefits to Victoria:

- Adjusting when we use energy to better align with the output from renewable generators will help maintain system security and lower the cost of energy supply.
- Energy management directly provides zero emission, low-cost and reliable capacity, dramatically lowering the cost of ensuring that consumers' energy needs are met.
- Energy efficiency ensures that the transition to clean energy is affordable and accompanied by lower energy bills, improved health and additional jobs, which are important in themselves and critical for retaining public support for the transition.

[1] Edenhofer, O., Pichs-Madruga, R., Sokona et al. 2014, *Mitigation of Climate Change. Working Group III Contribution to the IPCC Fifth Assessment Report*, International Panel on Climate Change, Geneva.

[2] International Energy Agency 2017, *Energy Efficiency Market Report,* IEA, Paris

Aligning demand and supply

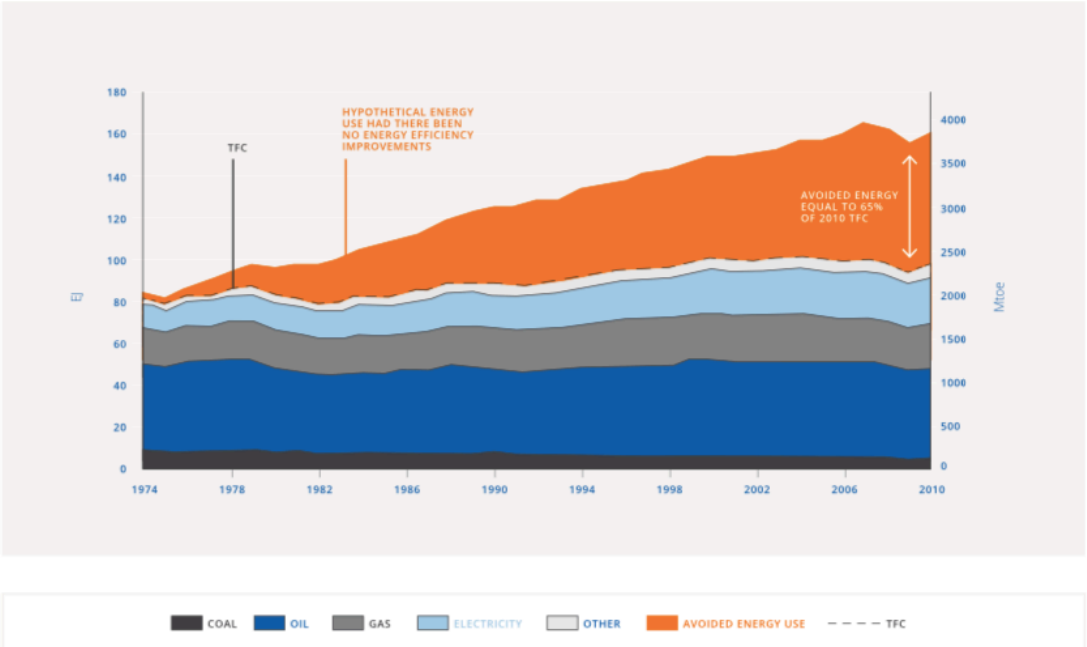
The output from wind and solar generators is variable and, as the penetration of renewable generation increases, this will require greater investment in electricity networks, storage and dispatchable generation. However, if we adjust energy use patterns to align with the output of electricity generators it will significantly reduce the need for these investments, which will lower the cost of our electricity system.

Energy management as capacity

Energy efficiency provides genuine capacity to energy markets. For example, minimum standards for fridges and freezers provide 'baseload' capacity by reducing Australia's electricity demand by over 360 MW, 24 hours a day, 365 days a year.[3] This capacity is virtually 100 per cent reliable and displaces the need for a small coal-fired generator. Energy management can also provide rapidly dispatchable 'peaking' capacity. Australian industry could provide at least 3.1 gigawatts of demand response, more than twice the maximum output of the former Hazelwood generator.

The capacity provided by energy management is largely 'invisible', but it is very real. Energy savings from literally millions of appliances and vehicles adds up to provide a huge amount of capacity. In fact, the International Energy Agency has concluded that efficiency the single largest form of capacity in global energy markets, and now refers to energy efficiency as 'The First Fuel' (see Figure 2).

Figure 2. Total avoided energy use from energy efficiency in 11 countries



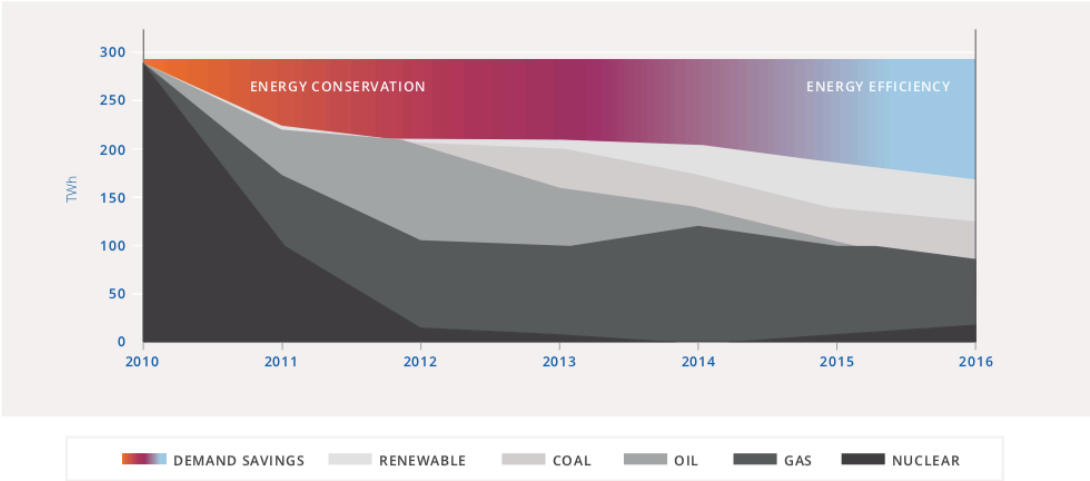
Source: International Energy Agency 2013, *Energy Efficiency Market Report 2013*, IEA, Paris. TFC stands for 'total final consumption'. "Other" includes biofuels plus heat from geothermal, solar, co-generation and district heating.

While energy management is already the largest form of emissions capacity in energy markets, it can provide far more capacity. Following a tsunami in 2011, Japan closed 49 nuclear power stations, which had provided about 30 per cent of the capacity in their energy

[3] Department of Energy and Environment 2018, *The Independent Review of the GEMS Act 2012 Draft Report,* Commonwealth of Australia, Canberra.

market in 2010. Despite Japan already having an energy intensity that was around 20 per cent lower than the global average, it was able to find even more capacity following this disaster.[4] Between 2011 and 2016 improved energy management delivered more new capacity to Japan than any form of generation, playing a central role in the replacement of Japan's nuclear fleet.

Figure 3. Replacement of nuclear electricity generation in Japan



Source International Energy Agency 2017, *Energy Efficiency 2017*, IEA, Paris.

Energy bills, productivity, jobs and health

Even in the absence of a transition to a low-carbon economy, energy management is critical to delivering lower energy bills. Energy efficiency improvements in Germany since 2000 have reduced German families energy bills by 30 per cent, saving the average household AU$790 each year.[5] Victoria has barely begun to tap the potential for energy management to deliver bills, and can deliver so much more – a recent assessment determined that implementing basic energy efficiency measures would reduce Australian homes and businesses energy bills by $7.5 billion a year.[6]

Energy management also drives economic growth by improving staff productivity and resource efficiency while lowering energy costs. For example, improving the efficiency of offices delivers an increase in staff productivity that is worth much more than the energy savings.[7] The Climate Institute estimated that improving energy efficiency by an additional one per cent a year will grow Australia's economy by $26 billion by 2030.[2]

Energy management itself is a huge economic opportunity, with AU$346 billion of global investment in 2018.[8] Research by Green Energy Markets found that there are already the equivalent of 58,000 full-time workers in energy efficiency in Australia, and an ambitious energy efficiency strategy would create at least 120,000 job-years of employment in trades and professions.[9]

[4] World Bank Source 2019, *Sustainable Energy for All database.* Accessed 31 May 2019 from: https://data.worldbank.org/indicator/eg.egy.prim.pp.kd
[5] International Energy Agency 2017, *Energy Efficiency Market Report 2017,* IEA, Paris.
[6] Green Energy Markets 2018, Energy Efficiency Employment in Australia, Green Energy Markets, Melbourne.
[7] Climate Institute 2013 *Boosting Australia's Energy Productivity.*
[8] International Energy Agency 2019, *World Energy Investment 2019*, IEA, Paris.
[9] Green Energy Markets 2018, Energy Efficiency Employment in Australia, Green Energy Markets, Melbourne.

Finally, improving the design and operation of our buildings will significantly improve health and wellbeing of Victorians. The poor quality of Victoria's building stock is responsible for literally hundreds of deaths every year. An astonishing 5.99 per cent of deaths in Melbourne are associated with cold weather, which is 62 per cent higher than the rate of cold-associated mortality in Stockholm, Sweden. In recent years an astonishing 217 people were admitted in the Alfred Health District for hypothermia, and 87 per cent of elderly patients with hypothermia had contracted it indoors.

These reasons make energy efficiency extremely popular – a survey undertaken by the Australian Council of Social Services (ACOSS), the Property Council of Australia and EEC in 2018 found that "investment in energy efficiency" was the single most popular action that governments could undertake to address community concerns about the energy sector, with 88 per cent support and just 5 per cent opposition. As a result, incorporating energy management in a greenhouse gas mitigation strategy is essential to maintain public support for that strategy.

Figure 4. Australian support for various policy measures

POLICY	SUPPORT	OPPOSE
Fund experts to help businesses save energy and money	69 %	18 %
Provide grants for businesses for energy-saving equipment	70 %	16 %
Incentives to upgrade commercial buildings	79 %	10 %
Minimum standards for rental homes	80 %	10 %
Energy efficiency ratings for homes	83 %	6 %
Strengthen minimum standards for new commercial buildings	83 %	7 %
Upgrade the homes of vulnerable households	84 %	9 %
Incentives for upgrading homes	85 %	6 %
Require energy companies to help households save energy	86 %	6 %
Strengthen minimum standards for new homes	88 %	5 %
Upgrade public buildings like schools and hospitals	92 %	2 %

Source ACOSS, Property Council of Australia, EEC 2018, *Energy Bills and Energy Affordability – A Survey of Community Views by YouGov Galaxy*.

Key energy management policies

The EEC will provide the Department of Environment, Water, Land and Planning with a comprehensive list of policies that Victoria should introduce as the strategy is developed. However, we would highlight five critical policies:

- Setting targets for energy efficiency improvement, including sub-targets for critical sectors (e.g. reducing energy use in homes by 30 per cent by 2030).
- Adopting the principle 'Energy Efficiency First' to ensure that we invest in the most cost-effective mix of energy supply and demand management to meet the community's energy needs
- Investing at least $500 million in the Greener Government Buildings (GGB) Program to strengthen the budget while reduce emissions from government operation by 30 per cent by
- Improving the energy efficiency of buildings by:
    - Adopting and enforcing higher energy efficiency construction standards for new buildings.
    - Improving the Residential Energy Efficiency Scorecard, providing incentives for its uptake under the Solar Homes program and mandating it when homes are sold and leased no later than 2021
    - Strong minimum standards for rented residential and commercial properties
- A comprehensive program to help manufacturers find and implement energy saving measures.
- Facilitating the adoption of more fuel-efficient vehicles, including advocating for national Corporate Average Fuel Efficiency Standards.

These policies are discussed in detail in the EEC's recent publication, 'The World's First Fuel', which is enclosed.