



28 February, 2017

By email: energymarket.review@delwp.vic.gov.au

**RE: Review of electricity and gas retail markets in Victoria
Environment Victoria submission on the Discussion Paper**

Thank you for the opportunity to make a submission to the Review of Electricity and Gas Retail Markets in Victoria.

About Environment Victoria

Environment Victoria is one of Australia's leading independent environment groups. With more than 40 member groups and tens of thousands of individual supporters, we've been representing Victorian communities on environmental matters for over 40 years. Through advocacy, education and empowerment Environment Victoria seeks significant and enduring solutions that will safeguard the environment and future wellbeing of all Victorians.

Overview

Environment Victoria welcomes the opportunity presented by this Review to examine whether the deregulation of Victoria's electricity and gas markets has delivered the promised benefits to consumers.

This Review is timely, coming when Victoria's energy system is undergoing a fundamental transformation. The transition from fossil fuels to renewable energy is underway and must gather pace towards the goal of a zero net emissions grid if the impending climate crisis is to be averted. The system is also in transition from a traditional, centralised structure to an increasingly decentralised system characterised by a more two-way relationship between consumer and supplier/retailer as a growing number of Victorian households adopt rooftop solar, battery storage and demand management technology.

The questions posed by the Review in terms of "whether the Victorian electricity and gas retail markets are operating in the interests of consumers" must therefore be considered within this broader context.

Environment Victoria urges this Review to look more broadly both at how it defines "the interests of consumers", as well as whether Victoria's current regulatory arrangements are capable of harnessing the opportunities presented by this changing context to continue to provide least cost, zero emission, reliable and secure energy services into the future.

The key question facing energy market regulators and operators worldwide, and which should be the focus for this Review, is:



"How can we drive a rapid transition to zero net emissions and 100% renewable energy, while ensuring secure, reliable and equitable access to affordable energy services for all?"

This submission outlines Environment Victoria's response to that question, in particular highlighting the significant and complementary contributions that efficiency and demand management can make to achieving these objectives.

The transition from fossil fuels to renewable energy is imperative not optional

The climate crisis is worsening and time is running out. The window of opportunity for decisive action to stay under the 'guard rail' of two degrees of warming is rapidly closing. What's more, credible voices are warning that even a two-degree target is much too high, carrying an unacceptable risk of catastrophically destabilising the climate on which human civilisation depends.

All parts of government policy, particularly a process such as this Review that identifies protecting the interests of consumers as a primary objective, must consider its own role in contributing to an effective response.

As the single largest source of greenhouse gas emissions in Victoria, the energy sector's responsibility to place emissions reduction at the centre of policy-making is clear.

If future Australian governments are to meet their obligations under the Paris agreement, as well as fulfil their broader obligation to act in the best interests of the Australian people by taking strong action on climate change, national and state energy markets will need to be capable of delivering emissions reductions commensurate with best practice scientific and economic advice.

Current best practice advice, as represented by a December 2016 report by CSIRO and Energy Networks Australia, is that Australia could reach renewable energy levels in the high 90 per cent without compromising the reliability of the grid. Achieving a zero emissions grid powered by wind and solar (as recommended by the Climate Change Authority) is not only feasible but will be \$100 billion cheaper than building more coal and gas supply.¹

However, the current uncertainty caused by continually changing policy settings in this space is hindering investment in low emissions and renewable technology. This uncertainty also contributes to the "barriers to exit" of aging coal generators that need to be retired if we are to make significant cuts to our climate pollution.

Eight coal-fired power stations have closed in Australia in the past five years, with Hazelwood soon to become the ninth. As investors become increasingly concerned about the long-term viability of coal power, and maintenance costs of older stations continue to rise, we can expect more coal power to be withdrawn at short notice. The chaotic nature of this trajectory results in unsatisfactory outcomes from an environmental, energy security and economic perspective, not to mention giving very little notice to workers and communities affected by power station closures.



There is currently no policy mechanism that ensures this coal capacity is removed in a managed way. This means that (a) there is no certainty that it will happen, and (b) there is no system in place to manage the consequences of power station retirements.

A coherent national plan for the retirement of coal-fired power stations is necessary to ensure a smooth transition as the energy market decarbonises.

Hence, this Review's examination of the legacy of deregulation and recommendations for market reform must be done in the context of this over-arching imperative to manage an orderly transition away from coal.

In this context, it is worth re-emphasising that so-called “clean coal” technology will not play any role in Victoria or Australia’s energy future, regardless of what its proponents may argue. Research released by Bloomberg New Energy Finance in February of this year concludes the Levelised Cost of Energy (LCOE) of a new ultra-supercritical coal-fired power station in Australia is \$A134-203/MWh; significantly higher than the LCOE of new-build wind at \$A61-118/MWh), or solar \$A78-140/MWh. Once the cost of carbon capture and storage technology is added, which the Preliminary Report notes would be necessary for any new coal capacity to be built, the estimated LCOE is around \$A352/MWh – or around three times the cost of wind or solar.²

The reality is that coal is already “uninvestable” and gas will become so in the not too distant future. Victoria now has a legislated target of reaching net zero emissions by 2050. It is very likely that the energy sector will need to reach net zero emissions much earlier. The sooner Victoria adopts an unambiguous goal to manage a rapid and orderly transition to a zero emissions energy system which protects the interests of coal-dependent communities and consumers, the sooner a stable policy environment will be created to drive investment in renewable energy and grow jobs.

[The implications of a de-centralised grid](#)

The diagrammatic representation of the Victorian energy market on p. 6 of the Discussion Paper consequently represents an out-dated view of the way energy is generated, managed and consumed in Victoria. It may well be an accurate representation of how our retail markets are structured and regulated – but that in itself is an illustration of how disconnected current arrangements are from the reality of a 21st century energy system.

The failure to grasp the nature and extent of this transformation is represented in much of the current debate which assumes a largely passive role for consumers, in which they have no option but to pay prices delivered via current market arrangements. This situation has obvious affordability and equity implications as these prices have risen dramatically in recent years, largely due to investment in network infrastructure.

However, increasingly people *are* opting out of their traditional role as passive consumers of centrally-provided energy, already through their adoption of household renewable energy and increasingly through storage and demand management technology as these become more cost-effective and well-established.



Concerns have rightly been raised about the equity implications of this trend, particularly in terms of the burden of system infrastructure costs being borne by a shrinking proportion of the population, and in particular by low-income and disadvantaged households.

However, the appropriate response is not to seek to impose artificial limits on the growth of household renewable energy and demand management technology – this shift is here to stay and will gather pace while current market arrangements continue to make ‘opting out’ attractive to those with the means to do so.

The challenge for this Review is to acknowledge the equity implications of a significant proportion of the Victorian population (eg. low-income households, apartment dwellers and renters) being locked out of the clean energy revolution, and address the pricing and regulatory barriers which are preventing broad access.

We need a fundamental re-think of how our energy system can drive, not hinder, the transition to a 100 percent renewable energy grid, in a way which benefits everyone.

Greater investment in efficiency and demand management is needed

Consistent with much current energy policy debate in Australia, the Discussion Paper focuses primarily on issues related to how energy is supplied to consumers and at what price. However, this framing excludes the critical role that efficiency and demand management can and must make to achieving the over-arching goals of emissions reduction, affordability, reliability and security.

The out-dated framing of the energy system as a centralised system of one-way supply and consumption, also misses the significant contribution that an increasingly de-centralised system can make to these same goals.

Emission reductions

Simply put, we cannot achieve the Victorian government’s 2020 emissions reduction target, let alone the rapid transition to a zero net emissions economy we need, without a significant investment in energy efficiency.

The International Energy Agency recently identified improving energy efficiency as the number one global action to achieve peak emissions by 2020 and significant declines by 2030.³ In Victoria’s case, where our electricity system is highly emissions-intensive by international standards, the emissions reduction benefits of efficiency (or avoided consumption) are likely to be even higher.

Furthermore, improving energy efficiency provides least cost abatement compared with other emission reduction options – in many cases at zero to negative cost because efficiency investments generate cost-savings by reducing waste (see Figure 1).⁴

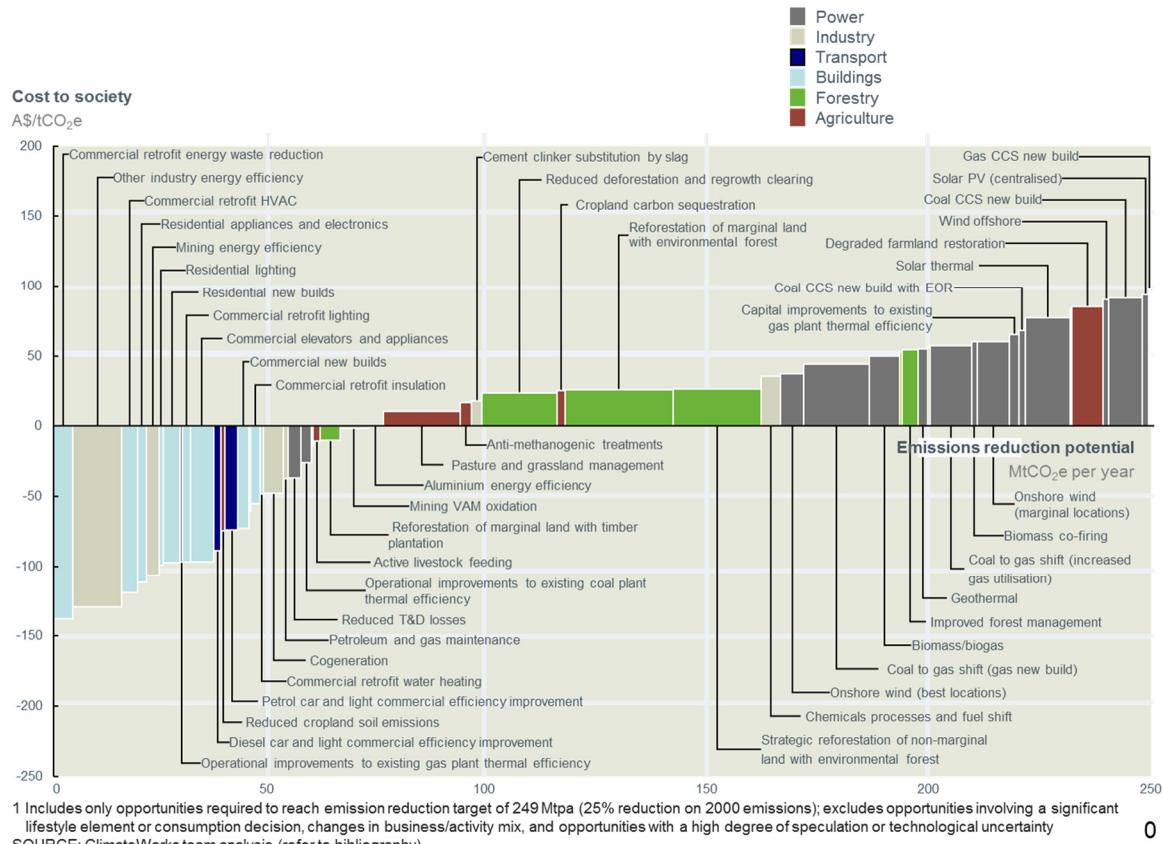


Figure 1. Marginal abatement cost curve, Australia

Improving efficiency and hence reducing demand, particularly peak demand, also makes the transition to renewable energy faster and cheaper by delaying or avoiding the need for investment in costly supply infrastructure.

Beyond emission reductions, improving energy efficiency and energy productivityⁱ also delivers significant economic benefits by reducing the waste of expensive energy inputs. The 2014 2xEP Roadmap estimates that doubling energy productivity would deliver a 2.8 percent increase in GDP by 2030, equivalent to a gain of \$59.5bn GDP (2010\$) in that year. Australia improved energy productivity by a meagre 1.1 percent per annum between 1992 and 2012, suggesting that there is significant scope for improvement.⁵

Affordability

While affordability is a key concern of the Review, it is framed within the Discussion Paper in terms of a narrow focus on the price paid by consumers for electricity and gas.

However, affordability is a function of both price and consumption. As energy prices rise, reducing consumption by improving efficiency is an obvious and effective way to manage costs and maintain

ⁱ Defined as the ratio of economic output per unit of primary energy consumed.



affordability. There are significant opportunities for improving the efficiency of residential, commercial and industrial energy use across the Australian economy.

For example, upgrading residential building efficiency can reduce electricity and gas costs by 40 percent, translating into annual savings of up to \$1,000 for the average household.⁶ However, low-income and vulnerable households – those who need the savings from efficiency the most – are likely to be missing out due to unaffordable upfront costs of upgrades, a lack of information and/or because they rent.⁷ Retailers have a large and growing problem with customers experiencing financial hardship unable to pay their bills.⁸ Without intervention to assist these customers reduce consumption (through retrofitting and appliance replacement), energy hardship and disconnection rates are likely to continue to worsen. However, current market arrangements do not require regulators and retailers to prioritise policies and programs that would drive efficiency improvements.

Raising efficiency standards for new residential buildings could also achieve cost-effective savings in energy use of up to 49 percent,⁹ as well as deliver complementary health and well-being benefits. The current review of the National Construction Code is an ideal opportunity to drive a significant improvement in new building performance and compliance across Australia, so as to reduce long-term building running costs and improve affordability for consumers.

As well as reducing overall consumption, efficiency measures such as insulation or efficient appliances deliver additional affordability benefits by helping consumers minimise usage during periods of peak demand (and hence peak prices), such as during heatwaves or cold snaps. Peak prices make up a significant proportion of overall electricity and gas costs for many consumers.¹⁰

Reducing the incidence and severity of peak demand events also impacts on affordability by delaying or avoiding the need for investment in additional supply infrastructure – a key driver of rising wholesale prices in recent years.¹¹

And finally, more than a million Australian households have responded to rising prices and affordability pressures by investing in rooftop solar in recent years. However, many Australian households including low-income households, apartment dwellers and renters are currently locked out of the clean energy revolution and are missing out on this option for managing affordability. The Review should be examining opportunities for addressing the pricing and regulatory barriers preventing equitable access to renewable energy by all Australians, particularly disadvantaged households. This could include financing mechanisms to allow low-income households to cover upfront installation costs, or increased use of tools such as virtual net metering and support for community-owned renewable energy projects.

Reliability and security

The reliability and security of the provision of energy services are as relevant to the interests of consumers as affordability, and hence should be a focus for this Review.

Much of the current debate addresses the issues of security and reliability from the perspective of episodic failures of supply to meet spikes in demand. However, there has been less focus on the



equally important opportunities we have to better match demand to supply, particularly with the transition to a more a de-centralised and distributed system.

As mentioned above, efficiency measures targeting consumption that typically occurs during peak periods (such as insulation and efficient heating and cooling appliances) act to moderate demand spikes and hence reduce the risk these pose to supply and reliability, particularly in extreme weather events such as heatwaves or cold snaps. However, detailed end-use data that would inform targeted investment is not currently available.

With Victoria's reliance on gas for residential heating, improving efficiency and encouraging fuel-switching to lower-cost, efficient heat-pump appliances will also have a significant impact on moderating gas demand and avoid the need for additional supply.¹²

Furthermore, as more households and businesses adopt demand management and storage technology, there are additional opportunities to build on efficiency savings through consumers exercising more control over the timing of their usage. This greater consumer control within the system can manifest both as an actual reduction in peak demand, as well as 'demand shifting' as consumers choose to consume electricity and gas outside of peak price periods. Efficiency and demand management also free up more electricity from distributed generation and storage for export to the grid, as well as make additional gas supplies available for other users. All of these outcomes reduce the reliability risks associated with periods of very high demand outstripping supply and avoid the need for additional supply.

Much has also been made of the potential risks to system security posed by high (greater than 50 percent) penetration of non-synchronous renewable energy into the grid, resulting from the loss of traditional inertia (provided by conventional electricity sources) that protects the system against shocks. However, it is possible to support much a higher penetration of renewable energy without risking system security if alternative sources of synthetic inertia generated from renewable sources can be harnessed and effectively integrated into the grid. Potential sources of synthetic inertia include intelligent wind turbine controllers, battery storage and possible re-tooling of existing turbine infrastructure in the Latrobe Valley.¹³ However, current market arrangements were not designed with this outcome in mind, and will need significant reform to ensure the transition to a 100% renewable energy grid does not jeopardise security of supply. This is not a justification for inaction, but an articulation of the path that reform needs to take.

Recommendations:

The Victorian economy is currently under-investing in efficiency and demand management measures that could make a significant contribution to the delivering affordability, reliability and security, and emissions reduction objectives.

Some of the opportunities for reforming Victoria's energy market so as to drive the rapid transition to a zero net emissions grid, and encourage greater investment in efficiency and demand management include:



1. National coal closure plan

Decarbonisation of our electricity sector is critical to avoiding the worst impacts of climate change. This means Australia's fleet of coal-fired power stations needs to be phased-out. While coal power stations are already closing, they are closing in an *ad hoc* manner and with unpredictable timing, which gives no certainty to the energy market, renewable energy investors, workers or communities.

In reforming regulations to help create the energy market of the future, we need to explicitly accept that coal generators need to close, and need to close much sooner than the lifespans currently proposed by their owners. A national plan for an orderly phase-out, which sets clear timelines for the retirement of each generator well in advance, will help create the certainty craved by all stakeholders.

Victoria should work with other states in the National Electricity Market and the Federal government to develop such a plan, including details of how to ensure a just transition for workers and communities affected by closures. More detail on this is available in Environment Victoria's submission to the current Senate Inquiry into the retirement of coal-fired power stations.¹⁴

2. Reform the Essential Services Commission Objective

The ESC Objective is “to promote the long term interests of Victorian consumers” with “regard to the price, quality and reliability of essential services”.

Using ‘price’ as a proxy for affordability ignores the critical role that efficiency and demand management can play in reducing the amount and timing of energy consumption, so as to improve affordability even in the context of rising prices.

Re-framing the ESC Objective to replace ‘price’ with ‘cost’ would create an obligation to minimise overall cost to consumers, providing an incentive and driver for greater investment in efficiency and demand management by system managers and regulators.

Focusing on cost rather than price would also create an obligation to internalise the full environmental and health costs of fossil fuels in energy market decision-making. At present, emission reduction objectives constitute an externality that is largely ignored by market bodies and participants.

Acting in the long term best interests of consumers necessarily requires strong action to reduce emissions so as to avoid catastrophic climate change and the food and water security, health and conflict risks we face at a regional, national and global level. As Australia’s energy supply is highly emissions intensive and emissions reduction targets cannot be met without transitioning to a zero net emissions grid, it is appropriate that the rules governing the Victorian energy market also explicitly articulate an emissions reduction objective.



3. Energy pricing reform

Current tariff structures comprising high fixed charges, high minimum usage requirements and declining block tariffs distort price incentives to consumers to invest in efficiency. They also act to deprive low-income and vulnerable customers of the full cost-saving benefits of efficiency measures or behaviour changes they implement. These distorting tariff structures must be formally excluded from the market.

Electricity market rules also need to be reformed to support a fair price for rooftop solar. Currently rooftop solar owners who sell their excess power to the grid receive only about 20 percent of the price charged by the retail companies when they on-sell that same electricity to another consumer. Not only does this represent an unjustified windfall benefit to the retailers, but it fails to reflect the full environmental and system security benefits of that solar power.¹⁵ Recent changes to solar feed-in tariffs by the ESC are a step in the right direction, but still undervalue avoided greenhouse gas emissions.

Energy market reform is also required to support the continued growth of the community power sector, which seeks to ensure equitable access to the clean energy revolution for all Australians, including low-income and vulnerable households, apartment dwellers and renters. Relevant recommendations of the National Community Energy Strategy, including fair pricing for grid connection, regulatory changes to support micro-grids and enable Virtual Net Metering, should be considered within the Review.

4. Require ESC to identify and publish efficiency opportunities across the network

The Australian Energy Market Operator publishes an annual Statement of Opportunities to support informed decision-making by the incumbent industry. There is a need for an equivalent annual report to inform demand-side competitors and consumers. If AEMO does not commit to producing such a report, the Victorian government should commission the ESC to deliver it, to assist suppliers of efficiency products and services to identify and capitalise on the most valuable opportunities for investment. Production of such a report may require the government to regulate or legislate to ensure the industry provides the necessary information, which is currently not publicly available in our de-regulated system.

Conclusion

The energy system is undergoing rapid change. If this change is ignored, or if we try to constrain it within the old paradigm of centralised electricity and passive consumers, it will lead to poor outcomes for all concerned. If we recognise the opportunity that is being provided – to decarbonise our electricity sector, to increase the equity in the provision of electricity services, to become more efficient and smarter in how we use energy, to empower consumers – then regulators and policy makers can ensure that technological change leads to widespread community benefits.

We encourage the Review to take this opportunity. Thank you for receiving this submission, and we would be happy to provide any further information to assist with the next steps of the Review.



Regards,

Dr Nicholas Aberle
Campaigns Manager
Environment Victoria
n.aberle@environmentvictoria.org.au
03 9341 8112

¹ <http://www.energynetworks.com.au/electricity-network-transformation-roadmap-key-concepts-report-0>

² Bloomberg New Energy Finance, Leonard Quong, report on the cost of new ultra-supercritical coal-fired power stations in Australia

³ International Energy Agency 2015, *World Energy Outlook: Special report on energy and climate change*, www.iea.org

⁴ ClimateWorks 2010, *Low Carbon Growth Plan for Australia*, www.climateworksaustralia.org/project/national-projects/low-carbon-growthplan-australia

⁵ AASE (2014) 2xEP – *Australia’s Energy Productivity Opportunity*, Australian Alliance to Save Energy

⁶ Sustainability Victoria 2014, *Household Energy Report*, Fig. 1.

⁷ Chester, L. 2013, *The impacts and consequences for low-income Australian households of rising energy prices*, University of Sydney; Australian Council of Social Service 2013, *Energy Efficiency and People on Low Incomes*.

⁸ ESC 2016, Energy Hardship Inquiry Final Report, Essential Services Commission, Melbourne

⁹ Pitt & Sherry 2016, *Pathway to 2020 for Increased Stringency in New Building Efficiency Standards: Benefit Cost Analysis 2016 update for residential buildings*, Department of Industry, Innovation and Science

¹⁰ Giles Parkinson, Renew Economy, 14 Feb 2017, http://reneweconomy.com.au/rooftop-solar-saved-the-day-but-households-got-paid-a-pittance-27844/?utm_source=RE+Daily+Newsletter&utm_campaign=dbede5085f-EMAIL_CAMPAIGN_2017_02_14&utm_medium=email&utm_term=0_46a1943223-dbede5085f-40406137

¹¹ Swoboda, K, 2012, *Energy prices—the story behind rising costs*, Parliamentary Library Briefing Paper, http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BriefingBook44p/EnergyPrices

¹² MEI 2015, *Switching off gas – An examination of declining gas demand in Eastern Australia*, Melbourne Energy Institute

¹³ Voices of the Valley, <http://www.votv.org.au/storage>

¹⁴ <http://environmentvictoria.org.au/2016/11/10/submission-inquiry-retirement-coal-fired-power-stations/>

¹⁵ <http://www.solarcitizens.org.au/fairprice>