AUSTRALIAN ENERGY COUNCIL

Department of Environment, Land, Water and Planning
PO Box 500
MELBOURNE VIC 3000

Lodged by email: renewable.energy@delwp.vic.gov.au

31 August 2016

Victorian Renewable Energy Auction Scheme Consultation Paper

The Australian Energy Council (the Energy Council) welcomes the opportunity to make a submission to Victoria's Department of Environment, Land, Water and Planning (the Department) for the Consultation Paper on the Victorian Renewable Energy Auction Scheme (VRET).

The Energy Council is the industry body representing 21 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.

The Energy Council does not support Victoria's Renewable Energy Target or the proposed Auction Scheme because it is not least cost policy and is likely to decrease energy productivity over the long term. Analysis by the Productivity Commission, Grattan Institute and the Australian Government all identify renewable targets as a costly means to achieve lower emissions[i]. We believe the VRET proposals are counterproductive to lowering emissions nationally, and will impose costs on Victorians above the costs of national emissions reduction policy. We believe that Victoria should adopt a strategic approach by holistically designing emissions and energy policy as well as working to achieve effective emissions reduction at the national level through COAG. The Energy Council supports a national approach to renewable energy policy and is not seeking a change to the Federal Renewable Energy Target.

If business is expected to build the clean, smart energy system of the future, then it will need government to reduce risk, not add to it. After Victoria announced the planned target of 40 per cent by 2025, renewable project negotiations that were under way in the Energy Council's member businesses collapsed due to policy uncertainty. In the absence of a national energy and climate strategy, Victoria's government is rolling out its own scheme, and the Energy Council notes the consequences with concern. A 40 per cent renewable energy target in Victoria would see more than 50 new wind farms in the state in 8 years, covering an estimated 32,850 ha of land[ii]. The Energy Council notes the renewable construction employment and investment attributable to the target may be offset by the economy wide impacts of rising energy prices and contract risks to the Victorian public, who will bear the full cost of the scheme in the long term. This represents a huge pace and scale of change that raises important questions about electricity system safety and reliability, community acceptance and costs for consumers.

South Australia is experiencing a series of technical challenges and price volatility as a result of its rebalancing of the supply mix from dispatchable plant to intermittent. At present, these issues are mitigated by the provision of reliable, low cost energy from Victoria via the interconnector. This may not be the case if Victoria achieves its 2025 target. No information or analysis has been made available to stakeholders about how South Australia would get its back up supply from Victoria when the wind is not blowing under this scenario, or how Victoria would supply its own back-up or ancillary services[iii]. The evidence base for market intervention with a renewable energy target and auction scheme has not been substantiated. The submission that follows outlines in detail the Energy Council's concerns and offers potential options to mitigate the drawbacks of the proposed Auction Scheme.

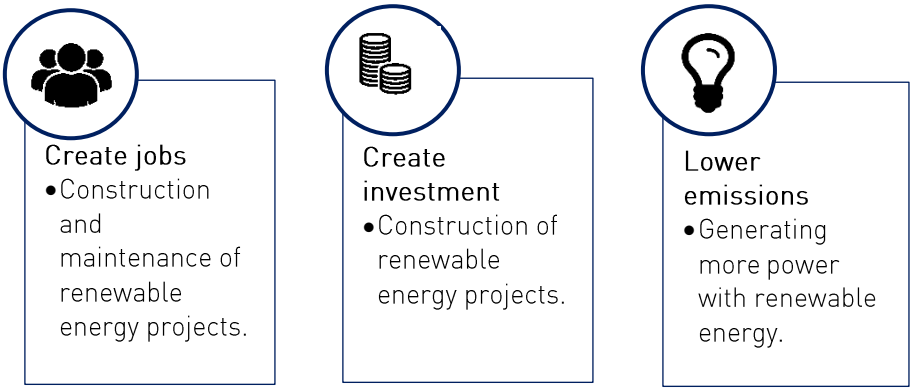
Level 14, 50 Market Street
Melbourne 3000
GPO Box 1823 Melbourne Victoria 3001

P +61 3 9205 3100
E info@energycouncil.com.au
W energycouncil.com.au

ABN 98 052 416 083

Targeted policy for effective emissions reduction at least cost to Australia

The Consultation Paper states that the VRET policy is designed to achieve three aims.



The VRET will have substantial impact on Victoria's wholesale electricity market and the national electricity market of which Victoria is a part. A strategy to integrate energy and environment policy is necessary to understand the market transition toward lower emissions power. The scheme will directly influence outcomes in electricity markets, including movements in wholesale and retail prices, and resulting changes to investment incentives and risk allocation. Large shares of intermittent generation can lead to higher average annual prices for consumers through the operation of the market, as observed in South Australia (Figures 2 and 3).

The stated aims of the VRET are to increase employment and investment in Victoria, however the Victorian government's own forecasts show that climate reduction policies which increase the price of electricity lower employment and output in Victoria's strongest growth industries such as in construction and services (see Figure 1). The transition to a decarbonized economy is not costless and it is essential that the Government is open and honest about the trade-off it will impose on Victorians. Victoria's highly educated and urbanized population means that Victoria has a natural advantage in the provision of services. The services and construction industries in Victoria are a key to the future economic growth of the state. Industry policy which aims to increase employment and investment in Victoria should be focused on promoting the natural advantage that Victoria's service industries provide, rather than subsidizing arbitrary levels of investment in particular types of assets.

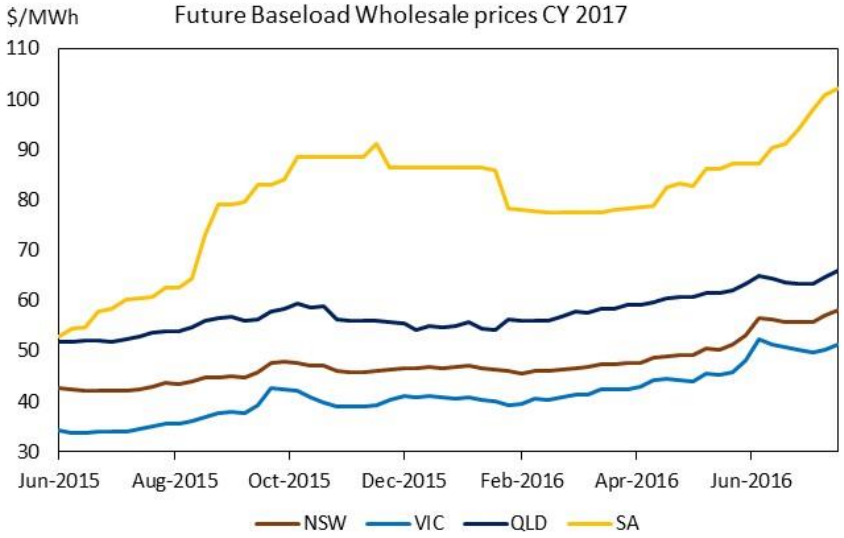
Figure 1: Climate change scenario – difference in employment by industry and employment by region relative to base case, 2045-46[iv]

Source: Deloitte Access Economics for Infrastructure Victoria, 2016.

Long term contracts for electricity are traded through the Australian Stock Exchange and provide an indication of the underlying power transformation in each NEM region. While the NEM is a gross pool, where all scheduled supply capacity is bid into the market, the majority of power is effectively traded on long term contracts, with only the balance of power needed at any point exposed to the spot market price. As such, long term contract prices reflect the largest portion of wholesale energy costs to end users, and reflect market participants' expectations of the price impact of underlying trends in power supply and demand. Spot prices on a given day fluctuate every five minutes with temporary changes in supply and demand and may not be a reliable indicator of the price an end user sees.

Figure 2 shows long term contracts for energy in South Australia, compared to other states. The rise in contract electricity prices in South Australia is due to the market response to a decrease in supply of dispatchable power, rising use of gas plant to provide power when wind and solar are not generating and wholesale spot price volatility. Figure 2 shows contract prices before and after the announcement of the closure of the Northern Power Station was brought forward.

Figure 2: Energy futures are rising at a much faster rate in South Australia than other states

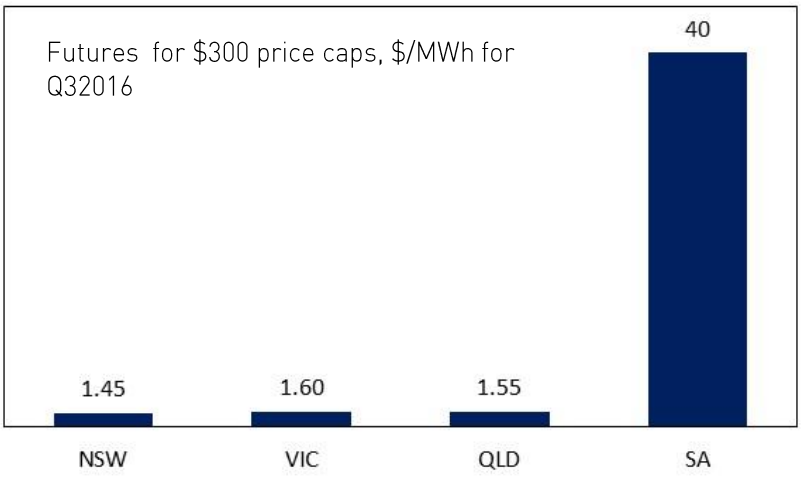


Source: ASX, 2016.

The South Australian futures prices following the closure of Northern reflect the last stage in the power capacity cycle that begins with the policy-driven addition of variable renewables to supply. South Australia's regional market provides a guide to the adjustments that may play out in Victoria's regional wholesale market for contract power at 40 per cent renewable generation. As is discussed further on, there are limits to how much power Victoria can import at times of high demand, and export at times of high wind generation. The size of Victoria's power demand relative to the size of its interconnections may make the state less able than South Australia to rely on interconnection to balance intermittent generation (discussed further around table 1).

In addition, the need for capacity to ramp up when intermittent generation is unavailable translates to expectations of more frequent high price events. Figure 3 shows the high price of cap contracts in South Australia compared to other states. This demonstrates that market participants believe there is a high likelihood of a number of price events higher than $300/MWh and purchasing cap futures to insure against high prices.

Figure 3: Futures prices (caps) are substantially higher in South Australia than other states due to anticipated spot price volatility



Source: ASX Energy, 8 August 2016.

A durable strategy for the transformation of the energy sector that combines energy policy with climate policy is necessary to achieve the Government's renewable energy ambition. Over time, a market is likely to be unsustainable when wholesale prices do not inform consumer choices in the retail market. This unsustainable position is likely to result in the erosion of commercial incentives for remaining generators, a lack of new investment and inefficient outcomes for consumers. The projected shortfall in the national RET is a sign that wholesale market interventions have eroded commercial signals over the long term to invest in new power generation. Similar shortfalls could be expected to result from a VRET scheme toward 2025 when the scheme is due to end, requiring further government intervention and costs for Victoria's consumers.

Renewable Energy Auction design

The premise on which renewable subsidies are justified is that without a carbon price, the externality of fossil fuel emissions is not reflected in market prices, and so efficient signals for low/zero emission generation are missing. But the introduction of a policy to support renewables carries with it its own risk – that the policy will be materially altered during the life of the asset (which could be decades). The logic of the contract for difference is to mitigate the *policy* risk. But efficient market outcomes require project investors and offtakers (retailers or large users) to carry the *market* risk of their investment or commercial agreement to supply energy.

Victoria's energy users (or taxpayers) should not bear the normal commercial risk of new generation projects. By locking in fixed prices for wind and solar energy generation, those generators become insulated from wholesale price fluctuations and have little incentive to produce energy in the most efficient way or to innovate. This means that Victoria's energy consumers bear the risk of poor investment decisions, rather than the project investor. In the Energy Council's view, project developers need to bear some risks in order to encourage the development of correctly sized and located projects that will work in tandem with the wholesale electricity market. Allowing investors and retailers to contract with one another on commercial terms ensures that both parties can take advantage of opportunities for effective emissions reduction and efficient energy generation. Our proposal, which supports the use of financial and contracting markets and spreads risk more evenly, is outlined below in the next section.

Contracts for difference will move price and project risk onto Victorians

The Energy Council does not support a contract for difference approach to funding renewable energy projects because it distorts the wholesale market price signal and shifts risk onto Victorian consumers. Generators subsidized at a fixed price are indifferent to spot price outcomes and can afford to bid energy into the market at almost zero or even negative prices. In the short term, when the wind is blowing or sun shining renewable

generators can bid down the wholesale price to below the cost of production. However, in the long run, insulating some generators from market risk has distortionary price impacts and requires Victorian consumers to provide compensation to renewable investors when prices are low. One of the other effects is balancing the fluctuations in supply and demand must be concentrated on a reducing number of generators that are outside the VRET scheme. This means more physical risk on generators outside the scheme, which in turn leads to more physical risk to customer supply and more volatile pricing. Long run distortions to the market include:

1) Suppressing the emergence of efficient price signals in wholesale and ancillary services markets when wind and solar is generating. .
2) Contributing to regional power system congestion and potentially, curtailment of generation[v].
3) Contributing to regional price distortions, where congestion in homogenous generation causes regional prices to diverge.

Most energy is traded on long-term contracts and intermittent generators are not well placed to provide a guaranteed future amount of generation (or the financial equivalent) because of their inherent variability. As they become a higher proportion of the available capacity, this results in scarcity of the types of generation that can offer long term contracts and high volatility in wholesale spot prices, raising the annual wholesale cost of energy for consumers. Higher energy prices for consumers will decrease Victoria's productivity in the long run, so achieving emissions reduction at the lowest cost is essential to minimize the productivity impact on Victoria's other industries.

Over time, markets can solve these challenges. Some party, whether renewables developer, retailer, market customer or intermediary will find a way to aggregate variable renewables and one or more controllable resources, such as gas-power or hydro generation, demand response or some form of storage into a "virtual power plant" whose aggregate output is sufficiently firm to underpin futures contracts or to match a specific load requirement. The commercial imperative to get this right will drive investment into both renewable energy and controllable resources in the most efficient way to meet load requirements. Unfortunately this sort of commercial innovation will be crowded out by the proposed auction design because no market facing participant is the recipient of the spot market value of the output of the renewable generators. This raises the real risk that government will also have to intervene in the market for controllable resources to underpin the required level of investment in services that can balance intermittent generation to maintain power reliability and security of supply. This will increase the overall cost of the scheme to Victorians.

Alternative funding models for effective assistance to reduce emissions

If the Victorian government is minded to go ahead with its renewable subsidy program, then alternative funding mechanisms to offer lower risk to Victorians and more effective assistance to renewable projects. To minimize distortions in the wholesale market the VRET scheme could provide upfront capital grants to renewable projects. Renewable energy generators have very low marginal cost but high upfront costs and technology risk as new or improved technologies are deployed. By targeting the upfront capital costs of renewable energy producers the Victorian government can increase the number of renewable projects in the State in a manner that provides policy certainty while minimizing distortions to wholesale prices and the Large Generation Credit (LGC) market. Upfront grant payments are more closely targeted to the aims of the policy and avoid payments which directly alter bidding behaviour. Upfront payments would also provide more certainty of the cost that will be passed onto Victorians (or taxpayers). Funds would not need to be paid immediately, but rather could be spread out over the first few years over a project's life at set milestones.

Such a "pay-as-you-go" scheme is also flexible as it allows the government to react to evolving technology costs, national climate change and energy policy developments, customer preferences, power system issues and other factors. Policy certainty only needs to be provided to each project from the point of the financial investment decision, so the downsides of curtailing or modifying the scheme as circumstances change are low. The Victorian government can signal to the market that it will take a flexible approach by refraining from legislating arbitrary targets, and instead maintain its renewable goals.

To effectively assist renewable projects to overcome high up-front costs to reach a final investment decision, Victoria can assist projects with a capital grant payment. A contract for difference is a payment which provides marginal revenue to generators however, given the very low marginal cost of operating and high up-front costs, support could more efficiently target the high upfront capital costs of renewable projects. For this reason, funding programs such as ARENA provide up-front capital grants to assist with the final investment decision of projects.

A grant investment auction should include stringent evaluation criteria, which include criteria to ensure the scheme:

- Does not compromise power system security and incorporates planning to overcome weakness in the power system.
- Preference high emissions abatement for least cost.
- Is technology neutral.
- Preferences locations which are not constrained by other renewable generators or local community concerns.
- Provides plans to ensure community engagement to assist in gaining a social licence to operate.

Effectively, renewable project developers would bid to receive the least amount of funds required in order to build their generation facility in Victoria. In theory, this would represent the value of any cost premium attached to building in Victoria compared to other states such as the impact of a slightly poorer renewable resource (e.g. lower wind speeds, fewer hours of sunlight).

The auctions should be technology neutral to avoid inefficiencies of a central planner picking winners. To the extent the Victorian Government is concerned that without a technology quota, the target will be met entirely by wind, this is a sign of the risks and flaws of the scheme. Similarly, the Paper asks for comment on how the government might construct an estimate of the decline in solar technology cost and build that into an auction process. The Victorian government is poorly equipped to assess technology cost reductions in energy technologies and should avoid the risk of making such judgements. Allowing proponents to compete for grant funding would mitigate the risk to Victorians of underestimating the decline in the cost of technology over time.

Avoiding market distortion by providing a clear plan to end the target scheme

The renewable energy target scheme needs to clearly define a finalization process to avoid market distortion as the end year of the scheme is approached. Policy design, particularly subsidized support for projects needs to clearly set out a plan for ending support in 2025. The Energy Council supports the Department outlining a plan to taper off of support for renewable energy projects in order to allow supported business to adjust their business models and avoid volatility in the large-scale generation certificate (LGC) market.

The Victorian Government's proposal to require projects commissioned after 2020 to hand over any LGCs generated to the Victorian Government in order to avoid distorting the LGC market is sensible if the RET is met. In the event that there is a shortfall in the LGC market, and the price of paying a shortfall penalty is lower than the price of certificates, it would be beneficial for the Victorian Government to help resolve this shortfall by gradually increasing LGC supply in the market at the penalty price.

If the VRET continues to offer incentives to generate additional LGCs after the national LRET target has been met, the oversupply in LGCs would cause the price to decline to low levels and disadvantage the renewable projects that the Victorian Government is seeking to support. The low LRET price combined with policy intervention will create uncertainties and discourage new investment. This issue is relevant irrespective of the funding model adopted (grant or contract for difference). The Energy Council proposes that all LGCs created by new projects that receive VRET support after the national LRET target has been met, should be voluntarily surrendered by the Victorian Government. The Victorian Government should re-assesses the economic viability of continuing the VRET after the LRET target has been met.

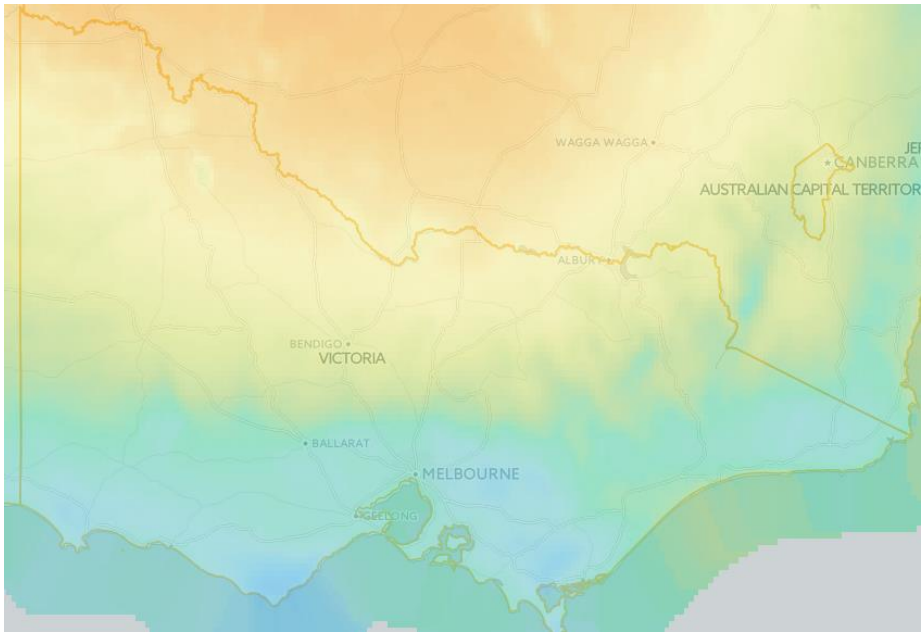
Location of new renewable plant

The location of new renewable energy projects is essential to support system security, avoid constraints (including curtailed renewable generation) and ensure communities around generation plant provide a social license to operate.

The significant number of renewable energy plants required in the next 8 years means some of Victoria's areas with weak power systems will require upgrades or additional investment to securely carry intermittent generation. AEMO has outlined Victoria's North West as an area with a weak power system, and this area has strong solar and wind resources so it is a likely location for renewable generators. The Energy Council believes the Department should design its criteria for project assessment in coordination with AEMO to advise on the potentially costly infrastructure upgrades that will be required in some parts of Victoria's network. The expected costs of network upgrades should be included in a transparent cost-benefit analysis that should be available for stakeholder input before going ahead with this policy.

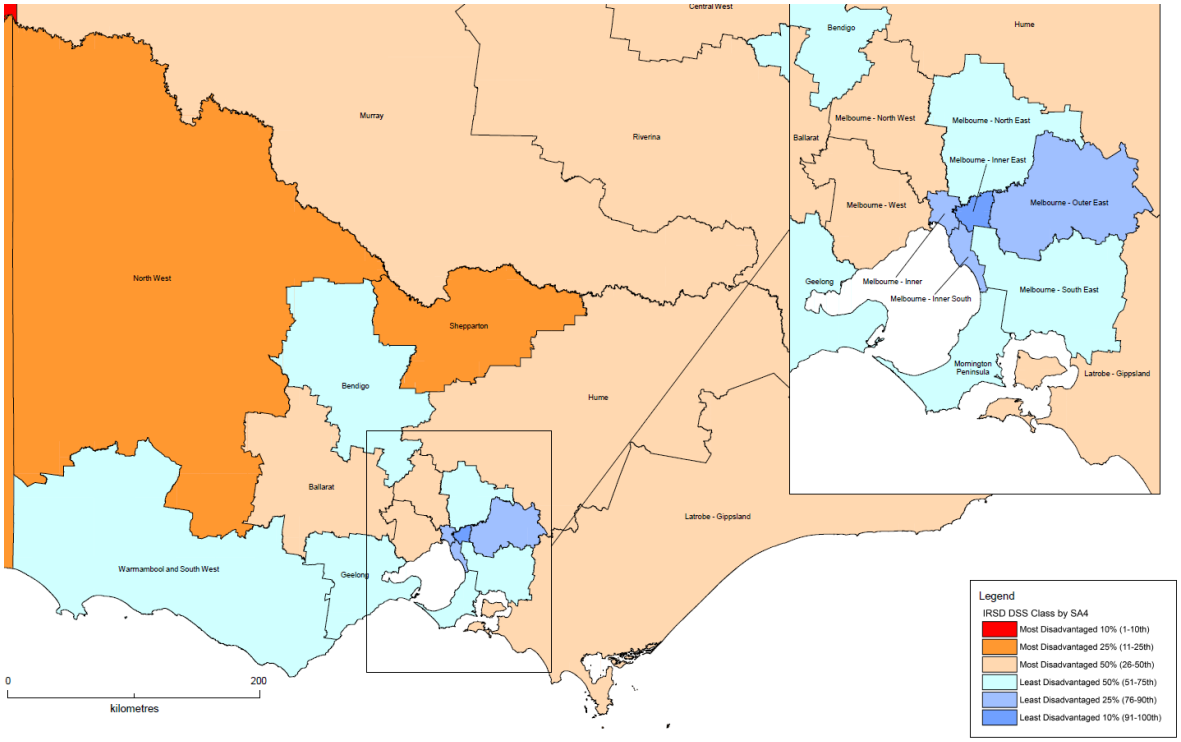
The significant number of new renewable energy projects in Victoria will take up a substantial amount of land in regional areas and project investors will require a social licence to operate in local communities. The local communities need to be engaged early to ensure their needs are met and that they are informed as their communities change with new investment. The West and North West of Victoria is a likely location for renewable projects due to its relatively strong wind and solar resources. However, the North West of Victoria is also the most socially disadvantaged region in the state and rising energy costs may contribute to hardship in these areas. Combined with significant construction of renewable plant, this may increase community tension.

Figure 4: Victoria's best solar resources are in the North West[vi]



Source: AREMI, 2016

Figure 5: Victoria's most socio-economically disadvantaged communities are in the areas likely to receive renewable energy projects, 2011[vii]



Source: Australian Department of Social Services, 2016

In regions with high shares of intermittent generation, interconnection provides an important source of balancing power supply. One of the issues worth considering is that Victoria is actually less interconnected to Tasmania and NSW than South Australia is to Victoria. This means Victoria could encounter difficulties in providing enough power at times that it is needed and in maintaining system security.

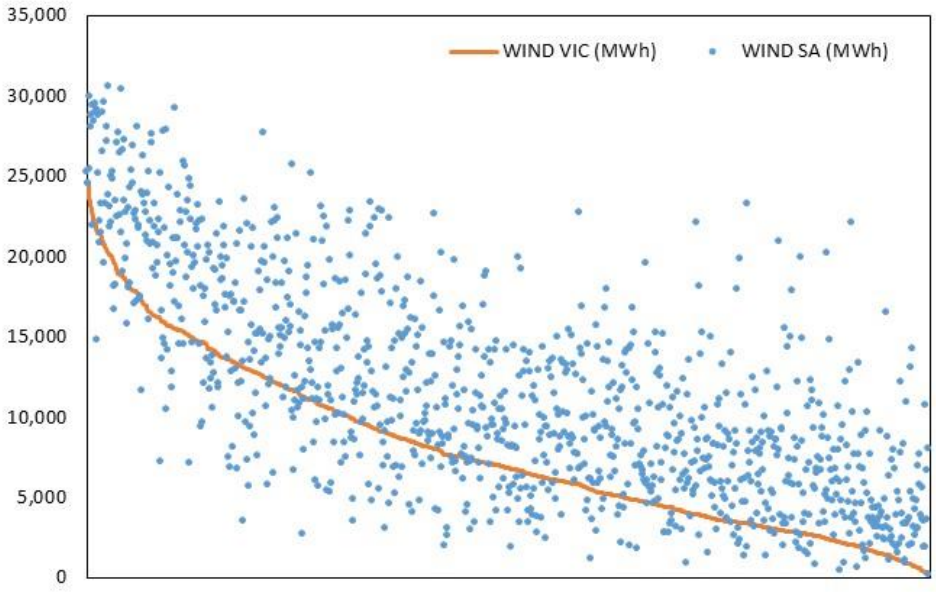
Table 1: Peak demand and the possible power supply from interconnection to other regions

Region	Peak demand* (MW)	Interconnector size (MW)[viii]	Share of demand from interconnection (%)
South Australia	3,300	800	24%
Victoria	10,000	900	9%

*Maximum Operational Demand
Source: AEMO and NEM Review 2016.

While there are several interconnectors linking Victoria with other states, there are limits on the amount of electricity these interconnectors can transport into and out of Victoria depending on which generators are operating. Crucially, at times when this interconnection may be needed most, the interconnectors may fall well short of their nominal capacity. Wind generation in South Australia and Victoria is moderately to strongly correlated (Figure 6). This means that during times of low demand and high wind output, transmission constraints mean that electricity will be unable to flow into South Australia. As such, the wholesale price in Victoria will likely crash. Such events would increases the costs of the scheme due to the guaranteed compensation to renewable generators for low prices. In addition, when Tasmania's hydro plants need to generate to prevent dams from overflowing, excess generation in Victoria would be unable to flow into Tasmania.

Figure 6: Victoria and South Australia's wind generation is highly correlated (daily wind generation in Victoria and South Australia from 2013 to 2016, MWh)



Source: NEM Review, 2016.

At times of peak demand in Victoria, it is highly likely that the maximum import capability into Victoria from NSW will be around 400 MW. Investment in the order of approximately $700 million would be required to remove this constraint to boost the capacity by 1,000 MW. Other transmission constraints that could impact flows into and out of Victoria would require large amounts of additional investment in order to remove these. These costs would fall on electricity consumers, despite only being required due to the entry of additional generation into the market as a result of government policy rather than the supply-demand balance. As such, not only would this policy result in higher prices due to funding the contracts for difference, but also through increased transmission charges. We are keen to understand the modelling of the cost impact of the VRET to Victorians, as discussed in the next section.

Cost recovery

Passing the scheme's costs fully onto Victorian consumers creates a principal/agent problem between the Victorian Government writing the contracts on behalf of Victorian consumers who bear the very large costs of the contracts. To avoid potential conflicts of interest and information asymmetry problems, the Victorian government should fund the VRET scheme on budget. As the use of distributed generation grows, foisting policy costs into consumers of grid electricity increasingly distorts the efficient trade-off between distributed and grid electricity, leading to higher overall system costs, which will ultimately be borne by consumers. If the Victorian government is determined to put the costs onto energy consumers, the Paper correctly identifies the drawbacks of imposing scheme costs directly onto retailers as opposed to network businesses.

We also note with concern the implementation costs of the VRET scheme. Multiple renewable energy programs across different levels of government result in the creation of multiple government departments and compliance teams. The jurisdictional approach to climate and energy policy is less cost effective to administer than a single federal program.

The Department's proposed position is currently to exempt emission intensive trade exposed companies (as defined under the Federal Government's RET scheme) from paying scheme costs. We note that the more parties are exempt from the costs, the higher the costs the remaining consumers have to bear. The Energy Council also encourages the Department to consider how disadvantaged people might be compensated for

higher energy costs under the VRET scheme. We note that Victoria's electricity concession framework provides percentage-based support to eligible customers. As such, any increase in electricity prices will also increase the cost of providing concessions. The Victorian Government needs to factor these costs into the overall assessment of the costs of the proposed scheme.

The Energy Council notes with concern that the likely cost of the projects and cost of network augmentation is materially higher than the estimates announced by government. Under the assumption that Victoria will achieve its 40% renewable generation target by 2025, even if the pre-2020 projects are fully funded by the VRET scheme, the cost of the remaining 3,900MW post 2020 could be at least $8 billion, significantly more than the $2.5 billion of investment outlined by the government[ix]. Our estimate is based on a cost of $2.5 million per MW of capacity and an additional 5,400 MW of wind capacity. This is before factoring in additional transmission costs and any costs required to maintain reliability and security of supply in a power system that by 2025 will exhibit very different characteristics to today's. The Energy Council is keen to understand the modelling that the Victorian government has commissioned to evaluate the cost impacts of the proposed policy. An open and transparent debate on both the costs and benefits is essential for sustainable long term policy design.

Any questions about our submission should be addressed to Emma Richardson, Policy Adviser by email to emma.richardson@energycouncil.com.au or by telephone on (03) 9205 3103.

Yours sincerely,

Kieran Donoghue
General Manager Policy and Research
Australian Energy Council

---

[i] Productivity Commission, 2011, *Carbon Emission Policies in Key Economies*, http://www.pc.gov.au/inquiries/completed/carbon-prices/report/carbon-prices.pdf; Grattan Institute, 2015, http://grattan.edu.au/wp-content/uploads/2015/05/822-sundown-sunrise5.pdf; Licensed from the Commonwealth of Australia under a Creative Commons Attribution 3.0 Australia Licence, 2014, *Renewable Energy Target Scheme: report of the Expert Panel*, http://retreview.dpmc.gov.au/ret-review-report-0

[ii] Assuming 450m between turbines for 1,543 turbines of 3.5MW per turbine required to meet the 5000MW target.

[iii] To maintain a secure power system and avoid black outs, ancillary services are procured by the market operator to secure the power system. The ancillary services which secure the power system include frequency control, voltage control, load shedding and system restart (after a system black). Intermittent renewable generation currently in Australia does not provide these services.

[iv] Deloitte Access Economics, Infrastructure Victoria, 2016, *Current and Future State of Victoria*, http://yoursay.infrastructurevictoria.com.au/application/files/3014/5525/1480/Current_and_Future_State_of_Victoria__a_macro_perspective.pdf

[v] Australian Energy Council, 2016, Curtailment of wind generation in China, https://www.energycouncil.com.au/analysis/china-s-struggle-to-integrate-renewables/

[vi] AREMI, 2016, http://nationalmap.gov.au/renewables/

[vii] Australian Department of Social Services, 2016, https://www.dss.gov.au/sites/default/files/dr7898_victoria_by_sa4_irsd_dss_class.pdf

[viii] AEMO, 2016, https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Congestion-information/-/media/0B5DF8154C7B488194E7A977E8F4950D.ashx

[ix] Victorian Government, 15 June 2016, *Renewable energy targets to create thousands of jobs*, media release