

6 August 2019

John Pierce  
Chair  
Australian Energy Market Commission

Via Email: jess.boddington@aemc.com.au

Dear Mr Pierce

**RE: Coordination of Generation and Transmission Investment – Directions Paper – Ref EPR0073**

The Queensland Electricity Users Network (QEUN) welcomes the opportunity to provide feedback on the Directions Paper - Coordination of Generation and Transmission Investment (CoGATI) issued by the AEMC on 27 June 2019.

The QEUN is a consumer advocacy representing small business and residential consumers with a particular emphasis on regional consumers. Our advocacy is based on the premise that affordable electricity is not dependent on more state and federal government energy concessions. We advocate that the pace of the transition to a renewable energy future should not be at the expense of the economy, jobs or reasonable living standards.

**Where is the ‘Coordination’ in CoGATI?**

*Definition of coordination*

*The organisation of the different elements of a complex body or activity so as to enable them to work together effectively*

*The act of making all the people involved in a plan or activity work together in an organised way*

*Organising the activities of two or more groups so that they work together efficiently and know what the others are doing*

There is not a single entity in the National Electricity Market responsible for the ‘*coordination*’ of generation and transmission investment. Coordination and CoGATI (**C**oordination **o**f **G**eneration **A**nd **T**ransmission Investment) implies a form of collaborative planning; groups with a vested interest working together effectively and efficiently on a complex problem.

The COAG Energy Council made a request to the Energy Security Board (ESB) to develop a plan to make AEMO’s Integrated System Plan (ISP) actionable. The ISP is a cost-based engineering optimisation plan by AEMO that forecasts the overall transmission system requirements for the National Electricity Market over the next 20 years. The ESB delivered the ISP Action Plan to COAG Energy Council in December 2018.

The problem with the ISP Action Plan is the ownership of transmission and generation assets is no longer the sole domain of members of COAG Energy Council. The previous ownership structure did allow for central planning by vested interests. Central planning took into account demand

forecasts, location of the demand, engineering requirements (such as system strength and voltage) and the timing of the increased demand by various classes of consumers.

However, the centralised forward planning of generation and transmission investment by state governments has been replaced with investment that is driven by shareholder profit or more recently by environmental and political considerations.

Despite the change and diversification of asset ownership and the varied motives for asset investment, the ISP still retains the potential to be the actionable plan that coordinates generation and transmission investment across the National Electricity Market. The ISP modelling claims to provide “*targeted investment portfolios that can minimise total resource costs, support consumer value, and provide system access to the least-cost supply sources over 20 years to facilitate the smooth transition of Australia’s evolving power systems*”.

With robust input from all stakeholders, particularly consumer advocates that struggle to find the resources to attend critical ISP consultations, the ISP can deliver what consumers need and fulfil its rightful place as a key recommendation of the Finkel Review. However, the ability of the ISP to achieve a nationally consistent and coordinated approach to generation and transmission investment in the NEM is severely impacted by the policies adopted by individual members of COAG Energy Council. The ability of individual members to cause governance issues was highlighted and addressed in Recommendation 7.3 of the Finkel Review.

Recommendation 7.3 was accepted by all members of COAG. The Energy Security Board, itself the product of a recommendation of the Finkel Review and the entity responsible for the ISP Action Plan, reported in its December 2018 ‘*The Health of the National Electricity Market*’ that Recommendation 7.3 had been delayed while work on the National Energy Guarantee was progressed. It also stated that further work on Recommendation 7.3 would commence in 2019.

***Finkel Review Recommendation 7.3:***

*By mid-2018, COAG leaders should agree to a new Australian Energy Market Agreement that re-commits all parties to:*

- *Taking a nationally consistent approach to energy policy that recognises Australia’s commitment in Paris to reduce emissions and governments’ commitment to align efforts to meet this target with energy market frameworks.*
- *Notifying the COAG Energy Council if they propose to take a unilateral action that falls within the scope of Australian Energy Market Agreement prior to taking the action.*
- *Within 28 days of notification, the Energy Security Board will provide advice to the COAG Energy Council on the impacts of the proposed action taking into account the objectives of Australian Energy Market Agreement.*

Consumers need to have faith that COAG Energy Council is capable of delivering a *coordinated* approach to generation and transmission investment in the NEM. A robust ISP Action Plan is highly dependent on the commitment of COAG leaders to comply with Recommendation 7.3.

Failure to implement Recommendation 7.3 is akin to football players adjusting their game strategy because one or more players, without the prior consent of other players, move the goal posts.

Due to the failure of COAG leaders to sign a new Australian Energy Market Agreement by mid-2018, there is no 'coordination' in the CoGATI process and consumers are at serious risk of building excess transmission capacity that will result in higher power bills for all NEM consumers on an enduring basis.

### **The impact on reliability and affordability caused by a lack of 'Coordination' in CoGATI**

CoGATI does not take into consideration whether new or upgraded generation connecting to new or upgraded transmission is dispatchable. Instead CoGATI is focused on whether it should be generators or consumers that pick up the tab for new or upgraded transmission. Allowing market forces to apportion transmission costs in isolation to physical considerations, exposes consumers to a heightened risk of a supply that is not reliable, not secure and delivered by a national electricity system that is not resilient.

Despite AEMO's latest MTPASA (Medium Term Projected Assessment of System Adequacy) identifying no low reserve conditions over the next 2 years, consumers and the market are not convinced. Many now believe the NEM is in a fragile state of supply, particularly during periods of peak demand in summer from 4.00 pm to 9.00 pm. The fragile state became a stark reality for Victorian consumers on 25 January 2019 when 200,000 consumers suffered rolling blackouts after being assured by the Victorian Government only 90 minutes earlier that their lights would not go out. The supply concerns of last summer have now spilled over into the coming summer as evidenced by only a minor drop in futures prices for FY20 compared to the average annual spot price for FY 2019 (see Table 1).

**Table 1: AEMO FY19 average annual spot price and ASX FY20 futures price**

State	AEMO FY19 average annual spot price	ASX FY 20 Futures price
NSW	\$88.56	\$86.26
Vic	\$109.81	\$107.14
QLD	\$80.29	\$76.89
SA	\$109.80	\$105.53
Tas	\$90.01	n/a

*Source: AEMO Data Dashboard and ASX Energy Market Wrap week ending 22 July 2019*

CoGATI's narrow focus on the allocation of transmission costs completely ignores the need to coordinate new generation to ensure that the national reliability standard of 0.002% is not breached. COAG Energy Council is not addressing the issue of a lack of firm capacity from intermittent renewable energy projects seeking to connect to proposed new transmission. Instead it is adopting policies and national electricity rules that pay commercial and industrial businesses to reduce their consumption of grid supplied electricity when the grid is under severe stress ie demand is expected to be higher than the available supply. This strategy of targeting commercial and industrial businesses affects production, jobs and the economy. The strategy of COAG Energy Council is reactionary and fails to address the primary reason for rising peak demand ie the rising demand for residential air-conditioning. Addressing this issue would ensure consumers do not pay for generation and transmission that is only needed on a few days of critical demand each year.

AEMO is responsible for transmission planning in Victoria. In the recent Western Victorian RIT-T consultation AEMO advised us that their Project Assessment Conclusions Report did include modelling on:

- Estimates of generation output based on historical records of like generators (in this case - existing wind farms in Western Victoria)
- Weather forecasts
- Demand estimates
- Construction cost of generators
- Connection cost of generation (which includes any additional costs to ensure the existing network is not harmed)
- Operational cost of the generator (fixed and variable)
- Fuel cost of the generator

Whilst we understand AEMO did model the output of generators seeking to connect to the proposed \$370 million regulated transmission asset, stakeholders were not privy to AEMO's modelling assumptions of generator output or any model by AEMO that demonstrated that increased transmission costs would be offset by lower wholesale electricity prices.

The Western Victorian RIT-T was triggered by the expected development of around 2,000 MW of committed new renewable generation by 2020, a further 3,000 MW by 2025 and 1,000 MW by 2030. Most of the initial new generation are wind farms with limited dispatchable generation due to the non-inclusion of batteries. Batteries are not a prerequisite to the approval of a wind or solar farm. Batteries do improve the supply of dispatchable generation however the duration of the dispatchable generation is governed by the charge in the battery and the discharge rate.

The biggest battery in Australia is 100 MW and the maximum operational demand in Victoria in Quarter 1, 2019 was 9,328 MW. A 100 MW battery could contribute 100 MW over a period of about an hour but the peak demand is typically 4 to 5 hours from 4.00 pm to 9.00 pm. Once discharged the battery must wait to recharge before supplying electricity again. If the grid is critically short of supply, the battery will be reliant on the wind or solar farm it is connected to for its recharge. Its recharge is therefore dependent on whether the wind is blowing or sun shining at that wind or solar farm location during the critical peak demand period usually from 4.00 pm to 9.00 pm.

The general public and business community continue to be in the dark with regards to the ability of intermittent renewable energy generation to contribute to electricity supply during periods of peak demand.

Recently it was revealed that one wind farm in central Victoria experienced a decline in peak generation output from around 30 degrees Celsius, with severe capacity limitation from 37 degrees Celsius. It is generally accepted that high temperatures directly correlate to increased demand for grid supplied electricity. Therefore when demand is stretched due to high temperatures, and possibly approaching critical levels, this particular wind farm in central Victoria may contribute little to the supply of electricity in Victoria.

This revelation is cause for considerable concern for all NEM consumers as the Australian Energy Market Agreement currently allows for AEMO to share load shedding between multiple states ie a load shedding event in Victoria could result in load shedding in South Australia and New South Wales.

Stakeholders are not privy to AEMO's assumptions on the output of individual generators therefore stakeholders are not able to understand AEMO's assumptions on the contribution (firm capacity) of existing and new renewable energy projects to AEMO's supply forecasts for their ISP. Media releases on renewable energy projects boast how many houses the project will supply, there is no reference to the reliability of the supply or the cost of the supply if a battery is added.

On 24 February 2019 at 7.00 pm, regional intermittent generation capacity contributed 5.6% to the maximum peak demand of Victoria and South Australia (see Figure 1).

On 25 February 2019 in Victoria (the day 200,000 consumers were load shed with little or no prior notice), 42% of the registered regional intermittent generation capacity was available at maximum peak demand (see Figure 2).

It should be noted that due to a cool afternoon change peak demand on 25 February occurred much earlier than the traditional peak demand period of 4.00 pm to 9.00 pm. The variability in demand and supply experienced by Victoria last summer highlights the critical importance of having sufficient dispatchable generation to meet the reliability standard.

At present Queensland has surplus dispatchable generation and is the reserve supply for the NEM, regularly supplying up to 1,300 MW to New South Wales last summer. However, most of Queensland's rooftop solar will be aged (around 15 years old) when Queensland's first coal-fired generator (capacity 1,680 MW) retires in 2029. It is widely expected that rooftop solar and utility scale solar farms will play a major role in replacing the generation currently supplied by Queensland's dispatchable coal-fired power stations.

However, the majority of Queensland's rooftop solar was installed as a direct result of a 44 cents/kWh Solar Feed-in tariff offered by the Queensland Government's Solar Bonus Scheme (SBS). The SBS and its 44 cent Feed-in tariff will cease in 2028. The Queensland Government through its wholly owned Ergon Energy Retail currently pays regional Queenslanders not in the SBS, a Solar Feed-in tariff of 7.842 cents/kWh. The Queensland Productivity Commission estimated the SBS cost at \$4.1 Billion. From 2008 to 2016 the SBS was recovered as a state levy collected via all Queensland power bills. In 2016-17 the Queensland Government agreed to absorb the SBS cost for 3 years at a cost of \$770 million. It is uncertain who will pay the remaining SBS cost of around \$2 billion as no provision has been made in the Queensland Budget past June 2020. It cannot be ruled out that the Queensland Government will again elect to recover the remaining SBS cost as a state tax in power bills. As the first Queensland coal-fired power station retires in 2029, Queensland will be heavily reliant on the generation from hundreds of thousands of intermittent domestic rooftop solar that are no longer receiving a subsidy and have questionable output due to their age and maintenance.

On 13 February 2019 at 5.30 pm, Queensland set a new all-time maximum demand record of 10,044 MW. At this critical peak demand period registered utility scale solar farms contributed less than 5% to the maximum peak demand (see Figure 3).

Figure 1:

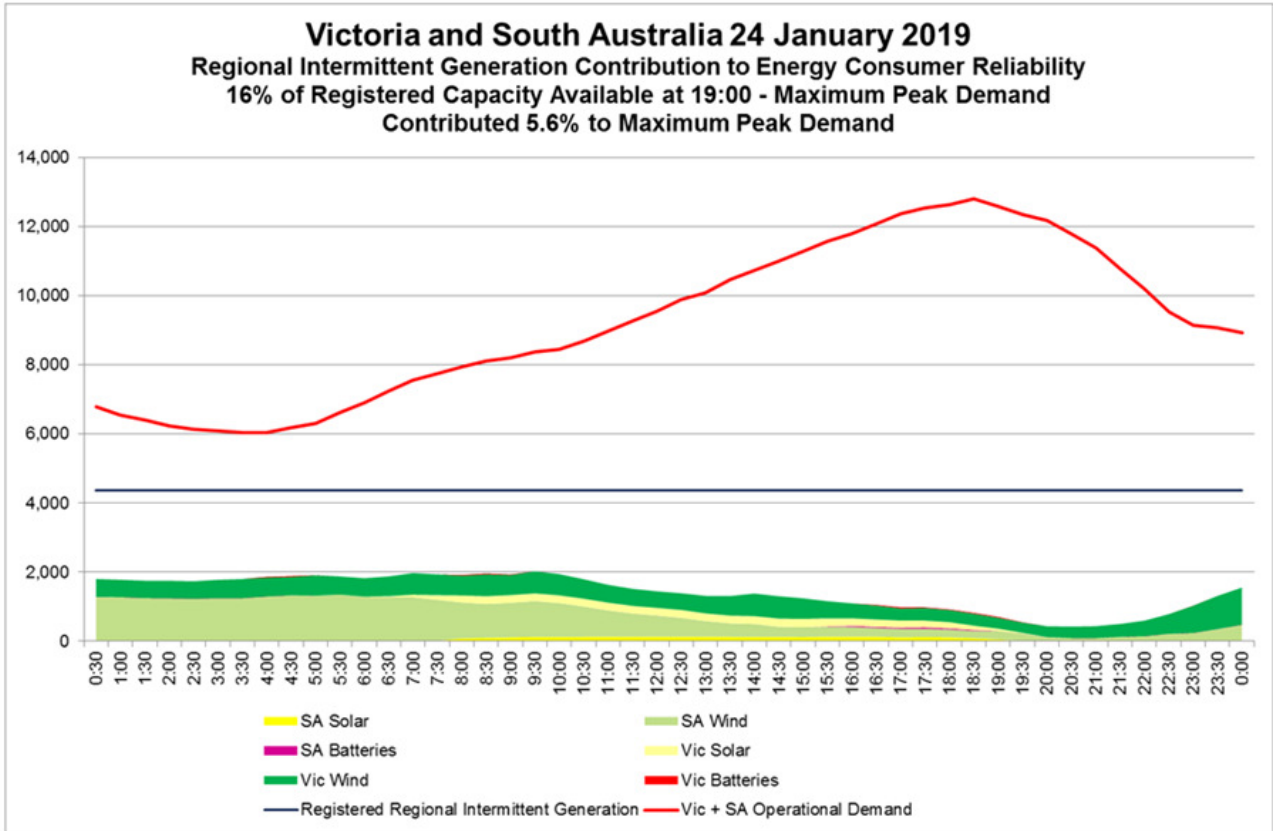


Figure 2:

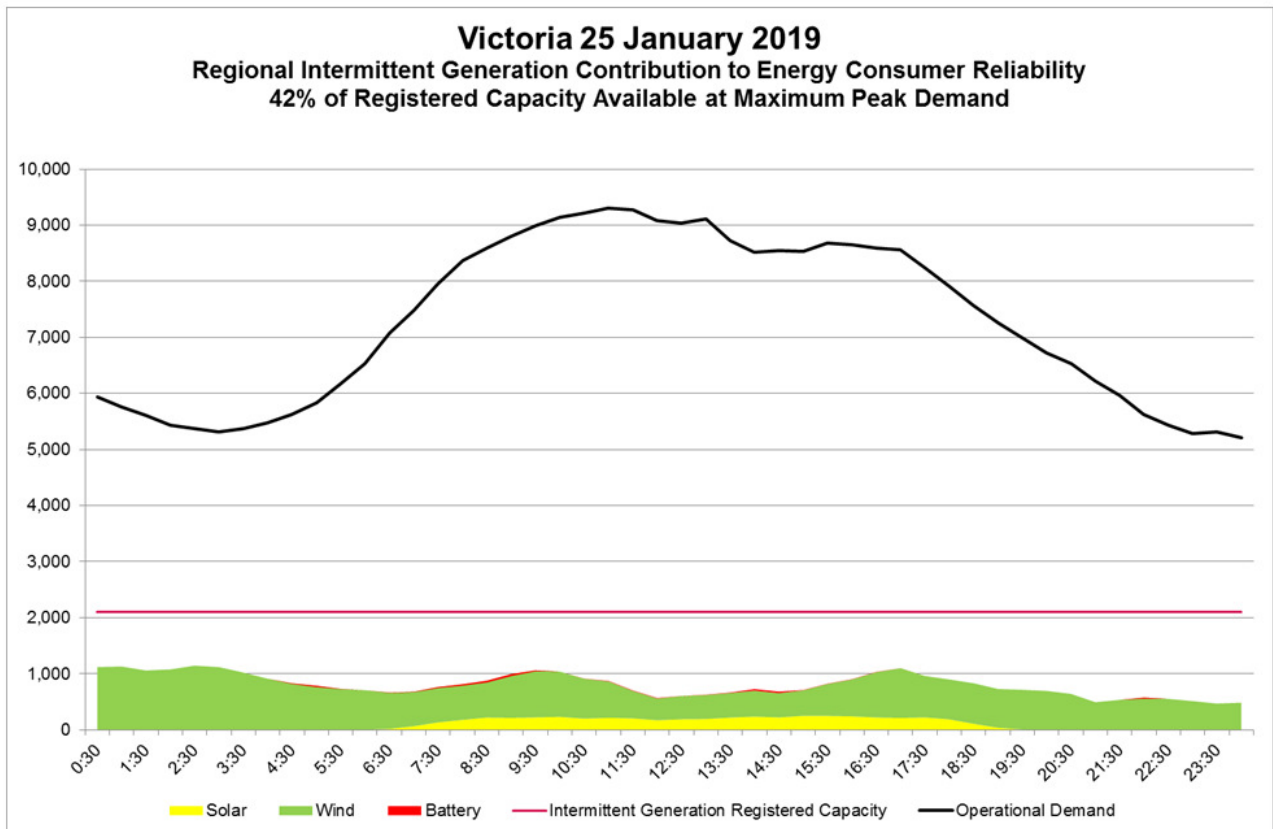
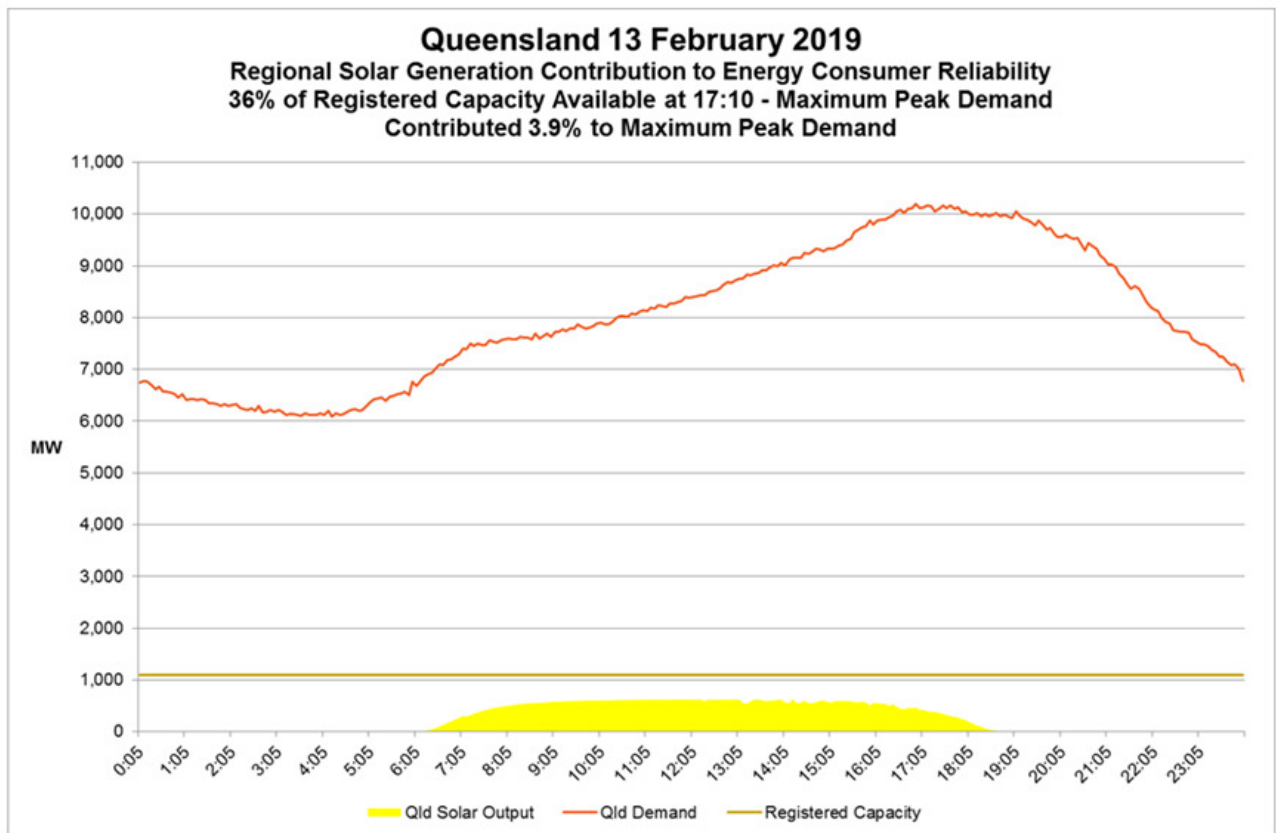




Figure 3:



**Should transmission costs continue to be subject to the traditional RIT-T process?**

CoGATI is championing a new financial product to reduce the burgeoning costs of transmission required to accommodate a national electricity system highly dependent on intermittent renewable energy. Information from the AEMC on the access reform (transmission hedges) is insufficient for stakeholders to form an opinion on whether transmission hedges are a practical solution to ensuring transmission is built at a capacity and in a location that is in the long term interests of consumers.

Our specific concerns include:

*Market liquidity*

Markets need liquidity to properly function. Generator location and therefore the location of transmission networks are highly dependent on government support, ownership and/or subsidies for new generation projects.

Examples of government decisions potentially influencing transmission investment include:

- *for an individual utility scale generator* – the Federal Government’s ownership of Snowy 2.0, its Underwriting New Generation Investments Program and funding

provided through ARENA, Clean Energy Finance Corporation and the Northern Australia Infrastructure Facility

- *for a group of utility scale generators in a renewable zone* - COAG Energy Council's support for Renewable Energy Zones identified in the ISP, the Queensland Government's support for new renewable generation and transmission assets in the Powering North Queensland Plan
- *for a group of non-utility scale generators* – the Victorian Government's Solar Homes Program for 650,000 rooftop solar or any potential plan by the Queensland Government to replace hundreds of thousands of aging rooftop solar post the end of its Solar Bonus Scheme in 2028

As per above COAG Energy Council members, either individually or collectively, can significantly influence the market liquidity of transmission hedges through their support, ownership or subsidies of new domestic or utility scale generation. Their individual or collective decision to support a particular generation or transmission asset in one location could result in stranded generation and transmission assets in other locations, making transmission hedges an obsolete investment.

#### *Different risk appetite for investors in generation and transmission assets*

Transmission usually takes 4 years to build yet renewable energy generation can be built in a period of 1-2 years. Investors in renewable energy projects may be driven by commercial or altruistic motives. There needs to be an investigation into the appetite of existing investors in renewable energy projects for transmission hedges eg CopperString (merchant basis) and EnergyConnect (regulated asset basis).

Improved system planning is addressed in Finkel Review Recommendation 5.2 and 5.3.

#### ***Finkel Review Recommendation 5.2***

*By mid-2019, the Australian Energy Market Operator, in consultation with transmission network service providers and consistent with the integrated grid plan, should develop a list of potential priority projects in each region that governments could support if the market is unable to deliver the investment required to enable the development of renewable energy zones.*

*The Australian Energy Market Commission should develop a rigorous framework to evaluate the priority projects, including guidance for governments on the combination of circumstances that would warrant a government intervention to facilitate specific transmission investments.*

#### ***Finkel Review Recommendation 5.3***

*The COAG Energy Council, in consultation with the Energy Security Board, should review ways in which the Australian Energy Market Operator's role in national transmission planning can be enhanced.*



Recommendation 5.2 could be interpreted to mean that federal and state governments will step in to invest in transmission to support the development of renewable energy zones if private investment is not forthcoming. The cost of new transmission to support a high level of intermittent renewable energy vary widely but figures of \$8 billion plus are not uncommon. This level of transmission investment would significantly increase federal and state government debt in a slowing economy and put at risk government credit ratings.

We believe COAG needs to investigate national policies that would encourage Australian superannuation funds to invest in strategic transmission assets identified by the ISP Action Plan that have been subjected to a more transparent RIT-T process and greater scrutiny of AEMO forecasts, particularly AEMO's business demand forecasts.

Due to last month's drop in Swiss 50 year bond rates to below zero, we believe Australian superannuation funds would welcome the discussion on national policy settings that would encourage them to invest in long life transmission assets subject to the RIT-T process.

## Summary

A 'coordinated' approach to generation and transmission investment will result in a national transmission system capable of providing affordable, reliable and secure electricity from a resilient national electricity system.

Coordination is dependent upon:

- the signing of a new Australian Energy Market Agreement by all members of COAG in 2019
- an ISP Action Plan that is not reliant on complicated untested financial products such as transmission hedges
- a RIT-T process that is more transparent particularly in relation to the modelling of firm capacity of proposed renewable generation projects seeking to connect to new or upgraded transmission
- AEMO forecasts that have been widely scrutinised and supported by a range of stakeholders with particular emphasis on business demand forecasts for small and medium size businesses – SMEs represent the bulk of the demand for grid supplied electricity and employ half the workforce ie investment in more transmission is highly dependent on the demand from SMEs and their employees

Yours faithfully

A handwritten signature in blue ink that reads 'Jennifer Brownie'.

Jennifer Brownie  
Coordinator