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RE: Response to the Electricity Network Regulation Issues Paper

The Clean Energy Council (CEC) is the peak body representing Australia's clean energy and energy efficiency industries. Its priorities are to:

- create the optimal conditions in Australia to stimulate investment in the development and deployment of world's best clean energy technologies
- develop effective legislation and regulation to improve energy efficiency and opportunities for the clean energy industry
- work to reduce costs and remove all other barriers to accessing clean energy

The CEC works with members and the government to identify and address the barriers to efficient industry development in the energy efficiency and stationary energy sector. The clean energy industry contributes to the generation of electricity using wind, hydro, solar, biomass, geothermal and ocean energy as well as the emerging technologies and service providers in the energy efficiency sector including solar hot water and cogeneration.

The CEC welcomes the Productivity Commission's (Commission) inquiry into Electricity Network Regulation (Inquiry) and the CEC recognises its importance with regards to continual increases in electricity prices and ongoing review across the regulatory framework. In general our submission focusses on areas in the Issues Paper which do not relate to benchmarking. In summary the CEC considers that

- There are significant inefficiencies in the current regulatory framework and the Commission is well placed to undertake an independent inquiry considering the long term benefits to society.
- The Australian Energy Regulator should be equipped to undertake its role responsibly, effectively and with all necessary tools and powers to do this, including through benchmarking.
- Current frameworks for interconnector investment require enhancement in areas such as the alignment of planning documentation and the insufficient system-wide visibility by the relevant jurisdictional planning bodies.
- There are flaws in the way that the long term interests of consumers are captured in making decisions on interconnector investment as a result of the current jurisdictional fragmentation of the National Electricity Market (NEM).

- Consumers are only exposed to benefits of reduced wholesale electricity prices in the long term. Interconnector investment needs to consider and capture this aspect of the market. In particular changing trends in generation investment need to drive interconnector investment effectively for consumers to see the long term benefits of the lowest cost electricity generation.
- Current arrangements for investment at the distribution level do not drive innovation in the physical system. In particular, widespread rollout of demand side management, demand side participation, embedded generation technologies and supporting technologies seems unlikely whilst the regulatory framework incentivises network investment instead.
- There are gross inefficiencies in the way that new technologies are developed and introduced into distribution networks across the NEM.

The following sections outline the CEC's comments in response to the AEMC's consultation paper.

1 Context of the Inquiry

The CEC does not expect that the Commission needs further convincing of the fact that the NEM's networks are inefficient. Market failings have been identified and documented in many areas – the Commission's Issues Paper outlines clear evidence of this as provided by the Australian Energy Regulator (AER) and the Commission itself[1]. This work supports the work already undertaken by Garnaut where he notes that[2]

> "*There is an unfortunate confluence of incentives that has led to significant overinvestment in network infrastructure. It is clear from market behaviour that the rate of return that is allowed on network investments exceeds the cost of supplying capital to this low-risk investment.*"

He then goes on to outline a correlation between investment and ownership arrangements, where state owned network companies are incentivised to over-invest as they have a lower cost of borrowing[3].

These debates, and others, are all feeding into the market reviews and rule change processes currently underway as noted by the Commission in the Issues Paper. Indeed clear visibility of market inefficiencies has motivated the AER to develop its rule change proposal on the economic regulation of network service providers.

On the basis that these strong indicators have already been identified, the CEC expects that there is value in the Commission's undertaking of the current work as an independent body. The electricity supply industry is facing some significant challenges and the root cause of issues such as inefficiency need to be revealed and managed. Frank and independent investigation is required to understand the adaptation process and overcome barriers in a timely manner so that challenges can be dealt with effectively and swiftly.

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[1] Australian Government, Productivity Commission, 2012, *Productivity in Electricity, Gas and Water: Measurement and Interpretation*, www.pc.gov.au.
[2] Garnaut, 2011, *Garnaut Review 2011: 11 Electricity Transformation*, http://www.garnautreview.org.au/update-2011/garnaut-review-2011/chapter11.html
[3] Ibid.

1.1 Terms of Reference

The CEC notes that there are terms of reference for the inquiry states that the Commission is to consider the "*long-term interests of consumers, consistent with the NEO*"[4]. Importantly, and of some concern is the limitation of NEO, which is interpreted as presenting all arguments on an economic basis. The CEC expects that the Commission would find it difficult to assess the benefits to the community as a whole if the inquiry focusses purely on economic grounds and notes that the Commission is in a unique position to undertake this inquiry as its mandate is in fact more broadly focussed on maximising the "*long-run benefits to the community as a whole*"[5].

The CEC would hope that the Commission's mandate allows it to consider benefits to the community more broadly than within the limited scope of the NEO. In particular the Commission should be able to give regard to the environmental sustainability objectives of externalities such as the Renewable Energy Target (RET) (which was also legislated under the mandate of long-run benefits to the community as a whole).

2 Benchmarking

In the Issues Paper the Commission has outlined a range of different considerations relating to benchmarking. The CEC does not hold a position on the relevance or applicability of these different approaches. The CEC do however express concern that the AER is not well equipped to fulfil its role as the economic regulator under a regime where independent Network Service Provider (NSP) businesses control natural monopolies.

There is widespread dissatisfaction with (and within) the AER in its failure to control electricity costs across the NEM in recent years. Network costs have been steadily increasing since the inception of the NEM and, whilst the AER may have been undertaking the tasks within its role it has been unable to effectively control these costs. Failures identified in the undertaking of the revenue reset process have manifested into the current Economic Regulation of NSPs[6] rule change proposal under consideration with the AEMC and the ongoing Review of the Limited Merits Review being undertaken by the SCER[7]. Both of these reviews look at a host of concerns that the AER has in relation to barriers which affect the undertaking of its responsibility to control costs borne by consumers.

The CEC agrees with the Commission that benchmarking will be unable to supersede the current 'building block' approach taken by the AER. Rather, benchmarking methods should be able to be applied by the AER in order to provide supporting information to its determinations. Indeed, benchmarking should be another tool from the AER's toolbox of revenue assessment tools at its disposal. Given the broad use of benchmarking in regulated markets globally the CEC sees no reason why this could not be the case.

[4] Issues Paper, p. iii.
[5] Ibid, p. 6.
[6] Australian Energy Market Commission, 2011, *RC0134: Economic Regulation of Network Service Providers*, available: www.aemc.gov.au.
[7] Standing Council on Energy and Resources, 2012, Review of *Limited Merits Review*, www.scer.gov.au.

3 Interconnector Issues

As recognised by the Commission one of the key benefits of enhanced interconnector capacity in the NEM is a reduced incidence of price separation between different jurisdictions. This separation has been related to differences in the costs of generation technologies contributing to peak demand. The overall benefit of better/enhanced interconnection is expected to be lower average wholesale electricity prices across the NEM, which can then be passed on to customers through the retail market. Clearly, there is an efficiency limit to the level of investment as over-investing in interconnection will have the opposite effect whereby electricity prices could increase (noting also that this latter outcome that is not one which Australia is in any danger of facing any time soon).

3.1 Current Arrangements for Interconnector Investment

The NEM already provides three mechanisms intended to facilitate interconnector investment, these include:

- The Regulatory Investment Test for Transmission (RIT-T) which requires a TNSP to publicly identify that a transmission (interconnection) project is efficient whilst also ensuring that AEMO and AER have vision of the planning decisions in the context of the NTNDP, the AER guidelines and the National Electricity Rules (Rules). When applying the RIT-T both intra- and inter-regional market benefits should be considered.
- The National Transmission Network Development Plan (NTNDP) which is produced annually by AEMO and considers options for planning the transmission grid over a 20 year timeline, requiring that AEMO applies high level assumptions about project costs and new entry generation technologies and projects. In recent cases AEMO has considered five different future scenarios in the NTNDP.
- The AEMC's Last Resort Planning Power (LRPP) as provided by Clause 5.6.4 of the Rules. The LRPP is an essential safety net which can be invoked by the AEMC under the assertion that adequate investment in inter-regional transmission has not been considered in a particular location. The LRPP provides the AEMC with the capacity to make a TNSP undertake the RIT-T process.

Although, this framework is in the early stages of its application, room for improvement has already been recognised. In the first instance, the ways in which TNSPs present their planning material are very different, making the planning processes obscure to many observers.

Secondly, although AEMO has visibility of possible interconnector development options as a result of the scenarios considered in the NTNDP, it then has no means to enforce or promote this process other than through high level advice (noting that in Victoria AEMO undertakes additional obligations).

Finally, the AEMC's capacity to invoke its LRPP does not imply that it is equipped with the technical skills to fully understand the implications of any particular RIT-T proposal that it may direct a TNSP to undertake. LRPP is intended as a safety net reserved for cases where the AEMC has identified that alternative channels have failed and resulted in significant issues in the market.

3.2 But do Consumers See Benefits?

Electricity consumers are shielded from changes to wholesale electricity prices as they purchase electricity in the retail market which is usually regulated by relevant jurisdictional bodies. As a result there can be significant separation between retail and wholesale prices. For example AEMO's average electricity price tables[8] show that the wholesale price in South Australia has decreased by nearly 40% since the 08/09 financial year. Despite this the ESCoSA have passed a 44% increase in wholesale electricity prices on to consumers over the same period[9].

Although aspects of the investment framework are new measures which are currently demonstrating some investment in the short term, their application to date does not necessarily show material evidence of efficiency. The question of efficiency in interconnector investment must focus on longer term market conditions in the NEM, and the potential to provide benefits to consumers. Key to this will be the introduction of a carbon pricing mechanism which will have a significant impact on generation investment decisions in the long term. The modelling being applied by AEMO in the forthcoming NTNDP[10], and which is also planned to contribute to the Energy White Paper shows that capital costs for large scale generation projects will change dramatically over the next ten years as a result of carbon pricing. This change is expected to steer investment away from traditional generation technologies and towards lower emission alternatives such as renewable technologies.

Thus, the Commission must consider the efficiency of the current arrangements within the context of a future scenario where traditional generation technologies are superseded by investment decisions based on lower carbon intensity energy options.

High penetrations of renewable generation imply technology and geographic diversity. Under this condition cases are envisaged to arise where load and generation capacity will not always align within a region. In other words one region may have significant generation potential at a time when demand within that region is low and is exceeded by the generation capacity. To illustrate, if wind generation in South Australia exceeds overnight demand, the excess generation could be used in Victoria via interconnectors. This condition clearly relies on reliable interconnection.

Planned carbon pricing mechanisms are projected to increase capital costs of, and hence electricity sold from, many fossil fuel based generation technologies. Hence consumers will benefit in the longer term from increased market penetration from renewables – strengthening the case for efficient interconnector investment in the long term.

Despite this evident benefit, a regulatory structure composed of independent jurisdictional planning bodies (JPBs) is unlikely to provide efficient investment under the consideration of broader social objectives. This function would be more appropriately appointed to a body which has system-wide visibility and the power to optimise nationally for the long term benefit of consumers. Whilst this is the prima facie role of the NTNDP, the influence of these studies is lacking in real terms.

In summary, the CEC expects that inefficiencies in interconnector investment will become more evident in response to the changing investment profile of new low emission generation in the NEM. Any significant interconnector investment will be difficult to realise given the current regulatory

[8] AEMO, 2012, *Average Price Tables*, http://www.aemo.com.au/en/Electricity/NEM-Data/Average-Price-Tables
[9] Essential Service Commission of South Australia, 2011, *Why have energy prices increased?: fact sheet*, www.escosa.sa.gov.au.
[10] Worley Parsons, 2012, *Costs of Construction: New Generation Technology*, www.aemo.com.au.

environment. In particular we expect that visionary projects such as AEMO's NEMLink[11] would not be achievable under the currently jurisdictional based approach to planning, as indicated by Matt Zema in his forward to the 2011 NTNDP[12]. Under the condition that interconnector planning remains the responsibility of independent JPBs under high level input from AEMO, these new market conditions will remain an externality to the process and the source of increasing inefficiency in the coming years.

4 Moving Towards the Future - Demand Side Management, Participation & Embedded Generation

The benefits of demand-side management (DSM), demand-side participation (DSP), and Embedded Generation (EG) have been proven in a number of trials across Australia[13, 14]. Focussed at the distribution network level they represent significant opportunity for efficiency gains through demand reduction. However, as indicated by Garnaut[15] current regulatory arrangements focus on rewarding DNSPs for investing in new network 'poles and wires' infrastructure rather than to seek out alternatives to network investment[16]. Until a fundamental shift in the regulatory framework creates incentives for DNSPs, opportunities for DSM, DSP and EG to play a significant role will remain limited to trial projects.

Some other key considerations supporting this argument include:

- The recent smart meter roll-outs across the NEM were not the result of DNSP initiatives. Rather they were the result of funding from government initiatives.
- Government initiatives have also driven investment in residential solar photovoltaic (PV) generation, resulting in close to 1,000 MW of residential PV installations to date[17] across the country. Despite this the vast majority of peak demand comes from commercial and industrial (CI) electricity consumers. Implying that significantly more opportunity exists for demand management in these sectors of the economy. If DNSPs were made responsible for managing demand, the logical target consumers would be in the CI sector rather than residential sector. Concurrently, the vast capacity for co-generation and tri-generation in the NEM would be better utilised.
- There is no competition in a natural monopoly. Therefore consumers are unable to drive commercial incentives for DNSP businesses to improve opportunities for consumer participation.

[11] AEMO, 2011, *National Transmission Network Development Plan for the National Electricity Market*, available: www.aemo.com.au.
[12] ibid, p. iii.
[13] Western Power, 2012, *Perth Solar City Study*, http://www.perthsolarcity.com.au.
[14] Ausgrid, 2008, *Network Demand Management and Planning Project*, www.ausgrid.com.au.
[15] Garnaut, 2011, *Garnaut Review 2011: 11 Electricity Transformation*, http://www.garnautreview.org.au/update-2011/garnaut-review-2011/chapter11.html
[16] Garnaut, 2011, *Garnaut Review 2011: 11 Electricity Transformation*, http://www.garnautreview.org.au/update-2011/garnaut-review-2011/chapter11.html
[17] Clean Energy Council, 2011, *Clean Energy Australia Report 2011*, www.cleanenergycouncil.org.au, p. 33.

4.1 Current arrangements

These points outline above all demonstrate that, despite clear benefits being present in the use of demand management, EG and enabling technologies, DNSPs have concurrently demonstrated that they are not willing to take the lead on such measures without incentive. DNSPs will continue to operate within the regulatory framework they find themselves. While this framework incentivises investment in new network infrastructure over customer-side alternatives this outcome will persist.

The CEC notes that the Commission has observed that Australian electricity grids are "*becoming increasingly smart*"[18]. The CEC urges caution in this assertion. In reality, aside from some early stage trails little has changed in electricity distribution systems.

The introduction of 'smart' meters has enabled DNSPs to record consumption data on a fine time scale, but many DNSPs have not found a meaningful use for this data to date. The true functionality of smart metering arrangements can only be realised under the introduction of time of use reflective tariffs that closely reflect fluctuations in wholesale electricity prices.

Similarly, newly introduced EG technologies are 'passive' in their operation. They provide no supporting function to the network. In reality distribution networks have evolved little. To demonstrate, some of the design manuals still used today were hand typed in the 1950s by the State Electricity Commission of Victoria.

4.2 Technology development and market access

One of the major inhibitors to increased development of innovative technologies which could be applied to distribution networks is the grossly inefficient processes behind the development and deployment of these technologies. Technology innovation at the distribution level is mostly contained within each individual business which works independently and innovates within internal programs. These programs often result in less than useful outcomes, produce bespoke technologies that rarely get beyond the pilot stage and can exhaust vast sums of money and time. The inefficiency is evident in that for every year than passes, sixteen years of engineering skill is consumed with a very low residual benefit to society.

An alternative structure could establish a single testing and approval body that considers the appropriate application of technologies for use in Australian distribution networks. Once a particular device is approved all DNSPs would be able to consider it in their network investment choices. Equipment would be provided by private industry for certification. A focussing of resources would result and innovation would be passed over to private enterprise where it can be developed and delivered at a price driven by market efficiencies.

4.3 Distribution Use of System Charges

Another factor contributing to a slow uptake of the use of EG and DSP is the approach taken by DNSPs to network charging. DNSPs charge a distribution use of system charge (DUoS) based on the fixed capacity of connection or peak demand, irrespective of the energy consumed or generated by the customer. Thus, there is limited scope for a customer to reduce their electricity bills significantly. An alternative would place network charges on a consumer which represent the energy delivered to them rather than a fixed capacity which would drive greater incentives for customer participation.

[18] Issues Paper, p. 36.

4.4 Regulation

In reality, demand management, EG and enabling technologies can, in many cases be considered to be a more efficient use of funds as compared to network investment. The AER should consider incentives to apply such measures in its assessment of a DNSP's revenue resets. In order to better facilitate DSM and DSP DNSPs should be incentivised to provide targets in their revenue resets for peak and energy demand reduction in conjunction with allowing for load growth trends. This would be undertaken through a projection made for each regulatory cycle, the AER could then benchmark the DNSPs proposal against achievements and proposals by other DNSPs in a direct comparison.

5 Closing

In closing the CEC would like to thank the Commission for the opportunity to contribute to the Inquiry and looks forward to continuing engagement with the Commission during the Inquiry. If you have any further questions please contact the undersigned.

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