

Ms Dianne Warhurst  
Administrative Officer  
Senate Select Committee on Electricity Prices  
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Dear Ms Warhurst

**RE: Senate Select Committee on Electricity Prices – Questions on Notice**

**1. Questions from Senator Cormann regarding Regulatory Asset Bases:**

*“Have any of your members ever had an investment proposal knocked back for inclusion in their regulatory asset by the Australian Energy Regulator?”*

*“To what extent have any proposals for investment not been allowed to be recouped through increased prices? So you are not aware of any circumstance in which an investment proposal would have been knocked back for inclusion in its regulatory asset by the AER?”*

*“To clarify what I am looking for: I want to know whether, after investigation—or whatever process is followed—any investment proposal from one of your members has ever been knocked back for inclusion in their regulatory asset base by the Australian Energy Regulator.”*

**Grid Australia Response:**

Under the current regulatory regime, the Australian Energy Regulator (AER) has not prevented actual investment by network businesses from being included in their Regulatory Asset Bases (RAB).

Under the current regulatory regime, the AER does not have the authority to prevent actual investment from being included in network business' RAB. This component of the National Electricity Rules (NER) is currently under review by the Australian Energy Market Commission (AEMC) as part of an Economic Regulation of Network Service Providers Rule Change Proposal.

However, the AER already has robust functions to ensure efficient network investment. For example:

- The Australian Energy Regulator reviews the capital and operating expenditure proposals of network businesses at the time of the businesses' revenue determinations – every five years. According to the NER, the AER may only accept expenditure if satisfied it reflects efficient costs; and
- In almost every revenue determination under the current regime, the Regulator has performed its role and changed or reduced the forecasted expenditure proposals of the various network businesses.

In addition:

- Prior to making any major investment (worth over \$5 million), a transmission network business must pass the Regulatory Investment Test – Transmission (RIT-T). The RIT-T is a public consultation process used to identify the most economic solution and optimal timing for meeting an identified network need.

Furthermore, capital expenditure incentives are set such that a transmission business is incentivised to defer or reduce expenditure during the regulatory control period.

*Please note that the regulatory frameworks on the west coast of Australia differ from those that apply in the National Electricity Market on the east coast.*

## **2. Questions from Senator Cormann regarding Direct Current technology:**

*“But is technology improving in terms of DC and transmission lines? Have there been technology improvements over the last generation, such as in costs per kilometre of transmitting power? If there have been improvements or if technological advances are happening or are in the wings, please provide details, because that is relevant from my point of view.”*

*“And whether there is further R&D in relation to that?”*

### **Grid Australia Response:**

In terms of electricity transmission, although the price competitiveness of DC technology continues to improve, it still remains uncompetitive in comparison to AC technology, making it uneconomic to use DC technology for the majority of transmission network projects.

Both technologies have their advantages. AC is cheaper to convert into different voltages, while DC is cheaper to transmit large amounts of power over longer distances (without voltage conversions). Overall, AC remains more economic than DC in the vast majority of circumstances. As such, Australia’s electricity network largely runs on AC technology.

There are three examples of direct current (DC) technology in the National Electricity Market, however none of these circuits are owned or operated by Grid Australia’s members:

**Table 1: Instances of DC transmission technology in the NEM**

DC transmission technology	Description	Reason for DC rather than AC	Operation start date	Cost
<b>Basslink interconnector</b>	Tasmania to Victoria connection.	Basslink is an undersea link, and DC is often the most economic choice for underground long-distance connections.	2006	\$800 million (approximate, in \$2005)



DC transmission technology	Description	Reason for DC rather than AC	Operation start date	Cost
<b>Murraylink interconnector</b>	Victoria to South Australia connection, supporting the AC Heywood South Australia-Victoria interconnector.	At time of implementation, the regulatory regime required strict power flow control from market network service providers which was best facilitated by DC converter stations.	2002	Unknown (although Regulated Asset Base valued at \$153 million in 2006).
<b>Directlink interconnector</b>	NSW to Queensland connection, supporting the AC Queensland-NSW Interconnector (QNI).	As above for Murraylink.	2000	Unknown (although Regulated Asset Base valued at \$170 million in 2006).

Grid Australia members conduct feasibility studies for both DC and AC options to meet network needs, where appropriate. The most recent advances in DC technologies have been in the use of voltage source converters, utilising semiconductor technology. However, the relatively low capacity of these converters means that they are not suitable for use with large remotely-connected generators.

In a feasibility study of indicative costs for very remote connections with high capacity, consultant SKM found in a 2010 report<sup>1</sup> that DC becomes economic for very high capacity connections, such as a 1200 km-long line with a capacity of 3000 MW.

### **3. Question from Senator Xenophon regarding network business profits:**

*“The ABS dataset 8155 on industry performance indicates that operating profit before tax in the electricity industry increased from \$5.4 billion in 2007-08 to \$9 billion in 2010-11, which is an increase of some 67 per cent. In the same period electricity prices rose 47 per cent. For transmission companies, what proportion of that profit before tax is above or below the 67 per cent figure, or are my friends in the distribution networks getting the lion’s share of that?”*

#### **Grid Australia Response:**

The figures quoted from the ABS dataset comprise amalgamated data from all sectors of the electricity industry – that is, generation, transmission, distribution, on-selling electricity (retail) and electricity market operation. Grid Australia is not in a position to comment on the profits of businesses outside of the transmission sector.

The transmission network sector's proportion of the electricity industry's total profit before tax for the period between 2007-08 and 2010-11 was only 8.2% in relative terms. Within the transmission sector's 8.2% proportion of the industry's total profit, there was an increase in profit before tax of approximately 72%, in nominal terms. Importantly, the return on assets (a better measure of returns to investors on the capital provided) of the transmission sector has remained relatively constant from 2007-08 to 2009-10. This is confirmed in the Australian Energy Regulator's latest "Transmission Network Service Provider (TNSP) performance report 2009-10".

#### **4. Question from Senator Xenophon regarding Standing Council on Energy Resources' Review of Limited Merits Review**

*"It may be sound policy development, but you have seen a limited merits review interim second report which was scathing of the way the rules operate. Does Grid Australia have a view on that? And do you see scope for significant reforms to deliver better outcomes in terms of efficiency—and, ultimately, for consumers? Because I am concerned about time constraints, could you on notice provide any further details of the positives and negatives from Grid Australia's point of view and from Australia's point of view in respect of that. To me that is a key issue."*

#### **Grid Australia Response:**

The expert panel's interim second report<sup>ii</sup> recommends removing the responsibility for reviewing network revenue determinations made by the regulators away from the Australian Competition Tribunal. The panel is concerned that the Tribunal is not able to take a 'top-down' approach to reviews or consider external matters not directly specified in the original terms of appeal.

Grid Australia believes that the panel's proposal is inadvisable, as it would move the review mechanism away from an already expert and well-functioning body. In addition, as advised by the Acting Commonwealth Solicitor General<sup>iii</sup>, the Tribunal is already empowered to address the panel's concerns (with some small changes to the regime for clarification).

It is important that a robust review mechanism is retained, to provide regulatory certainty for network investors and to accommodate the Australian Energy Market Commission's recent draft decision to award the Australian Energy Regulator greater discretion in setting network businesses' rate of returns. Both the Commission<sup>iv</sup> and Professor Alan Fels<sup>v</sup> (past Chair of the Australian Competition and Consumer Commission) have publicly noted the importance of the review mechanism.

It is also surprising that the expert panel is recommending an approach which would treat appeals for price setting decisions for electricity infrastructure differently to appeals for pricing of access to other forms of infrastructure covered by the Competition and Consumer Act.



For example the Australian Competition Tribunal determines appeals in relation pricing decisions for telecommunications, airports, and access to privately owned infrastructure of national significance (e.g. privately owned railway lines in the Pilbara region).

Grid Australia does, however, agree with the panel's finding that consumer engagement in the network revenue determination process could and should be improved. Grid Australia is in full support of improved consumer advocacy and engagement across the revenue-setting process, as noted in its submission to the Senate Select Committee<sup>vi</sup>.

Grid Australia acknowledges, that on the day the requested Questions on Notice were required to be submitted to the Senate Select Committee on Electricity Prices, the Expert Panel conducting the Review of the Limited Merits Review Regime issued its Stage Two Final Report. At this stage, Grid Australia has not had sufficient time to review the Report or provide a considered position on its recommendations.

**5. Question from Senator Xenophon regarding transmission costs in relation to increased generation capacity**

*“For the cost of increasing generation capacity by 25 per cent there must be a certain cost involved in adding on to the network, so if you increase the transmission capacity by, say, 25 per cent is there the same proportionate increase in cost as there would be in the cost of increasing generation capacity?”*

**Grid Australia Response:**

Transmission network businesses do not have ready access to generators' actual costs for specific generation installations. However, typically the generation costs for a project far exceed the transmission costs. As an indicative figure, in the National Electricity Market generation costs represent about one third of a typical average household bill, while transmission costs represent less than 10 percent.

The transmission investment required to connect a generator to the existing grid is paid for by the generator itself, not directly by payment from end-use customers to transmission owners.

One of the biggest factors influencing transmission costs associated with the establishment of a new generator is proximity of the generator to the existing transmission network. For example, transmission costs to connect 2000 MW of generation via a 1000 kilometre transmission line extension have been estimated to be approximately 10 times the cost of a 100 kilometre transmission extension<sup>vii</sup>.

Another factor influencing transmission costs is the available capacity within the transmission network at the point of connection. If there is sufficient existing capacity in the transmission network to accommodate the additional generation, then the transmission cost would be confined to the 'local connections' for the new generator.

As an indicative value, a local connection may cost between \$15 million and \$25 million for a small wind farm or gas turbine of approximately 160 MW, while the total cost of the wind farm could be more than \$200 million.

By contrast, although capital costs for gas turbine are typically less than wind, running costs are generally higher due to the cost of fuel.

If there isn't sufficient capacity within the existing transmission network to accommodate new generation at a particular point, it is still typical that only a small part of the existing network would require augmentation.

More generally, a 100 kilometre transmission extension servicing 2000 MW of new base load generation (that is generation that is low marginal cost and runs most of the time) would be no more than 10 per cent of the cost of that generation capacity.

In summary, given that the vast majority of new generation connections occur within 100 kilometres of an existing transmission network, it is reasonable to expect that the cost of accommodating a 25 per cent increase in generation would be less than the cost of increasing the capacity of the associated transmission network by 25 per cent.

Yours sincerely,

Peter McIntyre  
Chairman

<sup>i</sup> Sinclair Knight Merz, 'Feasibility Study Estimates for Transmission Network Extensions, 16 November 2010, page 16, <http://www.aemo.com.au/Electricity/Network-Operations/Interconnectors/~media/Files/Other/planning/0179-0176%20pdf.ashx>.

<sup>ii</sup> Professor G Yarrow, the Hon M Egan, Dr J Tamblyn, 'Review of the Limited Merits Review Regime Interim Stage Two Report', 31 August 2012, <https://scer.govspace.gov.au/files/2012/09/LMR-Stage-Two-Interim-Report-AUG-2012.pdf>.

<sup>iii</sup> T Howe (Acting Solicitor General), 'In the matter of the limited merits review regimes in the National Electricity Law and the National Gas Law', 12 September 2012, <https://scer.govspace.gov.au/files/2012/09/ASG-Opinion-Review-of-LMR-Regime.pdf>.

<sup>iv</sup> Australian Energy Market Commission, 'Draft Rule Determinations: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012; Draft National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012', 23 August 2012, <http://www.aemc.gov.au/Media/docs/12-18737-Draft-determination---FINAL-version-for-publication---23-August-2012---ERC0134-ERC0135-GRC0011-ba365497-9d8d-4cfc-9d81-cce6f1438066-0.pdf>.

<sup>v</sup> Professor Allan Fels AO, 'The Merits Review provisions in the Australian Energy Laws', March 2012, <http://www.scer.gov.au/files/2012/03/Fels-ENA-Final-report-on-energy-merits-review.pdf>.

<sup>vi</sup> Grid Australia, 'Submission to Senate Select Committee on Electricity Prices 2012', 14 September 2012, [http://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate\\_Committees?url=electricityprices\\_ctte/electricityprices/submissions.htm](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate_Committees?url=electricityprices_ctte/electricityprices/submissions.htm)

<sup>vii</sup> Based on sample projects given in Sinclair Knight Merz, 'Feasibility Study Estimates for Transmission Network Extensions, 16 November 2010, page 16, <http://www.aemo.com.au/Electricity/Network-Operations/Interconnectors/~media/Files/Other/planning/0179-0176%20pdf.ashx>.

