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Energy in action®

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Mr Phillip Weickhardt
Commissioner
Productivity Commission
PO Box 1428
CANBERRA ACT 2601

Dear Mr Weickhardt

Electricity Network Regulation – Productivity Commission Issues Paper - February 2012

AGL Energy Ltd. (AGL) welcomes the opportunity to provide the following submission to the Electricity Network Regulation – Issues Paper

As Australia's leading investor in renewable energy in Australia, AGL is well placed to comment on transmission policy. AGL operates across the supply chain and has investments in coal-fired, gas-fired, renewable and embedded electricity generation and electricity retailing. AGL is Australia's largest private owner, operator and developer of renewable generation in Australia and has invested well over $2 billion in renewable energy and has much more in its portfolio of development opportunities. Within the next few years, AGL will own or operate approximately 1,420 MW of renewable energy generation assets.

In brief, the scope of the review for the Commission is to:

- examine the use of benchmarking under the regulatory framework and provide advice on how different benchmarking methodologies could be used to enhance efficient outcomes; and
- examine whether the regulatory regime, with respect to the delivery of interconnector investment in the NEM, is delivering economically efficient outcomes.

In this submission AGL is mainly concerned with the regulatory framework for generators with respect to;

- gaining access to the network, and
- once connected, reliable operation of the network including interconnectors,

consequently our response is focussed in this area.

In Summary AGL proposes the use of two benchmarks, "Asset Rating" and "Connection Time" in addition to the existing "Market Impact" rating. These benchmarks will be most effective if the generator access regime supports protected access for generators and interconnectors. Our strong preference is for competitive provision of network access for generators to avoid the use of benchmarking in this area. In our view the RIT-T when applied to regulated interconnector investment is workably competitively neutral but with a bias towards interconnector investment however not sufficiently biased as to distort generation investment. As a consequence the regulatory regime, for interconnector investment in the NEM, is delivering economically efficient outcomes.

Transmission Access

The AEMC's Transmission Framework Review (TFR) is currently considering the network access issue. The AEMC review has the objective of considering what transmission framework is "*most likely to optimise investment and operational decisions across generation and transmission in a*

manner that minimises the overall long term costs to consumers, while facilitating continued security and reliability of supply"[1].

The issues PC review is considering are therefore related to the transmission review because interconnectors form part of the transmission network and benchmarking is a way of facilitating efficient transmission investment and reliable operation of the network.

For interconnectors the Rules allow investment to occur either;

- as a regulated network service (provider) where investment is made, funded by customers through transmission charges, on the basis of the RIT-T and the benefits flow to customers through lower prices via the wholesale contract market, or
- as a market network service (provider), where investment is made by private participants who receive a share (in proportion to the capacity funded) of the interregional settlement residues to expand their market share and who may benefit by changes in inter-regional pool price differentials,

As is demonstrated in Appendix 1 the provision of interconnectors either as a market or regulated network service is in competition with generation investment, as a consequence regulated interconnectors form part of the interface between the competitive generation market and the regulated provision of network services.

This interface between the competitive and regulated transmission investment is problematic because;

- the current access arrangements for generators (which are said to provide only non firm access for generators) do not support either efficient generation or transmission investment, (as noted in the PC IP page 33)
- do not protect incumbent generator access,
- do not protect inter-connector access, as can be seen, for example, in the private generators submission[2] to AEMO, the Heywood interconnector limits for flows from Victoria have decreased progressively since 1999 to the present, and
- in the case of a regulated interconnector the RIT-T must be competitively neutral. As a consequence of the degradation of interconnector capacity over time and because of increased renewable generation driven by the RET, there has been significant debate as to whether or not the RIT-T provides an efficient level of interconnector capacity. This is discussed in more detail in Appendix 1. In AGL's view the RIT-T is workably competitively neutral but with a bias towards interconnector investment.

The open or non firm access arrangements for generators where, on one interpretation, neither generators nor NSP's are obliged to expand the network can lead to congestion in the network and on interconnectors and in a reduction in the capacity of an interconnector. In an open access regime of this nature where there is no defined level of service it is unlikely that meaningful benchmarks could be established.

However if as proposed by AGL and other generators, the meaning of "open access" is defined based on the Rules provisions the NEM is more appropriately described as an "open access" regime where generators have:

- non discriminatory access to connect to the network;
- "protected access" with respect to new connections at specified system conditions, for a fee paid by new entrants,
- "protected access" for interconnectors at specified system conditions, for the capacity justified by the RIT-T, but;
- "non firm" access for other causes of congestion.

then development of meaningful benchmarks would be soundly based.

The solution to the access problems that has been proposed by AGL (and others)[3] to the AEMC has the following features;

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[1] AEMC First Interim Report *Transmission Frameworks Review* (pg.i).
[2] Private generators submission to the "AEMO Electranet release of the South Australia-Victoria (Heywood) Interconnector Upgrade Project Specification Consultation Report" available at http://www.aemo.com.au/planning/0179-0306.pdf

[3] The proposed framework is explained in the following submissions;

- when a new generator connects to the network the network must be expanded to protect incumbent generator and interconnector access which is paid for by the new generator,
- generators have defined access rights in a planning time frame (this does not necessarily mean firm access),
- interconnectors have defined access rights in a planning time frame, and
- a mechanism which addresses so called "disorderly bidding" which drives efficient allocation of network capacity when congestion occurs.

This overcomes the current barrier to entry where generators face access uncertainty and consequently revenue uncertainty. When making investment decisions generators will then face the total delivered cost of energy from the fuel source to the relevant RRN, this means that total generation and transmission costs will be minimized for that investment.

When interpreted in this manner the access arrangements can provide a sound basis for the application of benchmarking. In our view theses reviews can be complimentary particularly if the TFR outcomes support the implementation of benchmarking.

In this submission we have considered the application of benchmarking to the regulatory framework with respect to the above interpretation of the NEM access arrangements which includes protection of interconnector access and meets the NEM objective.

Benchmarking of regulated connection services

With respect to transmission access AGL proposes that benchmarking should be developed based on an expansion of the current AER Transmission Performance Incentive Scheme (TPIS) which currently includes a Market Impact rating, to include an Asset Rating and a Connection Time measure as follows;

- Market impact: – a market measure that assesses how the operating regime and management practices of the TNSP work to ensure the capability of the network is managed within its rating envelope. The AER has implemented a measure of this type in the TPIS. The usefulness of this measure is limited by so called disorderly bidding. Some generators have put forward a proposal[4] to address disorderly bidding which is currently being reviewed by the AEMC as part of the TFR.

- Asset rating:[5] – a measure of the operating envelope for the transmission system provided to NEMMCO by the TNSP. This is established based on an internal TNSP rating standards or philosophy. This philosophy should be published initially and then reviewed and updated on an annual basis and used as input to a benchmarking process to establish a "fair and

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The Victorian generators submission to the AEMC Review of Energy Market Frameworks in light of Climate Change Policies. (International Power, Truenergy, AGL and LYMMCo submission to the AEMC Review of Energy Market Frameworks in light of Climate Change Policies; dated 23 February 2009 – specifically Appendix 2 & 4 and Attachments 1 and 2. The submission is available on the AEMC website at; http://www.aemc.gov.au/Media/docs/AGL%20Energy%20TRUenergy%20International%20Power%20and%20LYMMCO-434ecf1f-7877-4ee1-88c7-99829126c329-0.pdf)

The AGL submission to the Transmission Frameworks Review – Directions Paper (April 2011) in the attachment titled "An improved generator access regime for the NEM", available at http://www.aemc.gov.au/Media/docs/AGL-198b077b-a433-4017-9094-884e4068482b-0.pdf

The International Power GDF Suez Initial Submission to the AEMC Transmission Frameworks Review First Interim Report, 16 January 2012; This is the same as the earlier AGL proposal further elaborated by International Power.

[4] AEMC Transmission Framework Review - First Interim Report - Package 2 page 65.

[5] This measure (together with the market impact measure) was first proposed to the ACCC in the joint "NGF ERAA Submission to the AER Draft transmission Service Standards Guidelines; 14 July 2003", and subsequently in the "NGF ERAA Submission to the AER Service Target Performance Scheme; 23 August 2007" which is available at http://www.aer.gov.au/content/item.phtml?itemId=714441&nodeId=e683b0a3310a012f84a853cffd9d393d&fn=NGF%20ERAA.pdf

reasonable" or industry best practice for establishing current ratings for TNSP's. This measure is explained in more detail in Appendix 2.

- Connection Time: a measure of the time from a connection inquiry to delivery of the asset. There is currently no driver in the regulatory approach to encourage TNSP's to deliver connection services in a timely manner. It is acknowledged that both the connection applicant and the NSP can cause delays in this process however the NSP is largely in control of this process and providing that the process is clearly laid out and the information required is clearly specified the only delays that should occur are when the applicant fails to provide that information in a timely manner. It would be valuable however to include timeliness and the cause of delays in a benchmarking process as patterns may emerge as to common points of delay or demonstrate consistent disparities in performance between TNSPs'.

It is not proposed that these latter measures be initially incorporated into the TNSP revenue setting process, however this may be possible in the future.

It is proposed that these measures would be applied as shown in the following diagram.

Benchmarking for Connection & Access to the Shared Network

	Generators	**Inter-connectors**	**Load Access**
Network planning and access Framework	Defined level of access established in connection agreements	Defined level of access established by RIT-T	Jurisdictionally established Reliability Standards
Benchmark	*Competitive supply*	*Asset Rating*	*Asset Rating*
Benchmark		*Connection Time*	*Connection Time*
Operation & maintenance activities Note 1	Currently no enforceable rights	Currently no enforceable rights	Jurisdictionally established Reliability Standards
Benchmark	*Market Impact*	*Market Impact*	*Market Impact*

Note 1: - Participants are subject to transmission outages or network congestion due to an NSP's activities in an operational time frame.

Note 2: - Jurisdictionally established Reliability Standards have a significant impact on the cost of installed assets.

Prior to the application of benchmarks for the provision of network access services for generators consideration should be given to the provisions of these services through a competitive process. Benchmarking is useful to incentivise efficient delivery of services subject to economic regulation however is unnecessary to incentivise competitive service provision.

AGL therefore supports revisions to the Rules to facilitate competitive provision of connection services to address the imbalance in bargaining power of the TNSPs'. We note that the AER submission[6] to the AEMC TFR has proposed a model similar to that already in place in NSW for the provision of generator access through competition. In the absence of competitive provision of connection services then the Asset Rating and Connection Time benchmarks could apply for generator connection as for Interconnectors and Load.

Transmission Planning

The component of transmission expansion required to support generation investment should form part of the competitive market decision making. This investment should be driven primarily by generator investment decisions.

[6] AER submission to the AEMC TFR First Iterim Report available at http://www.aemc.gov.au/Media/docs/AER-00f234f7-9e96-41aa-8c02-fbe938740eef-0.pdf

AGL proposes a transmission planner of the following form. This planner should monitor market investment to ensure interconnector access is not degraded.

- Implementation of a National Transmission Planner to carry out all transmission planning activities for each region in the NEM (transmission planning arrangements in South Australia reflect a working template).
- The National Transmission Planner should be separate from the Australian Energy Market Operator (AEMO) and should not be a party to – or an intermediary in – the Generator/Transmission Network Service Provider (TNSP) connection negotiations – apart from providing planning input to the TNSP.
- Improvements to the current connection arrangements to support competitive provision of transmission network access to generators. This would provide greater transparency and control to generators with the option of connection applicants selecting competitive provision of connection services through, for example, adoption of a build own transfer (BOT) model. Essentially, this is an extension of competitive investment in generation capacity to include competition in the provision of access for generators (at their discretion).

AGL has a strong preference for competitive provision of generator access services to minimise the need for benchmarking.

In AGL's view, the transmission framework package with benchmarking as described above will best support benchmarking of transmission access for generators and facilitate the least cost delivered energy to consumers.

Yours sincerely

Alec Cruickshank
Head of Energy Regulation

Appendix 1 Regulated network service (provider)

The RIT-T when applied to regulated interconnector investment is workably competitively neutral but with a bias towards interconnector investment. The reasons for this are discussed below and are based on a paper by Tony Cook[7] titled "A Review of the Benefits of Regulated Network Services.

The RIT-T is a cost benefit test (the type of test generally applied to regulated assets), The test which can be applied to determine if the capacity of an interconnector should be upgraded compares the costs of the interconnector with the benefits which are generally avoided costs This is demonstrated in the following table.

Cook has shown that the benefit of the interconnector upgrades calculated for the RIT-T assessment of the interconnectors listed below comprise the following components in the following proportions .

Benefit ($M)	Riverlink	QNI	SNI	SNOVIC	Murraylink	Total	
Energy	4	56	25	1	82	168	11%
Reliability					62	62	4%
Deferred Generation	164	571	154	262	54	1205	79%
Deferred Network	15	35	18		24	92	6%
TOTAL	183	662	197	263	222	1527	

It can be seen that energy benefits and deferred generation benefits make up 90% of the benefits. The bulk of the benefits of building an interconnector, approximately 80%, are deferred generation investment cost. Interconnector expansion is therefore in competition with generation investment in the competitive market.

An important attribute of the test therefore is that it must be competitively neutral to avoid distorting generation investment and the competitive market outcomes. (Subsequent to the analysis by Cook the RIT-T has been modified to include competition benefits, the impact of which is small but tends to distort the test away from being competitively neutral because these benefits cannot be captured by market participants.)

The current version of the RIT-T itself is not necessarily competitively neutral in assessing interconnector upgrades against generation investment, because investment in the competitive market is inherently risky and the problem with the test is that it does not take this risk into account in assessing the value of the capacity provided by the interconnector (or upgrade). Further the investment will be made by a regulated body taking a view as to future outcomes in a market that it does not normally do business in and taking no risk if the investment fails to deliver because the regulated investment is funded by customers, the ultimate beneficiaries.

Cook has demonstrated that;

- the RIT-T methodology ignores the dynamics of the competitive market,
- benefits are likely to be only delivered in a market where generation and transmission are centrally planned,
- it is impossible in a competitive market to prevent duplication (Cook notes that generally it is the regulated service that is unnecessarily duplicating new generation facilities.)

and consequently the deferred generation benefits are rarely delivered.

A generator in an oversupplied or low price region can provide wholesale contracts in the high price region provided that interregional settlement residues are purchased, in sufficient volume to address price risk between regions when the link constrains.

[7] Cook T (2004) "A review of the benefits of regulated network services" http://www.ipa.org.au/library/Energy31.pdf

There are however risks and costs incurred by this strategy, these include;

- the cost of hedging interregional price risk (the cost of an interregional hedge). The price paid by generators for these hedges are refunded to consumers overtime providing that market conditions remain as predicted in the RIT -T evaluation, and
- the volume risk that arises from the variability of interconnector capacity and hence the capacity of the hedge. However interconnector capacity varies with the system conditions such as demand and generator and transmission outages or operational constraints. Generators can purchase a % of the variable interconnector capacity so there will normally be a mismatch between this and the contract sold.

This means the price of a contract sold in the importing region will be a price of the contract in the exporting region plus the cost and risk of transport between regions, the interregional hedge, so is only likely to be viable while there is a significant periods of high prices in the importing region i.e. when there are likely to be interconnector constraints.

Further the benefits of the interconnector reduce with time as demand in the supplying region increases and the benefits of an interconnector will disappear entirely when a new generation investment occurs in the high priced region.

This shows that investment in interconnectors in a competitive market is likely to be a risky proposition due to the dynamic nature of the market and as they are unlikely to provide stable long term benefits. Cook on page 14 suggests that this could be accounted for by applying a discount factor to the benefits calculated in the RIT-T. Establishment of a reasonable discount factor however could be problematic and controversial.

The conclusion reached howvere is that the RIT-T is not competitively neutral in that it overvalues the benefit of an interconnector by not accounting for market risk. This is not to suggest that a revision to the test is required, however suggests that calls any calls to further bias the test by widening the benefits should be resisted.

Appendix 2 - Asset Rating Measure

This appendix is based on the joint NGF ERAA submissions to the ACCC and AER TPIS.[8]

Explanation of the proposed Asset Rating Performance Standard

A fundamental issue in the regulatory regime is the level of service provided in return for the right to levy a regulated revenue. This issue has not been addressed by the AEMC or the AER but is fundamental in assuring efficient capital investment.

In developing performance based criteria for incentivizing TNSP's it is clear that there is no industry standard for determining what is "industry best practice" in rating transmission assets. It is also clear that the regulatory processes for determining the ratings and the revenue are separate unrelated processes, one is carried out between the TNSP's and NEMMCO based on performance criteria established in the Code administered by NECA, the other between the TNSP's and the ACCC.

The objective of this measure is to determine over time a uniform philosophy or "good electricity industry practice" in rating transmission assets. In the short term the measure will allow benchmarking or comparison between TNSP's. In the long term this measure will allow the regulator to assess the cost of the assets relative to their rating and move to a regulatory regime that determines the TNSP revenues in a way that is contingent upon good practice in allowing a high utilisation of these assets by the market. The objective is to drive allocative efficiency by attempting to emulate a competitive market for transmission investment.

Rating of Transmission Lines and Equipment

The NEC Chapter 5 empowers the TNSP to set the maximum rating for its plant and equipment. Each Transmission Network Service should advise NEMMCO of the maximum current that is permitted to flow through all apparatus in its transmission network for different weather conditions. This maximum current is called a "current rating" of the transmission line or item of equipment. The Code also provides a general test for performance of NSP's (where otherwise not specified) that is "fair and reasonable".

It is clear from the Code and from observation of the practice of establishing current ratings that the current rating is established by each TNSP based on their own custom and practice or philosophy for rating equipment and tolerance for risk. It is not clear how the TNSP's view, or take into account the risk imposed on other market participants that these decisions impose. These philosophies are not transparent and in practice may result from practices adopted from the time when the electricity industry was characterized by state based vertically integrated monopolies and may not be appropriate for the competitive market. It is also clear that there is no consistency between the TNSP's as the basis for establishing ratings varies from state to state.

The "asset rating" measure

It is clear that different TNSP's have different perceptions of risk and different approaches to asset rating and there is currently no driver in the regulatory approach to encourage TNSP's to optimise the cost benefit ratio of an asset. This is in part because the regulatory process is not integrated with the establishment of ratings.

It is proposed that each TNSP be required to publish their philosophy for determining the rating of their assets.

This should include at least their approach to:

- maximum current ratings
- different current ratings under various

[8] "NGF ERAA Submission to the AER Draft transmission Service Standards Guidelines; 14 July 2003", and subsequently in the "NGF ERAA Submission to the AER Service Target Performance Scheme; 23 August 2007" which is available at http://www.aer.gov.au/content/item.phtml?itemId=714441&nodeId=e683b0a3310a012f84a853cffd9d393d&fn=NGF%20ERAA.pdf

- ambient weather conditions
- seasons and or time of day
- emergency current rating and lengths of time for emergency current ratings
- determining the temperature that will not materially affect the safety of their plant or persons
- the purchase of network ancillary services

It is further proposed that the asset rating measure will be used to determine industry best practice in establishing asset ratings, through a benchmarking process.
We acknowledge that a TNSP may not have a single policy or philosophy in relation to determination of ratings. At some locations, the rating philosophy will be driven by the requirement to satisfy customer reliability, while in other locations where the market will be directly impacted by the rating a different philosophy will apply.

It is not proposed that this measure be incorporated into the TNSP revenue setting process at this stage either to determine appropriate asset values but asset ratings established by the TNSP are relevant to the "market impact" measure.