



12 November 2010

The Chairman
Australian Energy Market Commission
Level 16, 1 Margaret Street
SYDNEY NSW 2000

By email to submissions@aemc.gov.au

Dear Chairman,

Scale Efficient Network Extensions - Options Paper "ERC0100"

AGL Energy welcomes the opportunity to comment on the Australian Energy Market Commission's (AEMC) *Scale Efficient Networks Extensions (SENE) Options Paper*.

As the leading investor in renewable energy in Australia, AGL Energy (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 and has invested well over \$2 billion in renewable energy and has much more in its portfolio of development opportunities. AGL has over 3 million retail customers and operational control of some 3,000MW of generation capacity in the National Electricity Market.

AGL considers the SENE Options Paper provides a comprehensive analysis of how in practice the concept of a SENE could be applied in the market and concludes that each option effectively highlights the fundamental flaws of the concept. In the following, AGL explores these flaws; on the grounds of public policy; by engaging in the design of Option 4 as the least-worst model in the Option Paper; analysing the interpretation of access provisions; outlining the results of a recent study that considered scaling connections; and then finally applying the AEMC's objective for transmission investment. This submission reflects AGL's further engagement in the SENE concept, and should be considered in conjunction with the previous submission to the SENE Discussion Paper in May 2010.

Public policy rationale

The SENE concept is considered to be conflicting with the near-two decade long reforms to the energy market. The reliance on central planning introduces an array of risks in the circumstances where no market failure has been evidenced.

Potential efficiency gains from economies of scale in transmission extensions cannot be considered to be solely the remit of the SENE concept. There are no barriers in the Rules preventing generators from entering cost-sharing arrangements, and TNSPs are free to be the arbiters and executors of such agreements.

- > Being Australia's largest private owner and operator of renewable energy assets
- > Gaining accreditation under the National GreenPower Accreditation Program for AGL Green Energy®, AGL Green Living® and AGL Green Spirit
- > Being selected as a constituent of the FTSE4Good Index Series

AGL contends that where market participants are prepared to financially commit to a likely future generation location, they are free to structure arrangements to adequately extend (or increase the capacity of) transmission to the anticipated region. The open season process provides for these arrangements, and allows those who are most informed, to take on the associated risks of extensions and new build. This conclusively avoids the need for central planning interjection or any abstraction of the energy market reforms.

The gas industry routinely manages the situation that the SENE concept is seeking to address, that is, a large fuel source with a number of users who are competing with each other to get the fuel to a common location. In that industry, participants jointly arrange the construction of necessary facilities to service their needs without recourse to public subsidy or regulatory intervention.

Assessment of Option 4

AGL considers that Option 4 as proposed in the Option Paper is the closest to aligning the risk exposure that should rightly be borne by market participants. In particular, requiring a signed connection agreement for the standalone costs for the first connecting generator(s) means that investors, rather than consumers, will bare the financial risk of that capacity.

However, Option 4 suffers from the same overarching flaw of the SENE concept. It does not negate the requirement of a central planner to forecast likely generation investment, and in that sense, attempt to emulate the investment decisions that should only be made by investors. The SENE concept requires the Australian Energy Regulator (AER), together with input from the Australian Energy Market Operator (AEMO) to make decisions that are best left to market participants, together with financiers and technology proponents. By virtue of an absence of investors willing to financially commit at the time of decision making, AEMO and AER will effectively be speculating on potential scenarios that may come to realisation, with electricity consumers wearing the risks of this speculation.

Finally, requiring an economic regulatory investment test for any uncontracted capacity, could limit the exposure of consumers to stranded asset risk. However, AGL observes that application of such a test would be at best contentious, and at worst halt the development of projects. Further detail on this assessment is provided in Attachment 1.

AEMC's description of the NEM access provisions

AGL sees no distinction in the access provisions between connection and extension assets and the shared network, as suggested by the AEMC, and therefore no basis for treating augmentations to the shared network in a different manner to extensions to the shared network.

The access provisions in Chapter 5 describe the augmentations required to networks to transmit or distribute *active energy* for a connecting generator as including both:

- works to enlarge a *network* or to increase the capability of a *network*; and
- the *connection* of a power line or *facility* outside the present boundaries of a *network*.

The NEM access provisions are consistent:

- with the "causer pays" principle, that is the generator must bear all the costs it imposes on connecting to the network; and
- in concept with the Commission's proposal for access rights, in Option1 (limited to connection and extension assets), where if generators pay for a SENE, they receive access rights and compensation payments if their access is reduced.

Further detail on this assessment is provided in Attachment 2.

Potential costs of capturing economies of scale in connection and extension assets

A study carried out by ROAM Consulting for the Clean Energy Council¹ (of which AGL is a member) suggests that:

- if wind farm developers seek to maximise revenues the existing market is likely to drive wind development to locations where transmission congestion will be minimal;
- if wind development occurs without consideration of transmission network limitations, significant congestion is likely to occur; and
- existing market incentives (wind developers seeking to maximise revenues, taking into account transmission congestion) appears to be appropriate to produce the lowest cost outcome.

This supports AGL's view that generators need to face the full costs of the augmentations required or the congestion they create in the shared network to ensure the lowest cost outcome for consumers.

The ROAM Consulting report also notes that:

- it is possible to arrange a sufficient quantity of wind farms to meet the 20% RET by 2020 with minimal transmission congestion or significant transmission augmentation; and
- highly concentrated wind development with substantial transmission development to allow export of generation to the NEM does not appear to be the lowest cost way of meeting the RET. (However if highly concentrated wind development does occur significant transmission augmentation is likely to be justified on a cost minimisation basis and the benefits of economies of scale are also likely to be positive.)

This suggests that the cost of the transmission required to support wind investments to meet the 20% RET is small compared with the capital and operating costs of wind farms. Furthermore, this leads to the conclusion that the economies of scale in transmission connection and extension assets is likely to be small. When this is considered with the risk that concentrated development, which is likely to be encouraged with SENEs, has the potential to increase cost to consumers, as well as create delays in investment as discussed below, serious questions are raised as to the economic efficiency of the SENE proposal.

AEMC's objective for transmission investment

AGL supports the Australian Energy Market Commission's (AEMC) objective of seeking to ensure that the transmission frameworks (inclusive of the SENE concept) and the regulatory market arrangements that govern investment in, and the funding, pricing and operation of transmission networks will be responsive to future changes in patterns of generation and network flow that are expected to drive the need for significant levels of new transmission investment.

¹ See ROAM Consulting report to Clean Energy Council, *Transmission Congestion and Renewable Generation*, October 2010.

The development of options for the SENE concept coincides in a timely fashion with the AEMC's Transmission Frameworks Review (TFR). AGL supports the objective of the TFR that "in an efficient market the delivered cost of energy to consumers is minimised", and suggests that the TFR would be well-placed to adopt the issues that have given rise to the SENE concept. Significantly, AGL considers that the SENE concept is inconsistent with the TFR objective for the following reasons;

- Achieving the benefits of economies of scale in transmission connection and extension assets by the application of the RIT-T or the SENE test has the potential to distort the decentralised decision making process by creating delays to investment and as a consequence increased costs.
- The RIT-T or SENE test in itself does not assist in determining the efficient size of a network extension and if all network extensions are subject to the RIT-T the SENE proposal is in reality the application of centralised planning to a competitive market designed to be based on decentralised investment decision making.
- AGL sees no distinction in the NEM access provisions between connection and extension assets and the shared network as suggested by the Commission and therefore no basis for treating augmentation to the shared network in a different manner to extensions to the shared network (see Attachment 2). This issue should be addressed as part of the TFR as it is a barrier to entry for generation investment. This has been described in detail in the AGL submission to the TFR dated 29 September 2010.
- AGL is reluctant to support any of the options identified in the options paper for the reasons identified above and because all of the proposed models present significant practical implementation issues which are identified in the Options Paper not the least of which is the treatment of sunk costs.

Finally, it is concluded that the SENE concept brings to the forefront, and would likely exacerbate, the prevailing issues of firm access and congestion in the shared network. Firm access for a generator connected to a SENE is of little value if it is constrained off the shared network before the regional reference node. The TFR is amongst other matters, addressing this very issue, and AGL considers that any further deliberation on the SENE concept should be encompassed in the TFR, to ensure holistic review.

Conclusion

AGL considers that, given the dynamic nature of the energy market, the competitive market will develop solutions to capture the economies of scale available in connection and extension assets if the savings are significant and provide a competitive advantage. AGL sees no reason why the competitive market will not drive efficient outcomes. The distortionary impacts of a regulated approach with the potential for asset stranding must be avoided.

Should you have any questions in relation to this submission, please contact Roger Oakley, Manager Wholesale Markets Regulation, at roakley@agl.com.au or on (03) 8633 7665.

Yours sincerely,



Prof Paul Simshauser
Chief Economist and Group Head of Corporate Affairs

AGL Submission to the Scale Efficient Networks - Options Paper

Attachment 1 - Application of an Economic Test

Application of the RIT-T to competing regulated and market based interconnector options has been problematic.

Application of the RIT-T to include market based options competing with regulated options, i.e. other than evaluating the least cost regulated approach, can be problematic. A case in point is the NSW to Victoria interconnector upgrade, (at the time the Regulatory Test was conducted by NEMMCO), where there was both a regulated solution (proposed by Transgrid) and a market based solution, for a Market Network Service Provider (proposed by Transenergie) i.e. competing alternative solutions. The application of the Regulatory Test was contentious and difficult, ultimately resulting in the case being resolved through an expensive and protracted dispute resolution process, involving all three parties.

In the above case the scope of potential options was limited to a particular network augmentation and there were only two interested parties.

Application of the RIT-T or the SENE test to competing market based options.

As identified in the NERA Economic Consulting report for Grid Australia² in the case of the application of the RIT-T to a SENE it will be difficult to limit the scope and number of the credible options to be considered under the analysis. As the RIT-T will need to consider market wide impacts there is likely to be a large number of affected stakeholders with competing projects, who could press for consideration of credible network extensions for renewable generation in other areas of the NEM.

In such cases the scope of potential options is much greater, i.e. not just related to a particular SENE augmentation and therefore the number of interested parties with competing options is likely to be large.

Further the NERA Economic consulting report identifies the complexity of the issues in applying the RIT-T or the SENE model.

Application of the RIT-T or SENE test is problematic because it:

- Requires the establishment of a base case of no extension which will be of key importance to the analysis. Decisions will need to be made as to whether the base case be conventional generation or renewable generation elsewhere, and what jurisdictional environmental policies will apply.
- Is heavily dependent on assumptions made by TNSPs' regarding;
 - future market development scenarios, and
 - forecasts of generation developments to be accommodated on the SENE and the relative efficiency of each type of generation in different locations where one type of generation displaces other generation,
- may require the inclusion of additional investment in conventional generation as back up,
- depends on SENE-connected generation actually being dispatched to displace generation elsewhere, which means the RIT-T would need to consider augmentations to the shared network,
- needs to determine the benefits from an extension to connect new generation would may be;
 - deferment or displacement of other generation investment, and
 - fuel cost savings from displacing existing conventional generation,

² NERA Economic consulting report for Grid Australia (Page 14)

both of which will depend on their location and relative fuel costs and whether or not a carbon price is to be applied as well as other jurisdictional environmental or efficiency policies, and

- will be difficult to establishment a limit to the number of alternative credible options to be considered.

Establishment of all the modelling parameters and alternative options is likely to be very contentious and time consuming and therefore take considerably longer than a standard RIT-T test. There is a significant risk that the evaluation would not be completed in a timely manner and or may need to be resolved through dispute resolution.

The NERA report also identifies that the application of the RIT-T only addresses the issue of right sizing the network to the extent that the assumptions made reflect the full extent of the possible future generation development in the particular area³.

In other words it is how accurately the assumptions made as to future market outcomes, reflect those outcomes that determines whether the SENE is an efficient size or not. At best this would be an educated guess.

The RIT-T or SENE test in itself does not assist in determining the efficient size of a network extension and if all network extensions are subject to the RIT-T it is in reality the application of centralised planning approach to the competitive market.

Similar issues would arise with the SENE test.

³ NERA Economic consulting report for Grid Australia - Table 6.1

Attachment 2 – A review of the AEMC’s interpretation of the NEM Access Provisions

The NERA Economic consulting report for Grid Australia notes that achieving any benefits through the RIT-T or the SENE test depends on wind generation actually being dispatched to displace generation elsewhere. This means the RIT-T would need to consider augmentations to the shared network.

Importantly, it is concluded that SENEs cannot be considered in isolation to access to the shared network.

The NEM access provisions⁴ as described by the Commission are a major impediment to the implementation of SENEs’ and in AGL’s view are inconsistent with the NER. If generators are going to face constraints in the shared network and not have full access to the Wholesale Market there is little point in gaining economies of scale in transmission assets.

The Commission describes the access provisions as “Prescribed transmission services are provided on an open access basis. That is generators do not receive firm access rights for the shared transmission network”

Since the terms “open access” and “firm access rights” are not defined terms in the Rules and because the definition is expressed in the negative, (i.e. what generators do not have), it is difficult to determine what this statement means.

For example under the above definition it would be possible to say that generators have “non firm access rights”. However the Commission further notes that generators do have a right to be connected so as to access the “national grid” in accordance with the provisions under Chapter 5. What is important are the access rights generators are entitled to under the NEM access provisions⁵.

Further in applying the principle of “causer pays” whereby generators are required to pay the full incremental costs of their connection to the network the Commission has limited this right, and the obligation to pay, to connection and extension assets.

“Generators’ obligations (to pay) do not extend into the shared network under either the existing or proposed SENE frameworks although they may chose to fund a network augmentation.”

If a generator connects to the network and creates congestion then an efficient interpretation of the “causer pays” principle would suggest that the generator should pay for the congestion it causes or pay to prevent that congestion.

A summary of the Chapter 5 Network Connection Provisions

The access provisions in this chapter do not limit participants’ rights of access to connection and extension assets.

AGL has reviewed the network connection provisions in Chapter 5, (a copy of this review is attached as Appendix 1) and conclude that in establishing an offer to connect the scope and the cost of the work to be provided by the *Transmission Network Service Provider* at the *connection point* includes;

- *connection assets,*

⁴ AEMC Options Paper - Scale Efficient Network Connections page 26

⁵ The Access provisions approved by the ACCC include all of the Chapters in the Rules except Chapter 3

- potential *augmentations* or *extensions*, and in addition,
- *access charges*.

The access charges include the transfer of compensation payments between generators via the TNSP should the dispatch of the Generator's generating units or group of generating units cause another Generator's generating units or group of generating units to be constrained off. This is not a firm access provision⁶. This provision ensures that the causer pays principle applies and the costs of congestion are borne by the causer of that congestion.

The scope of work and the cost for a connection applicant is calculated based on;

- the *power transfer capability*⁷ requested by the connection applicant over the period of the *connection agreement*,
- maintaining the levels of service and quality of *supply* to existing *Registered Participants* in accordance with the *Rules*,
- consideration of all potential *augmentations* or *extensions* required to be undertaken on all affected *transmission networks* or *distribution networks* to increase the capability of a *network* to transmit or distribute *active energy* to meet the above requirements.

Augmentations are works to enlarge a *network* or to increase the capability of a *network* and the *connection* of a power line or *facility* outside the present boundaries of a *network* to transmit or distribute *active energy*." We therefore see no distinction in the access provisions between connection and extension assets and the shared network, as suggested by the AEMC, and therefore no basis for treating augmentations to the shared network in a different manner to extensions to the shared network.

The NEM access provisions are consistent;

- with the "causer pays" principle, that is the generator must bear all the costs it imposes on connecting to the network, and
- in concept with the Commission's proposal for access rights, in Option1 (limited to connection and extension assets), where if generators pay for a SENE, they receive access rights and compensation payments if their access is reduced.

⁶ All participants are subject to non firm access due to transmission unavailability as a consequence of transmission failure or outages for maintenance..

⁷ NER provisions 5.3.3 (c) (2) & 5.1.2.(2) (iii)

Chapter 5 – Network Connection

The relevant provisions of the Rules which defines the extent of work relevant to bilateral negotiations between a *Connection Applicant* and an NSP for the preparation of an offer to *connect* and hence would appear to be Rule 5.3.5 “Preparation of an offer to connect” and Rule 5.4A (e) to (h) Access arrangements relating to Transmission Networks.

Rule 5.3.5 “Preparation of an offer to connect”

Rule 5.3.5(d)⁸, requires the NSP, so as to maintain levels of service and quality of *supply* to existing *Registered Participants* in accordance with the *Rules*, to assess the requirement for (and the costs of) all necessary *augmentations* and any possible material effect of this connection on the network power transfer capability including that of other networks.

The terms *augmentation* and *extension* are defined in the Rules as follows;

“augment, augmentation

Works to enlarge a *network* or to increase the capability of a *network* to transmit or distribute *active energy*.”

“extension

An *augmentation* that requires the *connection* of a power line or *facility* outside the present boundaries of the *transmission* or *distribution network* owned, controlled or operated by a *Network Service Provider*.”

“Network

The apparatus, equipment, plant and buildings used to convey, and control the conveyance of, electricity to customers (whether wholesale or retail) excluding any *connection assets*. In relation to a *Network Service Provider*, a *network* owned, operated or controlled by that *Network Service Provider*.”

From these definitions it can be seen that an *extension* is a particular type of *augmentation* i.e. an *augmentation* outside the boundaries of the transmission or distribution network.

The cost attributable to a particular connection application therefore includes the cost of the *connection*, *augmentation* and *extension* assets required to ensure that the levels of service and supply are maintained for existing *Registered Participants*.

We note also the Rule 5.3.5(d) does not distinguish between generators or loads in relation to determining the extent of work or cost, i.e. the Rules envisage that generators and large loads be treated in a consistent manner.

Rule 5.4A (e) to (h) Access arrangements relating to Transmission Networks.

Similarly in providing *transmission user access* arrangements with respect to generators Rule 5.4A (e) to (h) in determining the scope and the cost of the work to be provided by the *Transmission Network Service Provider* at the *connection point* includes;

⁸ Rule 5.3.5(d) Preparation of offer to connect is included in Appendix 1. This rule applies to all “Connection Applicants”, i.e. it includes generators and loads.

- *connection assets*,
- *potential augmentations or extensions*, and in addition,
- *access charges*.

Rule 5.4A (e) defines the scope of work which includes the

- *connection assets* to be provided by the *Transmission Network Service Provider* or otherwise at the *connection point*; and the
- *potential augmentations or extensions* required to be undertaken on all affected *transmission networks* or *distribution networks* to provide that level of *power transfer capability* over the period of the *connection agreement* taking into account the amount of *power transfer capability* provided to other *Registered Participants* under *transmission network user access* or *distribution network user access* arrangements in respect of all affected *transmission networks* and *distribution networks*.

Rule 5.4A (f) to (g) defines the costs where the *Connection Applicant* is a *Generator* to include;

Rule 5.4A (f) includes;

- a *connection service charge*,
- *negotiated use of system charges* or *use of system services charge*, i.e. a charge in relation to any *augmentations* or *extensions* required to be undertaken on all affected *transmission networks* and *distribution networks*, and
- the amounts (*'access charges'*) referred to in paragraphs (g)-(j),

Rule 5.4A (g)

- the costs reasonably incurred by the provider in providing *transmission network user access*,

Rule 5.4A (h)

- the compensation to be provided by the *Transmission Network Service Provider* to the *Generator* in the event that the *generating units* or group of *generating units* of the *Generator* are *constrained off* or *constrained on* during a *trading interval*; and
- the compensation to be provided by the *Generator* to the *Transmission Network Service Provider* in the event that *dispatch* of the *Generator's generating units* or group of *generating units* causes another *Generator's generating units* or group of *generating units* to be *constrained off* or *constrained on* during a *trading interval*.

The cost attributable to a particular connection application therefore includes the cost of the *connection*, *augmentation* and *extension* assets and if applicable *access charges* referred to in paragraphs 5.4A(g) to (j) the objective being to ensure that the levels of service and supply are maintained for existing *Registered Participants*.

We note also the Rule 5.4A does not distinguish between generators or loads in relation to determining the extent of work or cost except in relation to the *access charges* referred to in paragraphs 5.4A(g) to (j), i.e. the Rules envisage that generators and large loads be treated in a consistent manner.