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John Pierce
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Dear Mr. Pierce,

Coordination of Generation and Transmission Investment

Ausgrid welcomes the opportunity to comment on the Australian Energy Market Commission's (**AEMC**) Discussion Paper on the *Coordination of Generation and Transmission Investment (Discussion Paper)*.

Substantial investment in renewable generation across the national electricity market (**NEM**) will be required over the coming years if Australia is to take meaningful action on climate change and meet its international commitments to reduce emissions.

We agree with the AEMC that given the scale of the investment required a review into options for improving the existing arrangements impacting the planning for and connection of renewable generation should be a priority. Our submission is particularly focused on improvements targeted at:

1. incentivising efficient large-scale renewable generation and network investment decisions
2. appropriately allocating the risks associated with large-scale renewable generation and network investments.

We put forward some options for consideration in **Attachment A**. The first seeks to promote competition in the construction and ownership of network assets while the second would enable network service providers (**NSP**) and their customers to share in the risks associated with proactively investing in renewable energy zones (**REZ**), in a similar fashion that which NSPs and their customers currently share efficiency gains and losses under the Efficiency Benefit Sharing Scheme (**EBSS**) and Capital Expenditure Sharing Scheme (**CESS**). The third option involves the consideration of a 'Pioneer Scheme' to reimburse renewable generators who first connect to a REZ.

If you have any queries or wish to discuss this matter in further detail please contact Junayd Hollis on 0448 481 565 or via email on junayd.hollis@ausgrid.com.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Rob", with a long, sweeping horizontal line extending to the right.

Rob Amphlett Lewis
EGM Strategy & Regulation

Appendix A

Our submission puts forward three options in addition to those included in the *Discussion Paper*. These options are targeted at two main outcomes: incentivising efficient investments and appropriately allocating risk.

In putting forward the options in this submission, we have also sought to suggest arrangements that would encourage proactive network investments. By this, we mean investments that connect an area rich in renewable energy resources to the electricity grid *prior* to renewable generation committing to the location.

We support the view that the AEMC should take steps to accommodate proactive network investments in circumstances where they are efficient and prudent. Among other things, network investments of this nature provide long term benefits in terms of:

- bridging the gap between the often significant lead times associated with network augmentations and the shorter development times for technologies such as wind and solar
- harnessing the economies of scale associated with network augmentations sized to meet the combined capacity of future generation at a location, rather than incrementally extending the network via multiple smaller, sequential investments when individual generators connect.

There are nonetheless risks associated with the adoption of a proactive investment approach. Chief among these is the risk that an investment made in anticipation of future generation capacity is not utilized to its intended levels, resulting in underutilised or stranded assets. Potential options to explore relation minimizing or mitigating these risks are examined below.

OPTION 1: CONTESTABLE AUGMENTATIONS (AEMO/MARKET LED)

The AEMC could consider regulatory arrangements that incorporate market based mechanisms in the coordination of transmission and renewable generation investment.

These arrangements could be modelled on the transmission planning framework in Victoria where there is scope for network augmentations to be delivered via a contestable tender process administered by the Australian Energy Market Operator (**AEMO**). This is in accordance with AEMO's 'declared network function' powers under section 50F of the National Electricity Law (**NEL**).

Overview of Victorian arrangements

In Victoria, responsibility for the transmission network is split between:

- AEMO – responsible for planning the shared network and procuring augmentations
- AusNet Services – the asset owner, responsible for operating and maintaining the network.

Under this division of responsibilities, augmentations to the Declared Shared Network (**DSN**) can be delivered both on a contestable and non-contestable basis.¹

An augmentation may be 'contestable' if the associated capital costs are expected to exceed a 'relevant limit' currently set at \$10 million.² The augmentation must also be 'separable'. This is in the sense that it is 'distinct and definable' and it will not have a 'material adverse effect on the incumbent declared transmission operator's (AusNet Services) ability to provide services to AEMO under any relevant network agreement'.³

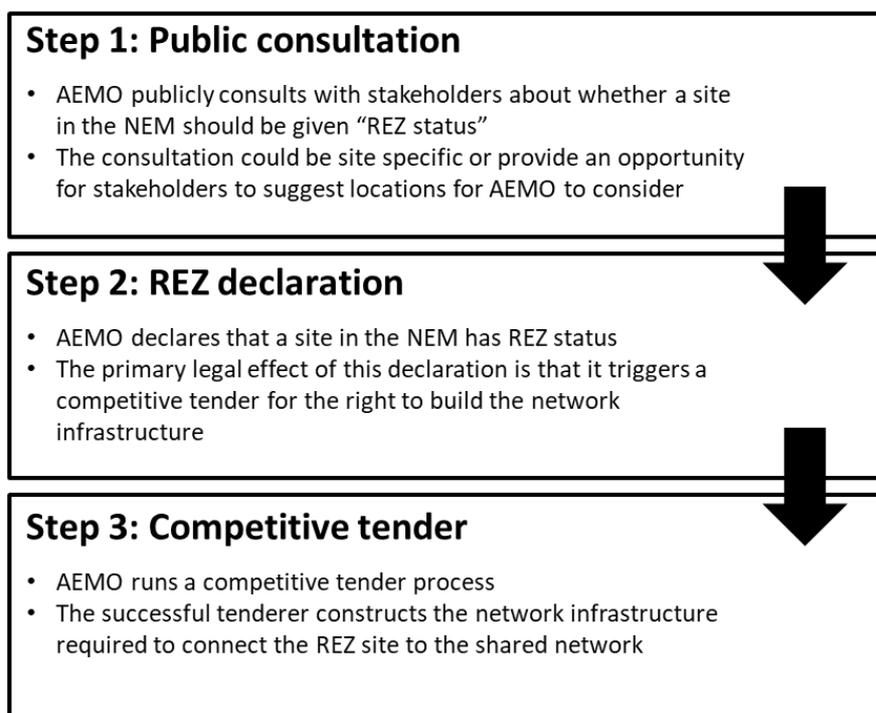
¹ NER, Chapter 8 Part H.

² NER, clause 8.11.3 and 8.11.6(a)(1).

³ NER, clause 8.11.3 and 8.11.6(a)(2).

Applying Victorian arrangements to REZ

Our proposal for how elements of the Victorian transmission planning arrangements could be applied to the coordination of generation and network investment at REZ locations is outlined below.



Step 1: Public consultation

The first step would involve a robust, comprehensive and open public consultation process in which stakeholders are given the opportunity to suggest potential REZ locations.

By initiating the decision making process with public consultation, AEMO would be able to harness the diverse set of skills and expertise needed to select the most suitable location. It would also enable a level of coordination in the investment process that would not be possible if such decisions were left to the market alone.

The trigger for public consultation could be based on ad hoc requests that a particular site be given REZ status (site specific consultation) or AEMO could periodically release invitations for stakeholders to suggest locations (non-site specific consultation). Under either approach, we consider it would be in long term interests of customers if the first step under this option involved public consultation.

Steps 2: REZ declaration

The second step under this option would be a declaration from AEMO that a site has REZ status.

In our view, the making of such a declaration would be analogous to the role AEMO currently has in classifying an augmentation as ‘contestable’ in Victoria. Its introduction would therefore not involve a significant departure from existing regulatory arrangements in the NEM.

The primary legal and regulatory effect of a REZ declaration would be to commence a process, as outlined in step 3, for the contestable delivery of network augmentations to a site rich in renewable energy resources. Importantly, the investment should be able to occur proactively; that is, before any generation capacity in the area is committed. The allocation of risks involved with such investments is discussed in more detail in step 4 below.

We are of the view that a REZ declaration process is likely to offer broad market benefits in terms of the coordination of transmission and renewable generation investment. This should occur via the signals that such a declaration would send to upstream investors in renewable generation. For them, the fact that a declaration from AEMO triggers a transmission investment at a particular site is likely to signal that they should co-locate in the same area. This is given that a REZ declaration would indicate to new generation projects that they would have a requisite level of transmission access if they were to invest in the area – which, as noted in the *Discussion Paper*, is usually a prerequisite for renewable generation investment.⁴

The declaration process is also likely to give renewable generation investors confidence in where to invest. This is given that a REZ declaration from AEMO would precede substantial public consultation from a diverse range of stakeholders and would be made by an independent, non-profit authority.

Step 3: Tender process

Once a location is declared by AEMO to have REZ status, a competitive tender process for the construction of the network augmentation could be implemented.

Any party should be able to bid in the tender process. This includes, as currently applies in Victoria, the incumbent transmission network service provider.⁵ Notwithstanding, there should be detailed financial, commercial, project management and legal criteria for evaluating the suitability of an application to construct the augmentation. Price should also be of paramount importance to the tender process, with the competitive tension between applicants likely to incentivise them to bid at their efficient costs.

When issuing the invitation to tender, the level of capacity for the augmentation should, in our view, be based on the long term potential of the site given the renewable energy resources available. The augmentation which is bid for, and eventually constructed, would then:

- unlock the economies of scale needed for it to be efficiently sized over its technical life; and
- would allow for the immediate connection of renewable generators as and when they arrive, rather than having to wait for the augmentation to be further reinforced each time a new generator connects.

Other requirements of the tender process could be modelled on clause 8.11.7 of the existing NER. It sets out requirements for the tender process that AEMO currently administers in Victoria.

Funding mechanism and risk sharing

The key consideration under this option involves the recovery of the costs associated with constructing the network augmentation; i.e. who bears the risk and who are the counterparties?

Ideally it would be possible to work within a fully unregulated model, where a 3rd party asset owner bids to build, own and operate the augmentation, underwritten by a group of ‘foundation’ generators (who would likely enter into take-or-pay arrangements with the asset owner and seek to recover the costs through their wholesale market participation). In this scenario the 3rd party asset owner would then take on the risk/upside of revenue associated with later generators connecting.

This model may have issues both from a financing perspective and from a market power perspective for the generators that connect later. These issues could be addressed through risk sharing with NSP customers (i.e. sharing a portion of costs with customers as a pass-through cost via the TNSP, the amount and duration of which would be part of the competitive tender process), and/or through a ‘light regulation’ model as is used for some gas transmission pipelines.”

It is worthwhile emphasizing that the risks associated with an AEMO/market-led approach would be mitigated by public consultation (step 1). Such consultation would lead to decisions about the coordination of transmission and renewable generation being based on a comprehensive data set and

⁴ AEMC, *Discussion Paper: Coordination of generation and transmission investment*, 13 April 2018, p.65.

⁵ NER, clause 8.11.7(d).

the robust advocacy of multiple competing potential locations – with the best site selected by an independent, non-profit authority.

Assessment

We consider a ‘contestable augmentation’ approach has the potential to enhance the coordination of transmission and renewable generation investment, and in our view merits further consideration.

The key strength of this option rests with its combination of a centrally-planned approach and market based solutions. The requirement for public consultation (step 1) and the process by which AEMO makes a REZ declaration (step 2) would provide for a level of central planning which, among other things, would allow AEMO to leverage the knowledge, expertise and skills of a diverse range of stakeholders and focus investments at a particular site in the NEM. At the same time, the tender process (step 3) would introduce market based mechanisms which, through competitive tension between each bidder, would deliver network augmentations at the efficient cost of construction.

In that regard, when considering options for better coordination of transmission and generation investment a ‘competitive augmentation’ approach may offer the ‘best of both worlds’ in terms of its incorporation of both centrally-planned and market based solutions. A potential weakness with this option, however, is that it puts the obligation to efficiently ‘size’ the augmentation on AEMO. The exact mechanism for achieving this would need to be considered in further detail.

OPTION 2: RISK SHARING MECHANISM (NSP LED)

The Australian Energy Regulator (**AER**) currently administers two expenditure incentive schemes, the EBSS and CESS. Both provide that customers share in approximately 70 percent of any efficiency gains or losses in expenditure while NSPs receive a share of about 30 percent.

We are of the view that a risk sharing mechanism for proactive investments, modelled on the outcomes achieved by the EBSS and CESS, could be introduced. At a high level, this mechanism would involve:

1. a guarantee that 70 percent of any proactive network investment at a REZ site would be rolled into the RAB of a NSPs (**70 Percent Guarantee**)
2. an ex post review of the prudence of a proactive network investment to determine whether the residual 30 percent should be rolled into the RAB and recovered from customers.

By ‘proactive network investment’, it is meant a network augmentation to a location rich in renewable energy resources but which may not necessarily have any generation capacity committed to the area, or a designation as a REZ site from an independent authority.

The Guarantee

The first element of this risk sharing mechanism, the 70 Percent Guarantee, is targeted at allocating to NSPs a proportion of the stranded asset risk associated with a proactive network investment.

Our view is that NSPs are likely to be in a position to manage the risks associated with a network asset becoming stranded, and therefore they should have that risk placed on them. We further take the view that if a NSP faces an artificially high risk they may not choose to undertake an investment, even if it is efficiency enhancing and would provide a benefit to market participants and customers. Likewise, if the risk is too low then this may lead to overinvestment.

In taking these factors into account, we consider the 70 Percent Guarantee could strike the right balance. This is by providing certainty to NSPs that if they make a proactive network investment in anticipation of future renewable generation at a REZ location, then they will recover at least 70 percent of the capital expenditure they incur. Equally, the guarantee would not provide an incentive to overinvest. This is given that an overinvestment would place a NSP at risk of not recovering 30 percent of their costs; in effect, requiring shareholders to incur a commercial loss.

Residual 30 percent

The establishment of an ex post review to consider if the full costs of a proactive investment should be rolled into the RAB is a necessary second step. This is given that NSPs are unlikely to make an investment of a proactive nature if they do not at least have an opportunity to recover their full costs.

The opportunity to recover the full cost of proactive investments is also consistent with the *Revenue and Pricing principles* in the NEL. In particular, section 7A(2) which requires that a 'regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs'.

Building on this, Ausgrid is of the view that in order for the opportunity to recover the efficient costs associated with a proactive investment to be 'reasonable', any ex post review should be governed by certain criteria. Among other things, this may include consideration of the following factors:

- whether a prudent NSP in the same circumstances would have made the investment
- whether an economic level of generation capacity has been reached in relation to the investment at a subsequent AER determination where the NSP's RAB roll-forward is under consideration

Other design elements of this option are likely to be required. We would welcome the opportunity to work closely with the AEMC if it considers a risk sharing mechanism to be an option worth considering further at the next round of consultation.

Assessment

We consider a 70:30 risk sharing mechanism has merit and should be considered by the AEMC.

In terms of its benefits, it may lead to suitable regulatory arrangements for proactive transmission investments to occur. We would, however, have concerns if the 70:30 allocation of risk between customers and NSPs led to an inefficient investment, though overinvestment, or unnecessary investment, in transmission infrastructure that customers were ultimately required to fund; or if the additional risk faced by the NSPs led to higher debt funding costs which would in turn be passed onto customers.

OPTION 3: PIONEER SCHEME (GENERATOR LED)

The AEMC may wish to investigate whether a 'Pioneer Scheme' similar to that which some distributors in the NEM currently administer with regard to new load connections, can be applied to generators connecting to the grid.

Under the Pioneer Scheme which Ausgrid is responsible for, a retail customer or real estate developer who proposes to connect to part of the network funded by another customer in the previous 7 years may be required to make a Pioneer Scheme payment. This payment is then passed on to the customer who initially funded the connection.

Elements of this scheme could be applied to renewable generators at REZ locations if they are required to fund the cost of network augmentations. From an economic standpoint, this may lead to more efficient procurement of network infrastructure. This is because the opportunity to recover a Pioneer Scheme payment may incentivise generators to fund an augmentation that is sized to meet the capacity of future generation, unlocking the economies of scale required for efficient network investments.

Assessment

We consider that while it has risks, the introduction of Pioneer Schemes to REZ locations may be an effective regulatory strategy to better coordinate transmission and renewable generation investment.

Its introduction at the transmission level is likely to be easier to administer than the Pioneer Schemes currently under the responsibility of electricity distributors. This is given that fewer connecting parties should be involved, reducing the administrative burden and cost.

A potential weakness, however, lies with whether the 'pioneer' renewable generators would respond to the incentives on offer by a future Pioneer Scheme payment. In order for these incentives to be effective, the risk adjusted cost to a generator who factors in a future Pioneer Scheme payment and contracts to build a higher capacity than they strictly require, must be lower than the cost they would incur if they funded a smaller connection that meets their capacity requirements alone. It is questionable whether this incentive would exist. The level of risk – given the size of the connections at the transmission level – may also be too great for renewable generators to want to participate in such a scheme.

CONCLUSION

Ausgrid thanks the AEMC for the opportunity to make this submission in response to the *Discussion Paper*. As a concluding remark, we wish to note that each of the options we have put forward on the basis that they are high level concepts only, and that there is still considerable work to be done to understand which option, or which combination of options (as they do not need to be considered on a mutually exclusive basis), may offer the most appropriate solution. Ausgrid looks forward to the opportunity to contribute further to this important consultation as it evolves.