

8 November 2019

Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
Sydney NSW 1235

Lodged online via: www.aemc.gov.au

Dear Mr Pierce,

**Coordination of Transmission and Generation Investment
Proposed Access Model and Renewable Energy Zones: Discussion Papers Response**

Lighthouse Infrastructure Management Limited (Lighthouse Infrastructure) welcomes this opportunity to respond to the Australian Energy Markets Commission (AEMC) discussions papers issued 14 October 2019 *Coordination of Transmission and Generation Investment – Proposed Access Model* (Proposed Access Model) and *Renewable Energy Zones* (REZ Proposal).

This response references and extends the CoGaTI submission made by Lighthouse Infrastructure on 2 August 2019 (August CoGaTI Submission) and the Transmission Loss Factor rule change submission made by Lighthouse Infrastructure on 18 July 2019 (July TLF Submission).

Summary

Lighthouse Infrastructure is an institutional infrastructure investor, whose investment mandates explicitly focus on facilitating the new infrastructure needed for Australia's future. In the energy sector a transformation is necessary to protect our economic and environmental wellbeing. We have arranged funding for some of Australia's earliest utility scale solar PV generation projects.

Australian industry and society face an increasingly acute need for new electricity supply. However investment in electricity generation is becoming more challenging, largely due to poor coordination of transmission and generation. The lack of coordination manifests in generators not being able to deliver their output to the market, undermining both the value of those generators to the electricity system and the ability for investors to recover their investment and thereby receive encouragement to invest further. These challenges are being faced by a relative minority of generators, but are concentrated in the renewables fleet that represents the future of new supply and a key part of the solution to our energy trilemma. We fear that the status quo network arrangements will not deliver the low cost, reliable and sustainable energy system Australians should enjoy.

To most effectively address this challenge we propose a re-prioritisation of the initiatives outlined in AEMC's Proposed Access Model and REZ Proposal:

- Strong transmission linkage between renewable energy zones and load centres is the highest priority for CoGaTI access reform. A REZ program should commence with urgency, with REZs identified through the ISP. The commercial structure for REZs can be simplified by managing stranded asset risk through planning discipline.
- Dynamic Regional Pricing (DRP) may also be of benefit in optimising constrained situations, however we feel the better priority is to coordinate the network with generation development so as to minimise

constraint. DRP should then be evaluated and implemented over a longer timeframe that mitigates its disruptive effect on existing market arrangements.

- Marginal loss factors (MLF) should be replaced with average loss factors (ALF) in time for the 2020-21 year. This is a straightforward and no-regrets change that will help prevent generation shortage in the near future. The long term solution is to provide REZs with low-loss connection to load centres.

Transmission should lead generation through a simplified REZ scheme

The NEM requires a substantial volume of new generation supply in order to deliver consumers affordable, reliable and sustainable electricity now and in the future. The AEMC has correctly identified that development of the transmission network is a critical enabler of this transition:

In order to support the transition of the electricity system, the transmission network will need to develop to efficiently connect and transport large amounts of energy from dispersed renewable generation across the NEM to where consumers want to use it.

AEMC, CoGaTI Access Reform Directions Paper, 27 June 2019

We support AEMC and AEMO in developing a renewable energy zone (REZ) based framework for coordinating large-scale development of generation with associated transmission and other shared network assets. This will enable scale-efficient transmission links and a coordinated approach to system strength. We consider that an effective REZ framework would be the most immediately valuable product of the CoGaTI access reform program. Specifically we support the following key principles of the REZ model proposed by AEMC:

- REZs being identified and committed through a planning-led process (though naturally incorporating an understanding of the generator intentions).
- Providing REZ generators with firm access to the regional market and price, to the greatest practical degree and for a period of time reflecting the economic lives of those generators.
- Auctioning those firm access rights and using the proceeds to offset the cost of the transmission.

We are not convinced of certain other aspects of the proposed model, most notably the following, and consider that these should be subjected to further review and potentially redesign:

- The use of dynamic regional pricing and nodal pricing hedges as the framework for firm access. In the next section of this submission we suggest that DRP and FTR warrant further review and that if implemented this should occur following a notice period in the order of five years.
- Generator financial commitment prior to the REZ transmission investment decision. We feel that the sequencing of transmission and generation decision making may make this impractical and inefficient. We elaborate in our August CoGaTI Submission.

Importantly we feel that a simpler REZ framework could be adopted without the above elements, which we outline below. The simpler approach could be adopted for an initial round of REZs, with additional features introduced for later REZs if found to be necessary.

Simplified REZ framework

- The ISP identifies a long term network blueprint, including REZs, and identifies a sequencing or prioritisation of those REZs in relation to each other and in relation to other system events (such as closure of thermal generators).
- At its allotted point in the ISP sequence, a REZ is designed in greater detail and subjected to a modified RIT-T assessment:
 - Design details would include, for example, transmission route, power capacity, nature of likely generation, system strength arrangements, and timing of commissioning.
 - The key RIT-T amendment is recognition that the transmission is being developed primarily, or completely, to facilitate new generation that is not yet committed. The existing RIT-T does not place sufficient value on facilitating un-committed generation, which is an impediment to a system that is collectively acknowledged to be in transition and this feature results in transmission inevitably lagging generation.

- AEMO, TNSPs, AER and the private development sector would all contribute significantly to this stage. Importantly decision making would rest with the market bodies, rather than the TNSP, who make that decision in the best interest of consumers and in coordination with the decisions being made on other REZs in other parts of the NEM.
- Once a REZ is committed and in the early stages of implementation by the TNSP, private sector market participants will progress developments that could feasibly connect to the REZ and prepare to bid for access rights.
- At a suitable time between the REZ being committed and being available for connection, firm access rights will be auctioned to generation developers.
 - Proceeds from the auction will be used to offset the cost of the REZ transmission, whether it be an up-front fee or annuitised and offset against TUoS.
 - The firm access rights need not be financial; for certain REZs it may be enough simply to limit the volume of generation connecting to the REZ, indefinitely or for a certain period of time (with that volume being allocated to the parties who have purchased the access right).
 - The rights will come with certain technical conditions (aspects of generator performance standards) such that the REZ supports the technical standards of the network and generators can feel reasonably confident of not facing design changes or system strength-related curtailment later.

Two aspects of this proposal warrant further explanation:

Stranded asset risk: By this we refer to the risk that REZ transmission is built and paid for by consumers but not utilised by new generation to the degree necessary for consumers to derive the intended benefit. The REZ Proposal also refers to this as the risk of building a “road to nowhere”. This is a valid concern, especially if REZ identification and commitment were led by TNSPs, who have an incentive to over-build, no explicit duty of care to consumers, and are not coordinated with the decisions of other TNSPs in other regions. Instead the REZ framework should be led by market bodies, who will explicitly seek to stage the roll-out of REZs across the NEM so that the volume of unallocated capacity roughly matches the volume of new generation required at each stage of the system transition.

Furthermore the stranded asset risk is much less significant in the midst of a system-wide transition. There is widespread consensus that the majority of existing generation will be replaced with new supply in different locations, over a time span that is quite short in transmission planning terms. The AEMC and TNSPs note that the volume of generator connection applications is overwhelming and far exceeds network capacity. The challenge of secure network access has become the greatest concern of investors in new generation. We expect that each REZ made available would be significantly over-subscribed by prospective generators and that the risk of long term stranded capacity is low. By contrast transmission under-build is not just a serious risk, but a reality that costs consumers today.

Firmness of generator access: We are strong advocates for providing opportunities for new generation with firm access, for the reasons articulated in our August CoGaTI Submission. We acknowledge that the above arrangement is, or at least appears, somewhat imperfect in its firmness. For example, because the generators within a REZ may be unexpectedly constrained by other new generators connecting just outside of the defined REZ.

The materiality of this issue will vary substantially between different REZs, depending upon how they are connected to load centres. We suspect that there are a number of REZ candidates that are well suited to this simple framework and that can underpin near term generation development.

There is also a circular mitigation of this issue. In the present environment generation development is consistently poorly coordinated and when considering a new generation project investors expect to bear unmanageable and unpredictable harm from curtailment and loss factor deterioration. Investors are aware that a large volume of new generation is inevitable but that the transmission is systematically lagging. If the system were to commit to a different approach of transmission leading generation, then each first mover generator A can have confidence that subsequent new generators B will not need to crowd out A because B will be provided with its own strong transmission link.

In conclusion we reiterate that these simplifications may not be workable or appropriate in every potential REZ, but recommend that in the next stage of reform the AEMC liaises with AEMO, TNSPs and market participants to attempt to identify leading specific REZs that could be developed simply and quickly in this way.

DRP warrants a longer pre-implementation notice period

The AEMC has identified dispatch inefficiencies caused by the existing regional pricing framework. The AEMC expects these to become more material in the future, specifically due to more frequent network constraint and a larger number of utility-scale storage developments. We acknowledge these issues and consider that they warrant reform. In particular we feel it would be regrettable for storage to be developed at a regularly constrained location with a business model that relies on exporting through the constraint.

As a solution the AEMC has proposed dynamic regional pricing, which is a step toward full nodal pricing. We agree that it would mitigate existing market inefficiencies, and note that it is used in other overseas electricity markets. However we also feel it will be a significant disruption to the NEM, specifically to existing contractual arrangements and near-term generator revenue expectations. DRP presents as a further source of uncertainty that will dissuade investors and raise the cost of capital, and we fear that the cost of this to consumers through insufficient investment is under-estimated by the AEMC.

In the immediate future we encourage a different approach to mitigating the undesirable effects of constraint, and that is to better coordinate transmission and generation development so that the level of constraint does not grow to the level that the AEMC is wary of. It is on this basis we support development of renewable energy zones as the priority outcome from the CoGaTI process.

Overall we recommend further consideration is given to nodal pricing in the NEM. Further integration with changes proposed by the ESB Post 2025 market design would be appropriate. Should it be decided that DRP or another form of nodal pricing will be introduced, we suggest that the implementation period allows market contracts to unwind and business models to be adjusted. That period is likely to be in the order of five years' notice.

We wish to specifically provide feedback regarding the length of financial transmission rights:

- The Proposed Access Model indicates rights will be available between one and four years in advance. In general this is not long enough to provide investment certainty. Wind and solar generation is most efficient when deployed with an economic life of thirty years or more and requires reliable market access for an equivalent period of time.
To the extent that the business case for a new generator relies on continual/rolling repurchase of its access rights, this attempt at providing firm access could actually inhibit rather than enhance investment certainty. The generator faces the possibility of completely losing its access rights early in its life to a later new entrant, who potentially enjoys lower construction costs and therefore greater financial capacity to bid for FTRs.
- However, the REZ Proposal appears to envisage that new generators connecting to a REZ will be provided with FTRs with durations of multiple decades equivalent to generator economic lifespan. To the extent that new generation can reasonably rely on this form of long term firm access, the aforementioned problem is addressed.
- Moreover the Proposed Access Model suggests providing existing generators with grandfathered access rights for five to fifteen years. Identifying the appropriate duration is a challenging aspect of this policy. The fairest principle is for generators to be grandfathered for equal proportions of their remaining lives as assessed objectively. The NEM features several significant assets that are expected to survive only five or ten further years and providing fifteen year grandfathering of access would be a gift, whilst other assets are recently constructed on the basis of thirty year lifetimes and in these cases fifteen years is unreasonably short.
- Overall it appears that in the short to medium term, the one to four year rights will be of little relevance. Existing generators will have grandfathered rights and new generators will predominantly locate in REZs. This may be an appropriate outcome.

Finally we strongly discourage capping or restricting the funds available to settle the hedges under any FTR regime. We anticipate that a cap will do more detriment to consumers through investment conservatism that it will deliver through reduced hedge payments.

Loss factor uncertainty should be addressed through ALF and REZs

The Proposed Access Model identifies that dynamic loss factors can optimise market dispatch, and also recommends the provision of loss factor hedging to provide generators with revenue predictability. Conceptually it appears that the latter dilutes the former; namely a generator operating with the benefit of a hedge will not respond to the loss factor in its generation decisions. Overall the proposed arrangements may add substantial complexity to the market for little benefit. At best we do not see an urgent need for this reform.

However, it is important to recognise that uncertainty arising from the existing loss factor regime is a significant barrier to new generation supply, and therefore to continuation of the energy transition. We wish to emphasise that the uncertainty most challenging to investment is that on a long term horizon. Investors can accommodate short term loss factor fluctuation, in the same way that they allow for fluctuation in the level of wind or solar resource at a particular location. Dynamic loss factors may be acceptable if the long term average was clear.

We propose a sequenced approach to loss factor reform:

- Short term: Adoption of average loss factors (ALFs) would halve the level of volatility, thereby alleviating the cost of capital premium applied by investors to allow for MLF risk. ALFs align more closely with actual losses, and are therefore fairer to all market participants. By contrast the MLF regime over-recovers the cost of losses and this over-recovery is concentrated in the weaker network zones that are currently supporting new generation. ALFs can be adopted quickly and with little disruption, potentially as early as the 2020-21 year.
- Medium term: Developing the transmission backbone and focusing generation development into planned zones with strong network connections will mitigate underlying losses. A REZ regime can deliver this.
- Long term: Dynamic loss factors in conjunction with nodal pricing may be an appropriate reform to optimise dispatch in the context of a clear system blueprint and an efficient level of underlying physical losses.

Lighthouse Infrastructure appreciates the opportunity provide feedback to the AEMC and looks forward to continued engagement with the AEMC and other stakeholders in relation to this important reform program.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Jevon Carding".

Jevon Carding
Associate Director
Lighthouse Infrastructure Management Limited
T: +61 (03) 0477 888064
E: jevon.carding@lighthouseinfrastructure.com