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## **COORDINATION OF GENERATION AND TRANSMISSION INVESTMENT: STAGE 2 DISCUSSION PAPER**

### **1. Introduction**

Genex Power Limited ("Genex" or the "Company") is pleased to provide this submission (the "Submission") in response to the Coordination of Generation and Transmission Investment discussion paper published by the Australian Energy Market Commission (AEMC) on 13 April 2018 (the "Paper"). Genex welcomes the opportunity to submit feedback on the future regulatory environment for generation and transmission investment planning.

In making this Submission, Genex is not seeking to respond directly to each of the considerations raised in the Paper. Rather, we are selectively focusing on two issues on which we have insight as a project proponent, namely the treatment of energy storage assets, and Renewable Energy Zones (REZs).

### **2. Overview of Genex**

Genex is a power generation development company listed on the Australian Securities Exchange (ASX Code: GNX), with a market capitalisation of approximately \$100 million. Genex is focused on innovative clean energy generation and electricity storage solutions with the objective to deliver commercial returns for shareholders. The Company's current projects are based at the Kidston Renewable Energy Hub near the township of Kidston in Northern Queensland (the "Kidston Project"), which is centred on the rehabilitation of a former mine site.

Stage 1 of the Kidston Project comprises a 50MW solar PV project, with first generation achieved in December 2017. Stage 2 of the Kidston Project comprises a 250MW hydro pumped storage project, utilising two existing abandoned mine pits, and a solar PV project of up to 270MW. The Company is currently progressing the Stage 2 development to financial close in 2018, with targeted first generation in 2020. The Kidston Renewable Energy Hub has been designated as "Critical Infrastructure" by the Queensland State Government, and also benefits from the support of the Australian Renewable Energy Agency and the Clean Energy Finance Corporation.

### **3. Potential issues with the current framework: Treatment of storage**

Genex agrees with the statements made by the AEMC in the Paper regarding the need for clarification on the treatment of storage assets in terms of the registration process, and charges levied on generators with storage assets for use of the transmission system. For the avoidance of doubt, in discussing large-scale storage assets in this Submission, we refer to storage assets that are connected to the NEM as a generator, which operate on a business model derived from dispatching energy into the NEM.

In summary, we strongly oppose any recommendation to introduce transmission use of service (TUOS) charges for large-scale storage assets. We consider that, as in the case of other generators, the business of large-scale storage assets is to serve customers and therefore these assets should be treated as a single power station and in the same manner as other generators, and be exempt from TUOS charges.

### **3.1. Rationale for exemption from TUOS charges**

As noted above, we are of the view that there is a strong rationale to continue to exempt large-scale storage assets from TUOS charges. We discuss this further below.

#### *a) Large-scale storage provides benefits to the NEM*

As the developer of a large-scale hydro pumped storage project, Genex recognises the inherent value that energy storage brings to the NEM, particularly in an environment of increasing penetration from intermittent generators such as wind and solar, as discussed in paragraph 4.2 of the Paper. We agree with the AEMC that these benefits are numerous and also that they are recognised by consumers, generators, regulators, academic bodies and other industry stakeholders alike.

#### *b) Large-scale storage load is different to other types of energy consumers*

The primary input and cost for large-scale energy storage technologies is the consumption of energy. Both existing storage technologies, being hydro pumped storage and battery technologies, consume more energy than they can dispatch as generators (resulting in an auxiliary loss). These assets seek to recover the cost of this auxiliary loss following the dispatch of this energy back into the NEM, through a combination of:

- Receiving the spot regional reference price for dispatched energy ie. Through wholesale pricing arbitrage;
- Receiving ancillary services revenues through providing network support services; and
- Selling insurance and price hedging products to other customers in financial and wholesale markets.

Put more simply, in recovering the costs of their inputs, these assets ultimately serve to benefit the network (through ancillary services) and to service the needs of wholesale market customers (through providing wholesale energy and insurance).

#### *c) Need to promote storage in the NEM*

The NEM currently has four large-scale storage assets which are connected as both generators and customers (for their storage load), being:

- Tumut-3 power station, NSW (pumped hydro);
- Shoalhaven power station, NSW (pumped hydro);
- Wivenhoe power station, QLD (pumped hydro); and
- Hornsdale Power Reserve, SA (lithium ion battery).

Apart from the Hornsdale facility (which was commissioned by the South Australian Government in 2017), there has been minimal private sector investment in storage assets, with each of these storage facilities having been constructed prior to 1980 and funded by Government entities. At the same time, numerous studies and experience overseas suggests that there is a distinct need to



invest in storage assets to secure the future of the NEM, due to an increasing penetration of intermittent renewable generators<sup>12</sup>.

We are of the view that any new requirement for large-scale storage assets to pay TUOS charges would provide a direct disincentive for the investment required to provide this storage capacity. However more importantly, it would impact on the economic rationale for such assets and could ultimately render many future large-scale storage projects as commercially unviable.

### 3.2. Considerations for policy framework

Genex is concerned at the level of uncertainty at present regarding the obligation for large-scale storage assets to pay TUOS charges. We expect that the result of the current AEMC consultation and any policy framework should be to deliver clear guidance and clarity to the market in this respect in the soonest possible time, while preserving the investment rationale for the future development of new large-scale storage capacity in the NEM.

Genex also recognises the difficulties that regulators face in implementing any new policy framework – where there may be situations in which large load customers could use storage assets to potentially avoid paying TUOS charges.

With this in mind, we believe that the policy framework should consider all forms of storage, however it should differentiate between the treatment of these for TUOS charges on the basis of the benefits they provide to customers. We summarise these views in the table below:

Type	Description	TUOS Charges
Large-scale storage-generator assets	Exist on a large-scale primarily to dispatch energy into the NEM	Exempt – load is used as an input for dispatch to benefit customers
Behind the meter storage	Exist to supplement existing consumption	No exemption

Genex believes the classification and differentiation of these assets could be achieved through the AEMO generator registration process, potentially through the creation of a separate or sub-class of registration for large-scale storage. Such a framework could require generators to demonstrate their technical capability and economic business case to use load primarily to support the future dispatch of this energy into the NEM, to qualify for exemption from TUOS charges.

We believe that such a framework would provide the necessary clarity and maintain the incentive for the development of large-scale storage, while closing any potential ‘TUOS avoidance loopholes’ for customers.

## 4. Renewable Energy Zones

As a proponent of renewable energy projects in Far North Queensland, Genex recognises the opportunities in the NEM associated with regions of significant renewable energy resources. However we are also aware of the subsequent impact on transmission network planning to support the development of these regions, which are typically in remote locations. To this end, we are fully

<sup>1</sup> Clean Energy Council, Charging Forward: Policy and Regulatory Reforms to Unlock the Potential of Energy Storage in Australia, May 2017 see: <https://www.cleanenergycouncil.org.au/dam/cec/policy-and-advocacy/reports/2017/charging-forward-energy-storage-paper.pdf>

<sup>2</sup> ACOLA, The Role of Energy Storage in Australia’s Future Energy Supply Mix, November 2017 see: <https://acola.org.au/wp/wp-content/uploads/ENRG-final.pdf>



supportive of the concept of defining discrete REZ's, to help support the coordination of transmission investment and ensure that this investment is undertaken efficiently to benefit consumers.

We have considered the options tabled in part 5.3 of the Paper concerning the proposed options for the regulatory framework to support the development of REZ's. In summary, we are of the view that each option in isolation would not achieve this goal. This is on the basis that we consider each option alone either results in inefficiencies, or a lack of sufficient incentive to promote the necessary investment. Rather, we believe a combination of these would be the most efficient means of coordinating this investment. We set out our rationale for this position below.

#### **4.1. Consideration of AEMC options for regulatory framework**

##### *a) Enhanced information provision*

We are of the view that AEMO, through its role in the integrated system planning process, should play a key role in the coordination of transmission investment to support the development of REZ's. Generators, proponents and transmission network service providers (TNSPs) alike will all require public notification of regions which are deemed to be most efficient for development as REZ's as a signal for future coordinated development. We therefore support a process that would see AEMO 'declare' a number of discrete REZ's ("Registered-REZ's" or "R-REZ's"), which could then potentially benefit from other changes in the regulatory framework to support their development (as discussed below).

In fulfilling this role, we recognise that AEMO has defined REZ's in its Integrated System Plan consultation, which are to be considered based upon:

- The quality of renewable resources (wind or sun); and
- The cost of developing or augmenting transmission connections to transport the renewable generation produced in the REZ to customers.

We believe these factors are critical to a successful REZ. However we are also of the view that each potential REZ would need to be considered in terms of its impact on system strength and stability. This is on the basis that the connection of a REZ should not be to the detriment of the security of the transmission network, and hence the identification of an R-REZ should prioritise those that could limit their impact on, or even enhance system security. We would therefore support a recommendation to add this criteria to the definition of an R-REZ as part of AEMO's 'declaration process'.

##### *b) Generator coordination*

We recognise that there may be benefits in AEMO sharing information among generators seeking to connect to the NEM, to allow these parties to work together to coordinate the necessary transmission investment to support their renewable energy projects.

However we also consider that this would be much more difficult in practice. In such a scenario, each proponent of a project located in a potential REZ would be faced with a number of issues when considering whether to participate in such a process:

- Each project within the REZ will have a unique development timeline and competing objectives, making coordination of transmission investment among these projects difficult to manage;
- Each project will have its own financing structure, each of which will rely upon the coordinated investment to be undertaken as part of the project financing, creating further difficulties;



- Proponents are likely to be reluctant to disclose the necessary confidential and commercially sensitive information required for such a coordinated process to parties who would normally be considered potential competitors for finance, energy offtake and/or equipment; and
- The process would likely see one (or a number of) proponent(s) take the majority of the risk of financing such infrastructure, which would be to the benefit of others seeking to connect at a future date – which would be seen as a ‘first mover disadvantage’.

Notwithstanding these difficulties, we consider that while such an approach may assist proponents in certain cases, it ultimately fails to create the necessary incentives and impetus to ensure that such infrastructure is funded and constructed in a coordinated and efficient manner.

*c) TNSP speculation*

We are of the view that in theory, the speculative investment by TNSPs in transmission infrastructure, on the back of AEMO ‘declared’ R-REZ’s (as discussed above), could be sufficient to promote the development of REZ’s. We agree with the AEMC that the incentives for TNSPs would relate to the commercial return able to be generated once the transmission asset is able to be incorporated within its regulated asset base, following the connection of sufficient future generation capacity. This policy option would also have the benefit of ensuring that the cost of such investment is not borne by consumers until sufficient net benefits can be demonstrated under the RIT-T.

However in practice, TNSPs typically have a low risk profile, a low return requirement, and rigid investment policies. As a result, we believe that under such a framework, this speculative investment would be unlikely to occur (in the absence of further State government policy investment) given the associated risk profile. As such, we do not consider that such a policy framework alone would achieve the objective of efficient coordination of investment to support the development of R-REZ’s.

*d) TNSP prescribed service*

We note that the development of an R-REZ will require some speculation in terms of investment in transmission infrastructure to support the cornerstone projects of the R-REZ. As we described above, in our view the policy frameworks under options b) and c) do not provide sufficient incentives for generators or TNSPs to make this speculative investment.

As a result, we are supportive of an approach to consider the transmission infrastructure to support a ‘declared’ R-REZ being constructed as a prescribed service. We have formed this view on the basis that:

- This approach would provide the impetus and incentive for TNSPs to build this infrastructure, given their ability to achieve a commercial return within their risk profile;
- It would assist in the coordination of transmission investment, providing an incentive for proponents to develop projects within a ‘declared’ R-REZ; and
- While consumers would bear the cost of this in the short term, the longer term benefits of increased penetration of zero marginal cost renewable energy, and the efficient coordination of transmission investment to support this, would be likely to have a net benefit for consumers in terms of lowering costs and electricity prices.

We recognise that such a regulatory change would need to be carefully managed to ensure that the speculative investment is undertaken in an efficient manner and the short term cost to consumers is minimised. However we believe this can be achieved using the AEMO ‘declaration process’ as outlined in a) above – whereby the ability to construct this infrastructure as a prescribed service would be limited to ‘declared’ R-REZ’s.

#### **4.2. Considerations for policy framework**

On the basis of the points noted above, we believe the efficient coordination of transmission investment to support the development of REZ's could be achieved through a combination of:

- a) A process whereby AEMO is tasked with 'declaring' R-REZ's on the basis of:
  - The level of renewable resources;
  - The cost of developing transmission infrastructure to connect the REZ to the network; and
  - The impact of the REZ on network strength and stability; and
- b) A change in regulations to facilitate the construction of transmission infrastructure as a prescribed service to support 'declared' R-REZ's.

We believe this policy framework would give the best outcome in terms of providing the necessary incentives to ensure that this transmission infrastructure is built, and that such investment is coordinated in an efficient manner to minimise the short term costs to consumers. Ultimately the coordination of this investment should lead to the growth of capacity within R-REZ's, and provide a net benefit to consumers in the medium term in terms of lower electricity prices. To this end, Genex would be supportive of a recommendation to implement such a framework as part of the AEMC's consultation process.

#### **5. Conclusion**

We again welcome the opportunity to contribute to this consultation on the future regulatory environment for generation and transmission investment planning. We believe that time is of the essence in this process – as this investment is needed now to secure the future of the NEM – and there are a distinct lack of investment signals at present.

We look forward to the consideration by the AEMC of this Submission and of our recommendations for the future development of the policy framework, and we are committed to continued participation in the AEMC consultation process.

Yours faithfully

A handwritten signature in blue ink, appearing to read "James Harding", with a long horizontal flourish extending to the right.

James Harding  
Chief Executive Officer