

2/08/2019

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

Lodged online via: www.aemc.gov.au

Dear John,

Coordination of generation and transmission investment – access reform – directions paper

TransGrid welcomes the opportunity to respond to the Australian Energy Market Commission's (**AEMC**) coordination of generation and transmission investment – access reform directions paper. We urge policymakers to work together to implement the changes needed to provide a stable policy and regulatory environment that encourages the required investment.

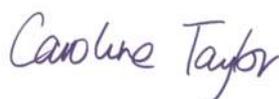
TransGrid is the operator and manager of the high voltage transmission network connecting electricity generators, distributors and major end users in New South Wales and the Australian Capital Territory. TransGrid's network is also interconnected to Queensland and Victoria, and is instrumental to an electricity system that allows for interstate energy trading.

TransGrid understands that the AEMC is proposing three key changes to the regulatory framework to address concerns relating to the coordination of generation and transmission investment. We conceptually support the first two elements of the AEMC's proposed reforms, to the extent that generators consider the reforms will assist them in making locational decisions and mitigate against congestion risk.

However, we are not supportive of the third element of the AEMC's proposed reforms, which link the purchase of transmission hedges by generators to transmission planning. TransGrid is not supportive of this aspect of the AEMC's proposed reforms as we are not clear how transmission hedges can be used as an effective tool to inform transmission planning. In addition, TransGrid has significant concerns that this aspect of the AEMC's proposed reforms could undermine the effective actioning of the Australian Energy Market Operator's (AEMO) ISP including the identification and prioritisation of renewable energy zones as recommended in the Finkel review. It is critical to the energy market transition that this does not occur.

We appreciate the opportunity to comment on this consultation paper and look forward to engaging with the AEMC and other stakeholders further on this important project. If you would like to discuss this submission, please contact me on 02 9284 3715.

Yours faithfully



Caroline Taylor
Head of Public Policy, Strategy, Innovation and Technology

1. Summary

TransGrid welcomes the opportunity to respond to the Australian Energy Market Commission's (**AEMC**) coordination of generation and transmission investment (**COGATI**) – access reform directions paper. We agree that there is an increasing need to invest in the transmission network to facilitate the energy market transition and urge policymakers to work together to implement the changes needed to provide a stable policy and regulatory environment that encourages the required investment.

TransGrid is the operator and manager of the high voltage transmission network connecting electricity generators, distributors and major end users in New South Wales and the Australian Capital Territory. TransGrid's network is also interconnected to Queensland and Victoria, and is instrumental to an electricity system that allows for interstate energy trading.

Australia is in the midst of an energy transformation. This is primarily driven by changing community expectations and choices, advances in renewable energy technologies, retirement of existing generation, and the adjustments required in Australia's economy to meet our international climate change commitments. These changes raise complex issues in relation to the design of the National Electricity Market (**NEM**) which must adapt to these changes and provide the basis for low emissions, reliable supply at the lowest cost to consumers over the long run.

TransGrid understands that the AEMC is proposing three key changes to the regulatory framework to address concerns relating to the coordination of generation and transmission investment, which are:

- > Generators receive a dynamic regional price (**DRP**) instead of the current regional reference price.
- > Generators could purchase transmission hedges to manage congestion risk.
- > Transmission planning to be informed by generators' purchase of transmission hedges.

TransGrid agrees that there is congestion on the network and that there is an increasing need to invest in the transmission network to facilitate the energy market transition to a lower carbon generation mix. However, we consider the effective actioning of the Integrated System Plan (**ISP**) including the prioritisation and facilitation of renewable energy zones (**REZ**) will solve many of the issues raised by the AEMC.

We understand the benefits of dynamic regional pricing for generators, including giving generators the ability to hedge against the risk of congestion on the network. However, it is not clear how transmission hedges could be used as an effective tool to inform transmission planning. We are concerned that this aspect of the AEMC's proposed reforms could undermine the effective actioning of the Australian Energy Market Operator's (AEMO) ISP including the identification and prioritisation of REZs as recommended under the Finkel review. It is critical to the energy market transition that this does not occur.

The AEMC is also seeking views on how to facilitate REZs as a transitional measure to access reform. TransGrid considers that the AEMC should revisit the original scale efficient network extension (**SENE**) rule change request as a potential solution to this issue. Alternatively, a flexible model could be developed, whereby the costs and risks of REZs can be shared by an appropriate mix of generators, governments and/or consumers. The Energy Security Board's (**ESB**) proposed REZ fund can have an important role to play.

This submission sets out TransGrid's views on the AEMC's proposals in its directions paper, in particular:

- > Chapter 2 sets out TransGrid's views on the problem and the overall solution proposed by the AEMC.
- > Chapter 3 discusses our views on the proposal to introduce dynamic regional pricing.
- > Chapter 4 sets out TransGrid's view on the proposal for generators to be able to purchase transmission hedges and that these hedges should inform transmission planning.
- > Chapter 5 sets out our views on how to facilitate renewable energy zones.
- > Chapter 6 sets out our views on implementation issues associated with the AEMC's proposed reforms.

2. The problem and the AEMC's proposed solution

2.1 The AEMC's view

The AEMC identifies a number of issues in the NEM that it considers are symptomatic of the current market design, that is, the existing transmission access regime.

To address these issues, the AEMC proposes three key changes to the regulatory framework:

- > Generators receive a dynamic regional price instead of the current regional reference price.
- > Generators can purchase transmission hedges to manage congestion risk.
- > Transmission planning is informed by generator's purchase of transmission hedges.

The AEMC considers these reforms would allow generators to receive greater financial certainty regarding their generation investment, in exchange for bearing a portion of the costs of transmission investment that are currently borne by consumers. It considers that this will in turn facilitate better transmission and generation planning, investment and operations. The AEMC is of the view that change is needed as soon as possible given the amount of investment that is likely to be required in the next ten years to transition to a lower emissions electricity supply.

2.2 TransGrid's view

TransGrid agrees that there is congestion on the network and that there is an increasing need to invest in the transmission network to facilitate the energy market transition to a lower carbon generation mix.

An integral part of the solution for the AEMC's work is the effective actioning of AEMO's ISP. TransGrid considers the effective actioning of the ISP will increase capacity on the network and it will address many of the issues that the AEMC has raised. However, we are concerned that the AEMC's proposals for transmission planning to be informed by transmission hedges could undermine the effective actioning of the ISP - it is critical to the evolution of the energy market that this does not occur.¹

More generally, we consider that the AEMC has not adequately made the case for its proposed reforms and explored all options. Further consideration should be given to requiring generators to pay transmission charges in the same way that load customers pay transmission charges – in return generators could receive a generator reliability standard. A generator reliability standard model was discounted as a solution by the AEMC in its direction paper with minimal consideration and explanation.

We would expect the AEMC to undertake a thorough cost benefit assessment of any option before embarking on any reform. As this has not yet occurred, it is difficult for stakeholders to assess the implications of this reform package.

3. Dynamic regional pricing

3.1 The AEMC's view

The AEMC proposes to reform the wholesale electricity pricing and settlement process such that generators receive a DRP as opposed to the regional reference price (**RRP**). Also named locational marginal pricing (**LMP**) in the AEMC's directions paper, the introduction of DRP exposes generators to a local market price whenever the LMP diverges from the RRP due to transmission constraints. This is expected to provide a closer reflection of the marginal cost of supplying one additional megawatt of load at the generator's local connection point.

3.2 TransGrid's view

TransGrid considers that the introduction of DRP will likely reduce the ability of market participants to take advantage of market design flaws (including the removal of the incentives for disorderly bidding), drive cost

¹ This is discussed further in Chapter 4 of this submission.

reflective bidding and produce more efficient dispatch decisions by AEMO. This approach would be broadly consistent with wholesale markets in other countries, such as the United States and New Zealand.

DRP may also provide greater transparency and visibility of where congestion is occurring and the cost of this congestion in the NEM. This provides a clearer investment signal and more transparent information for generator investors and developers to include in their business cases for investment.

However, it is essential that a thorough analysis of the costs and benefits of the proposed reforms be undertaken. Any reform should not proceed unless there are clear net benefits to consumers. The reforms should also be thoroughly tested to check there are no unintended consequences. For example, it may create inefficient barriers to entry for new generator entrants.

Caution should also be taken in using any of the information revealed from DRP for transmission planning. The information could be distorted by generator bidding behavior under the new arrangements.

We understand that the new arrangements proposed by the AEMC could result in surplus settlements residues. TransGrid considers that it is important that any surplus residues created by the introduction of DRP be provided to market participants by AEMO via the existing settlement process rather than requiring transmission network service providers (**TNSP**) to manage this. The same approach could be taken for other intra and inter-regional settlement residues currently managed by TNSPs. This is likely to provide more stable transmission network charges as well as preserve and minimise distortion of the locational element that DRP and other market mechanisms (e.g. marginal loss factors) provide. This approach would also be consistent with energy markets in other jurisdictions, in particular those in the United States.

3.3 Full nodal pricing

In its directions paper, the AEMC identifies locational nodal pricing (full nodal pricing) as a potential alternative to dynamic regional pricing.

Full nodal pricing (**FNP**) is another form of LMP whereby all market participants are exposed to the local nodal price. Outcomes under this model provide a closer representation of the physical world. The locational value revealed in full nodal pricing includes both the cost of the energy and the cost of delivering it (i.e. both congestion and losses).

FNP represents a significant change to current arrangements, and will likely be significantly more complex to implement and manage than DRP. FNP has risks that will need to be well considered if it is to be pursued, such as the expected high cost of implementation and difficulty for market participants to understand and respond. As such, any support for DRP should not be considered as support for it to be a stepping stone to FNP. FNP would need to be well trialled and tested, with its adaptability in the Australian context well thought out.

If FNP was to be introduced, and the benefits were made clear, it would need a significantly longer implementation timeframe. As such, it would not be considered appropriate for implementation by July 2021 but rather a longer term option.

4. Transmission hedges

4.1 The AEMC's view

The AEMC proposes a system for generators to manage the risks of congestion by enabling them to purchase transmission hedges. These products will hedge against the price differences that may arise under the AEMC's proposed changes to the electricity wholesale market as set out in Chapter 3 of this paper. The AEMC's proposals would allow generators to rely on a revenue stream that is independent of other generators' locational decisions.

The AEMC is also proposing to change the current investment arrangement so that transmission planning is informed by generators' purchase of transmission hedges.

The AEMC intends that its proposed reforms to transmission planning, centred upon the transmission hedge mechanism, will address the following issues:

- > *'the current regime....has the potential to result in infrastructure that does not minimise the total system costs faced by consumers.'*
- > *'Additionally, no individual generator is able to guarantee that they will receive value from shared network assets, even if the generator itself underwrote the investment in the asset, creating a free-rider problem.'*
- > *'As a consequence of these two factors, consumers bear the risks of transmission investment decisions being incorrect., and so, bear most of the costs related to transmission network investment and maintenance.'*²

Following on from this, the AEMC states that the option for generators to purchase a transmission hedge will therefore make the cost of transmission part of a generator's investment decision. The AEMC considers the investor should seek a location for a power station, which minimises the combination of its operating and establishment costs and the cost of transmission. By this mechanism, the AEMC contends that transmission hedging should achieve a higher degree of co-optimisation of transmission and generation investment than under the current regulated approach to transmission planning. It states this will lead to lower cost to consumers as a portion of the transmission costs would be collected from generators through the purchase of transmission hedging products and *'no longer solely recovered from consumers'*.³

4.2 TransGrid's view

TransGrid supports the use of transmission hedges as a tool for generators to hedge against price risk of congestion on the transmission network. These instruments can provide generators (and other market participants) with the ability to manage congestion-related price risks and subsequently achieve firmer access for their output.

The AEMC, in its COGATI directions paper, appears to suggest that the quantity of hedges sold will inform the transmission planning and investment decisions that are then made, under both the ISP and then the decisions of individual TNSPs. Put simply, the suggestion seems to be that TNSPs will sell hedges, and then build their networks to meet the obligations based on those hedges.

TransGrid cannot see how transmission hedges can be used as an effective tool to inform transmission planning for the reasons set out below.

It is not clear how the AEMC's reforms can work at a practical level

We do not understand how the AEMC's proposed reforms can work at a practical level.

- > It is unlikely that generators would have financing to commit to purchasing hedges four years out from when they will be able to receive a benefit from the hedge. As transmission assets have long lead times, there will be a delay from when transmission hedges are purchased to when the transmission infrastructure in the form of additional line capacity arrives about four to five years later.
- > It is doubtful whether generators would purchase hedges of sufficient duration to influence planning.
- > New generation projects cannot be committed without transmission access as investors will only commit to generation once they have assurance of a network they can reasonably connect to, and which will provide sufficient capacity for them to deliver their generation.
- > It is doubtful that transmission hedges would be of sufficient duration to be capable of influencing a TNSP's decision to invest in long life assets.
- > Once the transmission network is built to an efficient scale, transmission assets generally either eliminate or substantially reduce the risk of congestion so that, post-build, hedges often have little market value.
- > Transmission investment planning needs to take into account multiple factors including security, reliability, government policies and community expectations.

TransGrid is not aware of any international examples of electricity market where transmission hedges have been successfully used as a capital expenditure decision-making tool, through their potential to assist by way of financial contributions to the cost of transmission investment – whether the existing shared network or

² AEMC, *Coordination of generation and transmission investment – access reform*, Directions paper, 27 June 2019, p. iii.

³ AEMC, *Coordination of generation and transmission investment – access reform*, Directions paper, 27 June 2019, p. 70.

increments in capacity. To assist understanding, TranGrid asks the AEMC to provide practical examples of where transmission hedges have been used to fund transmission investment.

Key elements of the AEMC’s proposed reforms are yet to be worked through

As recognised by the AEMC, TransGrid notes that there are key elements of the proposals which are yet to be developed. In particular, we note that:

- > It is not clear whether a TNSP would be liable for settlement residue shortfall, that is, whether a TNSP would be the counterparty to transmission hedges. We would strongly oppose the TNSP being the counterparty as it would increase a TNSP’s cost of capital leading to an increase in costs to consumers.
- > It is not clear how managing community expectations and community issues would be taken into account in the AEMC’s proposals for hedges to inform transmission planning. The absence of discussion on addressing community expectations is a concern.
- > It is not clear how the price of the transmission hedges will be determined. The AEMC has proposed a fair value approach to pricing transmission hedges outright or setting the reserve price in auctions. The model will need some substantive supporting information to better understand the intended operation.
- > The incentive scheme for TNSPs proposed by the AEMC is incorrectly based on the assumption that the efficient level of network investment is consistent with the quantity of hedges sold. It is not clear how an incentive scheme built on this premise could be efficient. If an incentive scheme were to be introduced, then a low powered scheme would appear appropriate as suggested by the AEMC.
- > It is not clear whether or how transmission hedges would be incorporated in the regulatory investment test for transmission (**RIT-T**) process or transmission revenue determinations. Transmission hedges should not influence the RIT-T evaluation and should not form a financial consideration on which the planning process could or should seek to rely on.

A way forward

TransGrid considers that the AEMC has unrealistic expectations as to the extent to which generators’ purchases of transmission hedges can either guide transmission planning decisions and/or contribute sufficiently to the costs of transmission services. The potential contribution of transmission hedges to inform transmission planning has been overstated by the AEMC.

TransGrid is concerned that the AEMC’s proposals for transmission planning to be informed by transmission hedges could undermine the effective actioning of the ISP and the role of TNSPs as transmission planners. TransGrid does not consider that transmission hedges could be an effective tool to determine the economic or financial merits of a particular transmission investment.

TransGrid considers the effective actioning of AEMO’s ISP will increase capacity on the network and it will address many of the issues that the AEMC has raised. The ISP should inform priorities for transmission investment. That is, transmission needs to lead generation investment.

The effective actioning of the ISP will need to be accompanied by reforms to facilitate REZs (as discussed in Chapter 5 of this submission). For the reasons outlined above, we do not consider the AEMC’s proposals will provide a long term solution to facilitate REZs.

5. Renewable Energy Zones

5.1 The AEMC’s view

The AEMC considers renewable energy zones (**REZ**) are effectively large ‘*connection assets*’ that are needed to enable a group of generators to connect to the transmission network, and as such, the issue of facilitating REZs is one that requires generators to coordinate with other generators.⁴

The AEMC directions paper seeks stakeholder views on transitional measures to facilitate REZs, as a first step on the path to broader access reform (consisting of the three elements outlined in section **Error!**

⁴ AEMC, *Coordination of generation and transmission investment – access reform*, Directions paper, p. 88.

Reference source not found.) With this in mind, the AEMC considers any transitional measures to facilitate REZs must be simpler and relatively more discrete to implement than broader access reform.

In this context, the AEMC raises two potential options for facilitating REZs:

1. The use of clustering or an 'open season' by the TNSP as a method to mitigate the risk of REZs being underutilised.
2. A potential shared cost recovery model developed and proposed by the Public Interest Advocacy Centre (**PIAC**) which allows the speculative risks of a REZ to be shared between multiple parties.

5.2 TransGrid's view

TransGrid supports the development of REZs as a pathway for enabling the most efficient generation to connect to the network and unlocking cost efficiencies via economies of scale, both in the shorter term (i.e. prior to any access reform) and also over the longer term. Efficiently planned REZs have the potential to provide consumers with the lowest price energy and support the current transition to more efficient sources of generation.

TransGrid agrees with the AEMC that the current arrangements have not facilitated the development of REZs. The existing market was developed at a time of a mature generation fleet and transmission system and, as such, the regulatory framework was established to support incremental investment in energy infrastructure. Past experience has demonstrated that this framework is not suitable for the delivery of strategic transmission investments such as the connection of REZs.

We support immediate and long term measures that help to facilitate REZs, not just transitional measures to address the issues.

For the most efficient outcome to occur for the delivery of REZs, transmission needs to be well planned and delivered in advance of generation investment. That is, TransGrid considers the issue of facilitating REZs is one that requires transmission investment to lead generation, rather than generators coordinating with other generators (which is unlikely to occur based on past experience).

As such, TransGrid considers that more effective regulatory measures are required to provide market participants the tools and confidence to develop REZs.

TransGrid considers there are three key issues that need to be resolved to facilitate REZs:

1. Incorporating and defining a REZ in the regulatory framework.
2. Facilitation and funding of a REZ.
3. Incentives for generators to plant within a REZ.

TransGrid does not agree with the AEMC that broader access reform is necessarily required to facilitate REZs.

Each of these issues is outlined below. This includes consideration of the two options that the AEMC has put forward to facilitate REZs.

5.2.1 Incorporating and defining a REZ in the regulatory framework

At present there is no statutory definition or process to determine what is considered a REZ and how it should be identified and developed. TransGrid considers that REZs should be defined, identified and prioritised by AEMO within the ISP. This is appropriate as it aligns with the role of the ISP in identifying power system requirements and potential pathways to unlock low cost, low emissions and reliable electricity supply in the NEM.⁵

TransGrid also considers it appropriate for the National Electricity Rules (**NER**) to remain flexible in regards to the definition of a REZ and the categories of transmission assets it contains. That is, the NER should not set out the type of assets that make up a REZ. This allows AEMO, in collaboration with TNSPs and industry participants, to efficiently identify the appropriate combination of transmission assets and network augmentation required for each REZ, which will likely vary depending on the different characteristics at each

⁵ We note that the ISP would be given the appropriate authority in the National Electricity Law and National Electricity Rules.

zone. For example, a REZ could be progressed as an expansion of the existing network into the zone of interest with multiple generators connecting into the network via a single high capacity connection transmission line. Alternatively, a connection hub or large scale battery could be used as a common connection point for a clusters of energy projects.

While a specific definition for REZs may not be required in the National Electricity Law (**NEL**) and NER, consistency across the NEM is important. As such, a set of principles that outlines how AEMO identifies and prioritises REZs may be appropriate.

5.2.2 Facilitation and funding of a REZ

TransGrid's experience to date has shown that the current regulatory framework does not provide for the effective and timely delivery of large scale coordinated generation connections.⁶

Regulatory change is needed to facilitate a less 'passive' role for networks within the NEM to support the transition. There is a significant difference in the delivery times of generation and transmission investment. Transmission needs to be well planned and delivered in advance for an efficient transition towards a high penetration of renewable generation.

TransGrid considers that the REZs would be most efficiently delivered in an approach that closely aligns with the original scale efficient network extensions (**SENE**) rule change proposal. That is:

1. AEMO identifies REZs in the ISP.
2. TNSP run a RIT-T to demonstrate benefits to consumers. Consumers pay for benefits that accrue to them.
3. When generators sign a connection offer, TNSP constructs REZ and generators pay for the portion of the REZ that directly benefits them.
4. There is an oversight role for the Australian Energy Regulator (**AER**).

In the absence of the above approach, TransGrid is open to considering other arrangements that share the cost and risk of the assets between parties. The regulatory framework could provide for flexibility in regards to strategic transmission investments, including REZs, such that costs and risks are shared between a different parties. This is discussed further below.

It is important to note that the existing RIT-T represents a barrier for delivering strategic transmission projects. The RIT-T typically requires new generation to be sufficiently committed for the corresponding 'market benefits' created by the associated transmission investment to be considered. This requires new generation to lead network expansion, creating a 'chicken and egg' dilemma⁷. As such, compatibility of the RIT-T with REZs needs further consideration.

Shared cost recovery model

REZs represent a significant opportunity for all participants in the NEM, including Government, generators, networks, and energy consumers. However, there is a level of complexity when considering which industry participant(s) are the appropriate party to fund and bear the risks of REZ development.

As mentioned above, different REZ opportunities could be delivered using a variety of transmission assets, as well as result in consequential augmentation to the existing shared network. This package of investment could include:

- > Dedicated connection assets – used to connect a single generator to the REZ (e.g. transformer).
- > Generator shared transmission assets within REZ – used by all generators within the REZ (e.g. switching station).
- > Transmission line that links the existing shared network and the REZ.

⁶ <https://arena.gov.au/projects/transgrid-new-england-renewable-rehub-feasibility-study/>

⁷ The 'chicken and egg' dilemma refers to the fact that new generation projects in areas with high quality renewable energy resources cannot be committed without transmission access – i.e. investors will only commit to generation once they have assurance of a network they can reasonably connect to, and which will provide sufficient capacity to deliver their generation (i.e. they will not be 'constrained off'). However, the proactive transmission expansion required to support this additional capacity will not pass a RIT-T without committed generation.

- > Network augmentation of existing shared network to expand capacity and strengthen electricity flow pathways.

TransGrid believes that there needs to be flexibility in the regulatory framework to allow a mixture of different funding pathways to be used. TransGrid considers this a shared cost recovery model, or a 'hybrid' funding model, whereby the TNSP has access to a combination of cost recovery mechanisms, including prescribed, non-prescribed, government underwriting and third party investment. This allows for the costs and risks of the required investment to be shared across participants (generators, consumers and government), appropriately reflecting the beneficiaries of the benefits of REZs.

Further, different arrangements could apply to different REZs. This acknowledges that a 'one size fits all' approach will unlikely be appropriate for REZs and that there are multiple beneficiaries of a REZ.

There is also a potential role for Government (Federal and State) to help overcome these challenges and support the facilitation and development of REZs. Government funding could be used to speed up investments and underwrite the costs and risks of a REZ. The Energy Security Board's proposed REZ fund could also play an important role in addressing the timing risk associated with REZs. TransGrid supports further work on these options.

The role of the AER would need to be made clear for funding options that involve cost sharing, particularly if Government funding is involved. As such, TransGrid recommends that the capital expenditure allowance associated with a REZ project should be agreed upon upfront, providing TNSPs and investors greater project certainty.

TransGrid also notes that TNSPs rate of return is based on a level of risk that is lower than the risk that would be appropriate if it was to take on the timing risk of a REZ as could be contemplated under the PIAC model set out in the AEMC's directions paper. Any cost sharing model that assigns additional risk to TNSPs would need to incorporate a higher rate of return to compensate for this risk.

PIAC funding model for REZs

In its directions paper, the AEMC set out PIAC's preferred cost-recovery for REZ assets. PIAC has suggested that REZ assets costs could be partly recovered by consumers (prescribed revenue), generators (prescribed revenue via a regulated access charge generators) and generators (non-prescribed). PIAC has also showed support for a role for Government in underwriting some portion of the timing risk associated with the REZ.

While we would support these aspects of the PIAC model, PIAC has also suggested that there may be a potential role for TNSPs to bear some of the risk of the investment, namely the portion of investment not underwritten by Government or consumers. TransGrid does not consider it appropriate for TNSPs to bear the risks of the investment particularly in the existing investment environment of heightened policy and regulatory risk, including where the binding rate of return limits the ability of TNSPs to earn a return commensurate to the added risk.

PIAC has suggested that additional rates of return would be achievable under the non-prescribed cost recover arrangement. However this does not seem to be a practical solution as it requires the TNSP to speculate and invest above the amount set out by AEMO in its ISP and the AER in its setting of capital expenditure allow for prescribed revenue.

We also note that it remains unclear how the prescribed revenue proportion of the REZ investment would be approved given it may not pass the RIT-T in its current form. That is, there still remains a 'chicken and egg' dilemma due to a lack of generators 'committed'. TransGrid considers there is a need for greater consideration of the appropriateness of the RIT-T for REZs, including consideration of how 'committed' generation is defined, what benefits are appropriate for consideration, and how these benefits could be measured.

5.2.2.1 Possible mechanisms to avoid under-utilisation of REZ assets

While TransGrid considers there should be a proactive role for TNSPs in facilitating REZs, we consider there are market-based mechanisms that can be adopted alongside robust planning to facilitate high utilisation of REZs. The AEMC has proposed a 'clustering' approach, whereby there is a fixed time window for connection applications in certain zones. Other market mechanisms that could be used include a 'connections' auction or the use of transmission bonds.

TransGrid supports further exploration of these market mechanisms that assist TNSPs test for generator's interest and willingness to pay. However, it is important to note that these mechanisms alone will not achieve

efficient delivery of strategic transmission investments and there may be limited circumstances in which they may be viable. As such, these mechanisms should be viewed as complimentary tools available to TNSPs rather than an alternative standalone solution to facilitate REZs.

5.2.3 Incentives for generators to plant in a REZ

Under the current open access framework, there may be incentives for competing generators to locate outside of a REZ and constrain those generators located within a REZ. There is therefore a need to sufficiently incentivise generators to pay to locate within a REZ to reduce the risk of underutilised assets. As such, there may also be a need to introduce mechanisms that remove the incentive to create constrain generators within a REZ.

The AEMC has suggested that firm access could be introduced to provide incentives for generators to fund transmission investment and plant within a REZ. However, this represents a fundamental change to the current access arrangements in the NEM, and the success of its application for large scale transmission investments such as REZs is yet to be tested.

TransGrid considers there is opportunity to provide alternative incentives to firm access, as well as potential penalties for newly connecting generators to encourage location within REZs. These options and the relevant industry participant responsible for providing these incentives are outlined in Table 2 below.

Table 2: Mechanisms to encourage REZ connections and discourage outside-REZ connections

Industry participant	Mechanism
Government	<ul style="list-style-type: none"> > Fast track or streamline planning approvals (State Government) > Fixed period of guaranteed revenue (e.g. a 15 year Support Agreement Offer is used in Victoria as part of the Victorian Renewable Energy Target (VRET) – this is facilitated by an auction)
TNSP	<ul style="list-style-type: none"> > System security and system strength services (e.g. synchronous condensers) > Voltage control services (e.g. harmonic filters) > Large scale battery storage – generators have access to battery storage and could rent it out for additional capacity > Potentially cheaper (than otherwise would have occurred) connection costs due to economies of scale in a REZ > Ancillary services such as frequency control (requires change to the current regulatory framework) > Ability to prevent connections where they would constrain generators in a REZ. > Alternatively, introduce financial penalties for connections which constrain generators in a REZ or which plant outside of the REZ, e.g. higher connection charges. > First mover rule: restrict generators from accessing the REZ when it is full.
Generators	<ul style="list-style-type: none"> > Generators inside a REZ are provided certain marginal loss factors (MLFs) or range of MLF values for a period of time. > Generators outside of the REZ ‘pick up the slack’ of MLF values not captured (i.e. penalty for not being in REZ). > Generators in a REZ will receive higher levels of resilience. Additional resilience could also be provided as a service to generators in a REZ > Significant cost to generator connecting outside of REZ due to technical barriers such as the use of a high voltage direct current cable outside of the REZ.

It is important that any mechanism is thoroughly considered prior to its introduction, ensuring it does not create unintended consequences to industry participants.

6. Implementation

6.1 The AEMC's view

The AEMC proposes that dynamic regional pricing and transmission hedging be implemented concurrently in July 2022. Previously, it had proposed a three phased approach to implementation of access reform.⁸ The AEMC is also consulting on some principles it has put forward to guide transitional arrangements for the proposed framework.

6.2 TransGrid's view

TransGrid considers there will be a lot of work to do in delivering any of these reforms – the challenges in resolving the issues should not be underestimated. We would support a trial and sandboxing approach to limit market impacts and ensure there is a clear benefit to consumers of any change.

Transitional arrangements will need to ensure that stakeholders are treated equitably. It is important that transmission investment that has commenced under the existing framework should be allowed to be completed under that framework.

⁸ AEMC, *COGATI implementation – access and charging, Consultation paper*, 1 March 2019, pp. 15-16