

11 June 2021

Dr Kerry Schott AO
Independent Chair
Energy Security Board

Lodged by email: info@esb.org.au

Dear Dr Schott,

RE: POST 2020 MARKET DESIGN OPTIONS – A PAPER FOR CONSULTATION

Enel Green Power (EGP) welcomes the opportunity to respond to the Energy Security Board's (ESB's) Post 2025 Market Reform Options Paper.

Founded in 2008, and part of Enel Group, EGP builds and operates large scale renewable generation capacity in energy markets around the world. EGP operates in 32 countries across 5 continents with a managed capacity of over 49 GW of renewables and over 1,2000 plants. EGP is the largest privately owned renewable energy company in the world, generating renewable electricity from hydro, solar, wind and geothermal resources across the globe.

As a sponsoring member of the Clean Energy Council (CEC), we strongly support key aspects of their submission. In particular, we hold strong reservations about a physical RRO. We consider a physical RRO would be impossible to construct in a way that would avoid significant competitive disadvantage to renewable and fast responsive technologies.

While we consider existing reliability settings are sufficient, if a new long term reliability mechanism must be adopted, then the financial RRO is preferable. It would minimise distortionary impacts on the wholesale market, while giving retailers maximum flexibility to choose the combination of generation, storage and demand response technologies that best suit their customers' needs.

One area of the ESB's reform program where our views differ markedly from those of the CEC however, is regarding transmission access and pricing reform. We consider that implementing the right transmission access model is a critical piece of reform needed to support the energy market transition and strongly support the ESB's work in this regard.

Of the models being considered by the ESB, the Congestion Management Mechanism (CMM) adapted for Renewable Energy Zones (REZs) has the most merit, as it implements a new framework for transmission investments based on firm access rights. A significant concern we have with this model however, is that by penalising any investment outside REZs this forces an excessive reliance on REZs to drive new investment in renewable generation, compromising the ability of the National Electricity Market (NEM) itself to deliver this outcome.

For this reason, we propose a variation to the model, which we consider would provide a more balanced approach between markets and central planning in supporting generation investment, while keeping the core public policy rationale of the REZ framework intact - i.e. to create a new transmission planning and connection framework that restores investor confidence in the NEM.

The remainder of our submission considers the transmission and access elements of the ESB's consultation paper in more detail.

Transmission Access and Pricing Reform

We agree with the ESB that fundamental transformation of the power system is taking place. AEMO forecasts some 26 to 50 GW of renewable generation could enter the market over the next two decades to replace existing coal fired generation capacity. Much of this new generation will seek to cluster in areas of high resource potential, typically located at the fringes of the grid where transmission hosting capacity is limited. The options paper also notes that current committed and proposed projects far exceed the transmission developments proposed in the Integrated System Plan, for even the most ambitious step change scenario.

As a consequence, with new transmission investment likely to fall well short of the level of renewables development, congestion and curtailment will become significant risks for investors in new renewable generation capacity.

In this context, EGP had been supportive of the AEMC's work on developing an enduring framework for Financial Transmission Rights (FTRs) and Locational Marginal Pricing (LMPs), through its Coordination of Generation and Transmission Investment (COGATI) initiative. However, its implementation is now postponed, possibly indefinitely until well after 2025. This is in large part due to the strong industry opposition against the proposals.

While we would prefer to see a more comprehensive approach to transmission such as COGATI implemented, we consider the ESB's proposed medium term access models, specifically the CMM, hold promise as a stepping stone to more enduring reform if implemented well.

ESB's Transmission Access Models

The options paper sets out a number of potential medium term transmission access models for consultation:

- Congestion Management Model (CMM) - creates intra-regional settlement residues to promote efficient dispatch incentives and hedging, however current levels of implicit access are maintained;
- CMM with REZ adaption - A variation where new generators outside REZs face a local marginal price (they receive no settlement residue);
- Connection Fee - Upfront fee to encourage efficient locational decisions for those outside REZ (based on some measure of the long run marginal cost of the connection);
- G -TUOS – Ongoing fee based on the long run marginal cost of the connection;
- Hybrid Model – CMM paired with either Connection Fee or G-TUOS.

Congestion Management Model

Conceptually, the CMM holds promise as a potential access framework, which is fundamentally about allocating settlement residues - the difference between the LMP and the regional reference price (RRP). The CMM replaces the current implicit allocation of settlement residue based on the volumes dispatched with an allocation based on generator availability and the proportionate share of each generator in the overall generation capacity contesting a constraint. This allocation of settlement residue currently occurs with the initiation of the tie-breaking rule - which applies when all generators behind a constraint bid to -\$1000 MWh to maximise their access to market (since 'constrained' bids are not taken into account in setting of the market price). Under the CMM this allocation would happen automatically when a constraint binds and is based on the difference between the RRP and the LMP at the local REZ hub.

The ESB envisages that foundational generators in a REZ tender would acquire a bundle of access rights in return for helping fund the REZ shared network.¹ Assuming that such a bundle would be equivalent to the project capacity being bid into the REZ tender or auction, then the total size of any proposed REZ infrastructure would presumably be sized to, at the minimum, meet the collective needs of the foundational generators.

Congestion within the REZ would then have two potential sources, one being from new entrants (non-foundational generators) within the REZ since the network has not been sized to meet the additional capacity of these generators. The other source of congestion could come from generators outside the REZ. The physics of transmission line flow dictates that the dispatch of generation located within a reasonable proximity of the REZ shared network will interact with generator dispatch within the REZ and thereby impact the hosting capacity within the REZ.

The CMM would work well to protect foundational generators from congestion caused by non-rights holders, because they could be left out of any pro-rata sharing of settlements residues. Regardless of the number of new generators co-locating within the REZ shared network over time, provided they are not allocated a share of the settlement residues then foundational generators will have some certainty that they can at all times, for the duration of the access right at least, access the market (i.e., the RRP) 'as if' they were the only generators operating in a REZ.

The CMM does not protect foundational generators from congestion caused by generators located outside the REZ however, because the latter do not form part of the scheme. Despite causing or contributing to congestion affecting the REZ, they get to maintain their implicit rights to the settlement residues that arise from the congestion. The settlement residues caused by their actions cannot then be reallocated within the REZ as rebates to those generators whose access has been diminished.

In our view, this is a key shortcoming of this model. While it is difficult to predict how significant a source of congestion and subsequent impact to REZ generator may be over time, it could be material. REZ infrastructure will be meshed to some degree with surrounding network infrastructure and likely have multiple points of connection with the broader transmission network. The level of meshedness will inevitably increase over time as more transmission is added and REZs themselves become interconnected. Consequently, the new entry of generators outside the REZ will over time erode the level of access enjoyed by the rights holders within the REZ.

The implication of this is that any access rights purchased or received in lieu of a financial contribution to the costs of the REZ shared network would not be firm and the level of protection from congestion reflected by those rights would be uncertain and hard to explicitly value and price for participants. Further, given that implicit rights to settlement residues remain for non-REZ generators, they are almost as well off as the rights holders within the REZ, without having to pay for those rights or help fund transmission capacity that underpins them.

This would likely limit the value of participating in REZ tenders for new generators and therefore undermine the core public policy rationale for having a REZ to begin with – which is to drive investment in REZs and implement new co-funding models for transmission investment. Rather the incentive would be for new entrant generators to connect just outside REZs to free ride on any new transmission capability that is constructed without having to pay for it.

¹ We have borrowed the concept of REZ shared network from the NSW government's: "Central West Orana Renewable Energy Zones Access Scheme Issues Paper". We think it is a good way of describing any network infrastructure built within a REZ.

The CMM with REZ adaption

This model seeks to address the lack of firmness in the CMM model by removing the implicit rights to settlement residues available to 'new entrant' generators outside the REZ (existing generators will continue to be grandfathered their implicit rights), effectively exposing them to LMP. This means that they, along with non-rights holders within the REZ, will need to pay for any congestion they cause within or near REZs (reflected by their relinquishment of settlement residues they would otherwise receive for their dispatch).

This addresses the key distortions in the CMM model, by making access much firmer for foundational customers, while providing strong price signals to new non-rights holders, both those within and outside REZs, to locate in parts of the network where there is sufficient hosting capacity. The issue of free riding just outside REZ would be addressed, since doing so would expose new entrants to their LMP, that is, they would face the full cost of any congestion they would cause.

While the model has merit, its apparent strength also raises a potentially significant concern. While exposing new entrants outside REZs to LMP provides strong price signals to locate efficiently, the absence of any means of being able to contractually hedge the resulting basis risk under this model is problematic. Within typical FTR/LMP regimes all existing generators and new entrants would be able to participate in FTR auctions or fund additional capacity that would come along with a bundle of FTRs. This is how new entry in the REZ would also work. This option is not available to generators outside the REZ under the CMM for REZ model. They have no access to a hedging mechanism to protect themselves from congestion risk. While turning off or installing storage could provide some level of protection for a new entrant, this is likely to be limited and costly means to manage exposure to curtailment risk.

The CMM with REZ adaption therefore presents a significant new risk for new entrant renewable generators who choose to invest outside a REZ. In the event of congestion, they would be exposed to substantial difference payments on their PPAs, since they would receive from AEMO only the LMP for the generation capacity, while having to pay out their contracts at the RRP.

There is consequently a risk that under this model that any new investment outside REZs would become unbankable. We believe this could force all new generators to participate in REZ tenders, or alternatively remain out of the market. This could create unintended distortions such as creating large queues and delays for entry into REZs, while leaving available transmission capacity and resources outside REZs underutilised. The NEM's core role of providing market signals for new investment would almost completely be superseded by the centrally planning of the REZ framework.

EGP considers a more balanced approach is preferable. It is also difficult to see this model having significant industry 'buy in' considering the new risks and potential barriers to entry it could create for new entrants.

CMM Variation

EGP proposes the ESB consider an alternative CMM option, one that keeps arrangements as they are for all existing and new generators outside REZs (they maintain their current implicit access rights to the existing transmission network). At the same time rights holders within REZs would receive firm access rights. In other words, the framework would focus on providing a

positive incentive for new entrants to seek to connect with REZs, rather than imposing punitive penalties on those who choose not to or are unable to.

For this approach to work however, would require end users to provide top up congestion payments for rights holders – targeted to congestion that originates from outside the REZ shared network. The top up payment would come from consumers located in the NEM pricing region in which the REZ is located.

There is precedent for consumers to help fund compensation payments. For example, in the UK and Germany generators have firm access to the network, which means that when they are constrained off they are compensated by the market operator. The costs of compensation are evenly split between generators and customers.

This CMM variation would have a number benefits from EGP's perspective:

- No generator or new entrant is made worse off under this model (they would face no new risks that are difficult and costly to manage). Generators who choose to locate outside REZ would have the same network access as they do now – consistent with the standard CMM.
- Those that choose to connect to the REZ shared network, will have incentives to do so only if they acquire access rights, since otherwise they are better off connecting outside the REZ shared network (where they retain some implicit rights). The incentive should be for new entrants to pay for transmission, and not locate within the REZ to free ride on access.
- Access rights within REZ would be financially firm, they would be more valuable compared to non-firm rights outside the REZ and thus provide investors with a strong incentive to want to connect to the REZ shared network.
- Depending on the approach to allocation, access rights could either be paid for through auction or by means of direct contributions to the network infrastructure. In either case, firm rights would incentivise stronger up front contributions to the cost of transmission from the private sector. This would support the anticipatory approach to transmission investment which lies at the heart of the REZ framework, since such up front contributions would significantly reduce the likelihood of asset stranding from the perspective of consumers.
- Costs of congestion within REZ would be shared between consumers and non-rights holders. While customers would be expected to help fund congestion costs, this would be offset by generator contributions to transmission (either direct contributions or through auction revenues). Further, the availability of valuable access rights and other benefits associated with REZs should lower risk premia associated with generation investment and thereby encourage generator competition, which should lower long term energy prices.
- The model allows new entrants to choose the access product they desire (i.e. non-firm versus firm) consistent with their appetite for risk and their long term views on the evolution of congestion, without forcing them to make that choice by imposing a punitive new penalty.
- The model should have industry wide acceptance, or 'buy in', which is currently lacking for any type of access reform so far proposed, as no generator is made worse off under the arrangement and there are no impacts on existing contractual arrangements, such as PPAs.

One potential outcome of the CMM variation is that new entrant generators could have incentives to locate just outside the REZ shared infrastructure in order to take advantage of new

transmission built and paid for by others within the REZ, while still enjoying some level of implicit access to the network.

In our view, while there is some potential for this outcome to occur, this is likely to be limited as some important non-price location signals embedded in the current access framework would still apply. For example, any clustering just outside the REZ shared network will still expose each generator to reductions in access and increased MLFs over time caused by the ongoing co-location of other generators around them. The exposure to these signals combined with the availability of firm access rights and a better connection process within the REZ, should trump any incentive new entrants might have to base their investment decisions on the ability free ride on newly created capacity within a REZ.

Finally, one worthwhile addition to the CMM framework more generally, is the incorporation of Tier 1 and Tier 2 access rights, as proposed by the NSW government for its proposed access framework. The availability of Tier 2 rights would increase the efficient utilisation of the REZ shared network and offer new entrants an additional non-firm access product. While Tier 2 rights require holders to compensate Tier 1 rights holders, they would offer holders protection against future new entry, since those without either Tier 1 or 2 rights would be required to reinforce the network prior to seeking to connect to REZ shared infrastructure.

Other ESB Models

We do not consider the introduction of either an up-front connection fee or G-TUOS is needed. As noted above, we consider the REZ framework, incorporating firm access rights, combined with existing non-price signals still operating outside the REZ are sufficient to encourage efficient investment decisions. In any case, such charges are notoriously complex to implement and should not form part of a time limited framework, which is expected to be replaced ultimately by a more comprehensive FTR/LMP framework.

Please feel free to contact Con Van Kemenade, Head of Regulatory Affairs, on 0439399943 to discuss anything we have raised in this submission.

Yours faithfully,



Werther Esposito
Country Manager
Enel Green Power Australia