10 June 2022

Anna Collyer

Independent Chair

Energy Security Board

Lodged by email: info@esb.org.au

Dear Ms. Collyer

Re: Transmission Access Reform Consultation Paper

ACEN Australia is pleased to provide a response to the Energy Security Board (ESB)'s Transmission Access Reform Consultation paper.

ACEN Australia is a fully owned subsidiary of the AC Energy Corporation (ACEN). ACEN, headquartered in Manila, is one of the largest renewable energy companies in South-East Asia. The company has 2,600 MW of attributable capacity in the Philippines, Vietnam, Indonesia, India, and Australia. It currently has several GW of projects at various stages of development across the National Electricity Market (NEM), including in New South Wales, Victoria, South Australia, and Tasmania. For more on ACEN, visit www.acenergy.com.ph[1]

As members of the Transmission Access Technical Working Group, we wish to acknowledge the ESB's strong level of stakeholder engagement throughout the consultation process, in particular its willingness to consider access reform options put forward by industry stakeholders.

Our core interest in access reform is to make sure it addresses access risk (ie. the risk of being curtailed due to congestion). As noted in the consultation paper, AEMO forecasts some 100 GW of new renewables and 40GW of new transmission will be needed by 2050 to meet ambitious climate change targets and replace retiring coal fired generation capacity. As large numbers of renewable generation enter the NEM and cluster in resource rich areas, competition for scarce transmission capability will intensify. This will increase the risks of curtailment due to congestion and increase the unpredictability of returns from the wholesale market. An efficient, clear, and predictable mechanism for allocating scarce transmission capability will be crucial in giving investors the confidence they need to continue investing in the Australian energy market.

Australia is the only market globally that we can think of where no financial tools, such as access rights or compensation, are available to manage congestion.[2] In our view, the core focus of this reform process should be to develop such tools.

[1] In 2017 ACEN acquired an 80% equity stake in UPC Renewables Australia Pty Ltd, headquartered in Tasmania and part of the global UPC Renewables Group that was established in the early 1990s. The UPC Renewables Group has developed, owned, and operated over 10,000 MW of large-scale wind and solar farms in 10 countries across Europe, North America, North Africa, China, Southeast Asia, and Australia, with an investment value of over $5 billion USD. In 2021 ACEN fully acquired UPC Renewables Australia Pty Ltd to form ACEN Australia

[2] The UK and many European markets provide compensation to generators who are curtailed due to congestion, with the funds recovered from generators and customers through transmission fees.

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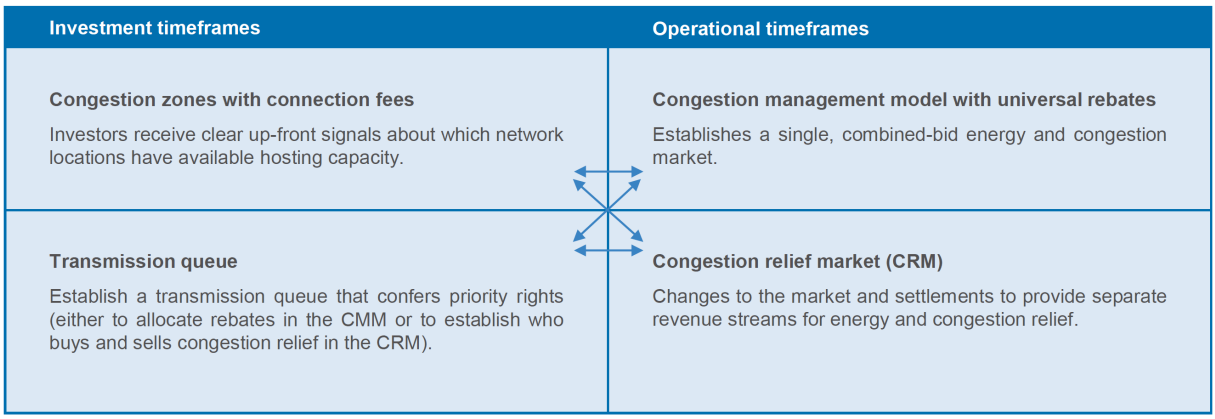
Suite 2, Level 2, 15 Castray
Esplanade, Battery Point, Hobart
Tasmania, Australia 7004

The ESB has shortlisted four access reform options for further consultation, with potential for them to be mixed and matched to address congestion in both operational and investment time frames:



Our preferred approach is one that combines the following models:

- Congestion management model with universal rebates;
- Transmission queue; and
- Congestion zones with connection fees.

We consider these models have important complementarities. Together they would improve the efficiency of dispatch, provide longer term locational signals for investment and, most importantly, deliver a workable and durable access framework in a future power system likely to experience high levels of congestion. We also consider these models can be implemented in a way that is targeted, with its principle focus on strengthening Renewable Energy Zones (REZ) while limiting impacts on generators choosing to locate outside REZs. In principle, this should make this approach more acceptable from an industry wide standpoint (compared to a NEM wide application of FTRs and nodal pricing for instance).

ACEN acknowledges the work of the CEC in developing the Congestion Relief Market (CRM) as a credible alternative approach to access reform, however we do not consider it should be further progressed. While it has some attractive features, specifically placing an explicit and tradeable value on congestion, it also has some considerable weaknesses. The key weakness from our perspective is that the model appears to have high transactions costs, as congestion must be monitored and managed every 5 minutes (whereas access rights are 'set and forget' – once you have them congestion risk goes away for the duration of the right). In other words the CRM does not provide the level of predictability over congestion risk that an access rights framework could deliver.

In our view, the price signalling and congestion management benefits of the CRM can be achieved with the CMM more simply and at lower cost. Further, the latter's basic architecture can be used to craft an effective and durable access rights framework, if combined with the other models in the right way.

We set out our preferred approach in more detail below.

Congestion management model with universal rebates

The implementation of a NEM wide CMM with universal rebates would mean generators would receive a local marginal price (LMP) plus some share of the settlement residue (i.e. the rebate) between their LMP and the Regional Reference Price (RRP). Settlement residues arise due to loss factor scaling and congestion (too much generation wanting to flow across the network infrastructure). The share of settlements residue or rebate allocated to a generator may be thought of as an entitlement or right to receive the RRP or said differently, an entitlement to receive compensation for not receiving the RRP due to congestion. A core strength of CMM is that rebates can be allocated flexibility to different technologies to elicit efficient dispatch, charging or consumption decisions on the transmission network.

The CMM with universal rebates is largely intended to encourage more efficient dispatch while making no generator financially worse off. It does this through a pre-defined and automatic dynamic allocation

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applied at times of congestion which shares transmission capability between generators contesting the constraint on a pro rata basis (ie each generators gets a share based on their size), once generator offers, availability and coefficients are considered. Each generator's dynamically allocated share is reduced overtime as new generators connect and are incorporated into the pro-rata calculations. The costs of congestion shared equally among incumbent and new entrant generators over time.

We support the CMM plus universal rebates approach for application outside REZs, in a way that matches as closely as possible status quo arrangements, so that no new winners and losers are created through implementation of this approach. The problem with a universal rebates approach, however, is that it provides no protection against the erosion of access over time due to new entry, and therefore has little value as an access reform. For this reason, we consider basic architecture of CMM should be adapted differently for application in the REZs, by combining it with the Transmission queue concept.

CMM and transmission queue – complements for firmer access rights

ACEN considers the concept of a transmission queue could address the core weakness of the CMM with universal rebates – the ongoing erosion of access, by changing the way rebates are allocated within REZs.[3] Rebates would be allocated based on queue position rather than on a pro-rata basis, which could be done as follows:

- CMM architecture would be in place across the NEM, including the REZ, ie each generator would be paid the LMP and be subject to either a rebate (receipt of a portion of the settlements residue) or congestion charge (must return a portion of the settlements residue it has earned by being dispatched), depending on the generator's position in the queue.
- The queue would apply within REZs only. As long as there is spare network capacity within the REZ (which would primarily be new network infrastructure) each existing or new connection would be treated equally and receive a queue position of 0. If more generators are seeking connection to the transmission capability than is available, an auction would be held to allocate the 0 queue positions to those who value them the most. A key question will be to determine how much transmission capacity can be allocated to generators, which is an issue the NSW government has given a great deal of attention to in its REZ design process.
- Once the capacity has been fully allocated, then each subsequent new generator connection would receive a position of 1, 2 and so on. A framework for managing changes to queue positions would also need to be implemented, including consideration of issues such as 'use it or lose it provisions', whether queue positions can be traded, and at what point in time should a queue position be allocated (it is likely a generator would need to be deemed a 'committed generator' under the rules before they would be allowed to bid for or receive a queue position).
- Under this approach generators with a queue position of 1 and above would be allowed to connect to the infrastructure and operate in the market as normal. However, if a network constraint binds, then those generators with a higher queue position who have been dispatched ahead of those with a position of 0, will be required to pay a congestion charge (essentially returning any settlement residue they received so that it can be allocated to position 0 generators).
- Generators with a position of 0 have full entitlement to the settlement residues that arise due to a network constraint. They would receive a share the residues based on their availability and size, regardless of whether they are actually dispatched, provided they are in merit. The latter is based on the principle that 'but for' the congestion they would have been dispatched.

It is expected that position 0 generators within a REZ would typically be the foundation generators, ie those that had won a tender or auction to be part of the REZ and are willing to help fund the network infrastructure. The principle is that those generators who are willing to fund the network infrastructure

[3] It would be important for there to be a clear legal boundary between the REZ and rest of the NEM. For example, under NSW legislation once a REZ is declared it becomes defined according to a specified geographic boundary and includes both existing and new network infrastructure within that boundary.

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should be allocated a position of 0 in the transmission queue and receive priority access to the expanded transmission capability that their investment helps create. Providing these generators with a given level of financial access to the RRP (which they cannot attain in the wider network) strengthens incentives to invest in generation and contribute funds to the expensive network infrastructure needed to realise the renewable energy transition.

The approach proposed above may be considered a financial equivalent to the physical access rights model currently being considered for the NSW REZs. Under a physical rights model foundation generators are allocated a right to a specific level of transfer capability (based on the size of the generator). New entrants are only able to connect if they 'do no harm' to existing generators' transfer capability. That is, there must be sufficient spare capacity for them to connect or alternatively they are willing to reinforce the network. If neither applies, then they cannot connect.

In contrast, the CMM allows new entrants to connect even in areas with limited available transmission capability, with the access rights for existing generators enforced through a financial settlement when constraints bind. This approach would allow for more efficient utilisation of network capacity then would be possible under a pure physical rights approach, as new entrants would be able to connect and earn revenues without first having to wait for costly infrastructure reinforcements.

Compared to a 'physical rights' approach the CMM also better takes account of the physics of loop flow and dynamic power system conditions, which make it impossible to precisely define a level of transfer capability upfront. Under our preferred approach a generator would have a right or entitlement to the available settlement residue. This avoids the need to maintain a defined level of physical transfer capability for a generator in order enforce an access right. As REZs become more meshed over time with increasing volumes of new generation entry, locating both within and outside REZs, physical rights will become increasingly difficult to sustain over time. The physical rights model will necessarily need to transition to a financial rights model. Noting the advanced stage of development of the physical rights model in NSW, it will be important that the ESB considers how its access reform model can best complement and, in time, replace the physical rights approach in a way that supports certainty for holders of physical rights in REZs.

Congestion Zones with Connection Fees

If the CMM plus transmission queue model was rolled out across the NEM, then there would be no need for a separate congestion related access fee (this would amount to double counting). This is because generators who choose to connect in areas with limited transmission capability (most areas of the NEM) would either be subject to the CMM congestion charge (ie they would face their LMP) over the life of the plant or they would need to invest in network capability to remove that congestion risk, whichever is deemed the most economical option. In either case they would face the long run marginal cost (LRMC) of congestion in their investment decision, so an additional congestion related access fee is not necessary.

However, adopting the CMM with transmission queue model on a NEM wide basis would make it look much like the CMM with REZ adaptation, which we note the ESB has decided not to take forward due industry wide concerns. Therefore, given the likely practical limitations of extending the CMM with transmission queue across the NEM, we see merit in congestion zones plus congestion fee model as a potential complementary mechanism. It would have some of the benefits of the CMM with REZ adaptation, by encouraging more efficient location decisions, but without exposing new entrants outside REZs to unmanageable financial risks.

The 'Congestion zones with connection fee' model would create strong disincentives for generators to locate near REZs, if there is insufficient network capability. This is because the access fee would be based on the LRMC of congestion at the chosen connection point, which would mean the new entrant generator would be better off reinforcing the network to accommodate its connection, rather than pay the access fee. This model could ensure therefore that new entrants locating near REZs would 'do no harm' to the transfer capability to the REZ infrastructure.

The congestion zones with connection fees model therefore addresses a core weakness of the REZ framework, which is the strong incentives it creates for new entrants to site themselves near REZs in order to free ride off REZ infrastructure created and paid for (in part) by founding generators.

ACEN Australia
Suite 2, Level 2, 15 Castray Esplanade, Battery Point, Hobart Tasmania, Australia 7004

Conclusion

We support the ESB progressing a combination of:

- Congestion management model with universal rebates;
- Transmission queue; and
- Congestion zones with connection fees.

The CMM with universal rebates could be implemented outside REZs in a manner that improves the efficiency of dispatch but largely retains status quo approach to transmission access. This recognises the lack of industry support for an allocation mechanism that changes the current distribution of rebates in a way that creates winners and losers.

However, we consider a different allocation metric is justified where it can support investment in new transmission infrastructure, such as in REZs. Combining the above models in the way set out in this submission achieves this outcome, by creating an effective and durable access rights framework that will strengthen incentives for generators to participate in REZs and help fund the critical network infrastructure needed to achieve ambitious climate change targets.

If you would like to discuss any of the comments in this submission further, then please contact Con Van Kemenade at con.vankemenade@upc-ac.com or phone: 0439399943.

Sincerely,

Dr Michael Connarty
Head of Strategy and Stakeholder Engagement
UPC\AC Renewables Australia