

Energy Security Board

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AEC Response to transmission access reform Consultation Paper May 2022

The Australian Energy Council (AEC) welcomes the opportunity to make a submission to the Energy Security Board's (ESB) transmission access reform Consultation Paper.

The Australian Energy Council is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. AEC members generate and sell energy to over 10 million homes and businesses and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 per cent emissions reduction target by 2035 and is committed to delivering the energy transition for the benefit of consumers.

Broad objectives of access reform

The AEC shares the ESB's desire for the market design to support the most efficient possible industry transition with respect to co-ordinating the investment of generation and transmission. The AEC's long-term position is that regulated transmission development funded by customers first requires justification on good cost-benefit economics. In taking this position, the AEC accepts it will naturally result in a degree of congestion across the market. Indeed despite proposing a very substantial transmission build, a nevertheless growing level of congestion was anticipated by AEMO in its most recent draft Integrated System Plan (ISP).

Participants already experience congestion in their operations and suffer some financial consequences of it. Naturally there are concerns about the risks implied by the ISP's outlook of growing congestion upon existing and future plant, and AEC supports the ESB's efforts to help manage the risk through a combination of efficient network expansion and, if justifiable, an access regime that both encourages efficient investment decisions and provides confidence to trading.

The challenges of finding an appropriate balance between many complex and competing issues around network access are well known to the ESB. To assist its deliberations, AEC internal member discussions have laid out some agreed principles that the issue should be assessed against:

1. Market participants should have confidence in their network access levels for the life of the plant in which they have invested.
2. Participants should have reasonable predictability of the impacts of congestion to maximise their trading confidence, and to minimise negative impacts on contracting.
3. Investors should remain free to self-determine their location, but should be incentivised to locate efficiently.
4. Access regimes should attempt to maximise dispatch efficiency.

The AEC considers the ESB's late 2021 call for alternative models to have been a positive step toward a degree of industry consensus. Clearly many parties heeded this call and came forward with varied suggestions. This approach seemed to constructively engage more parties whose suggestions demonstrate they understand the intent of the reform.

Additional models of course complicates the ESB's task, and their proponents had varied levels of experience in the complexities of the NEM, its network and dispatch mechanisms. Nevertheless they

should be welcomed both as fresh ideas but also as indicative of what is likely to be less contested by market investors.

Whilst questions of preferred models are very complex and multi-faceted, and each requires considerably more development, when faced with the shortlist choice presented in table 4, the AEC leans toward congestion zones with connection fees in the investment timeframes and Congestion Relief Market (CRM) in operational timeframes. This is explained below.

Investment Timeframe

When engaging with the New South Wales Electricity Roadmap's consultation on an access arrangement for the Central-West Orana Renewable Energy Zone (REZ), the AEC was faced with a clear choice between financial and physical arrangements to manage access. After considerable discussion, industry and the [AEC](#) ultimately supported the latter and which is now being implemented.

This preference for access rights to be recognised physically was done thoughtfully. It is accepted that financial rights have theoretical attractions and rely less on centralised allocation judgement than physical rights. However, physical rights have the attraction of operational simplicity, i.e. they do not necessarily require ongoing congestion management techniques. In other words, industry expressed a preference of rationing the network at the time of connection rather than at the time of dispatch.

Noting this conclusion, the AEC observes that the proposal for Congestion zones with connection fees is most consistent with the views expressed by industry, including the AEC, in submission to the Central-West Orana REZ consultation.

The Paper identifies many challenges and imperfections that will arise through zonal connection fees. The AEC recognises the connection fee will need to be set centrally to provide a broadly indicative geographical signal rather than an explicitly accurate locational charge. The AEC understands this is the approach used in the United Kingdom, and whilst there will inevitably be contention and anomaly, the AEC recognises that any approach involves a balance between accuracy and simplicity.

It is important to keep in mind that the purpose of a connection charge is not to simply transfer transmission costs to generators who would in turn recover it from customers in a less efficient manner than they do presently. In order to not defeat the locational intent of a physical access scheme, many, and hopefully most, connections would receive a zero charge. Where an access regime already exists for a declared REZ, such as the Central-West Orana, it would be expected that connectors would not be subject to an additional zonal connection fee. However, in other states areas of meshed transmission are being declared "REZ" without access regimes, and presumably the zonal fee could apply in these situations.

Information ahead of commitment is critical. The AEC acknowledges that previous efforts to reveal unpriced congestion has met with limited success in altering behaviours. However an attraction of the zonal fee is that it offers investors a fixed and certain value ahead of their commitment and this is likely to directly influence decisions.

In the many investigations of comprehensive access regimes in the NEM history, physical arrangements have been less studied. There will need to be a catch up in this regard, and the questions listed in page 32 seem the right ones. The AEC is not yet in a position to provide guidance in regard to these questions, except to note that the Western Australian Wholesale Electricity

Market (WEM) did apply a comprehensive physical access regime for most of its history and learnings may arise from there, as well as from the United Kingdom’s zonal connection fees.

The paper has recognised that as calculating a connection fee schedule centrally will involve considerable complexity and judgement which will need to be developed at later stages. What is perhaps missing from the Paper at this time is an explicit guidance as to the objective of the fee – i.e. what are the networks trying to achieve when setting it? A typical objective of such a fee is the Long-run Incremental Cost (LRIC) of network investment. Using LRIC, network planners attempt to estimate the economic impact of a marginal new connection on the network by assessing how such connections bring forward the justification of augmentations funded by customers. Of course, this is an extremely abstract concept, and its implementation will necessarily involve large assumptions and simplifications.

Acknowledging that few details have been developed, the AEC considers a queueing arrangement is not necessary for access, beyond the queueing being developed for “shallow” technical connection matters under the AEMO – Clean Energy Council connection initiative.

The queuing process discussed in the paper seems to have many administrative challenges and potential to introduce unintended behaviours, and thus is not favoured by the AEC. Ultimately a zonal connection fee better meets the AEC’s access principle 3, in that entrants are free to self-determine their location but are incentivised to do so efficiently.

Operational Timeframes

If a zonal connection fee is introduced with significant power, combined with efficient network development, then it is hoped through the level of congestion will not grow in such a way to greatly deteriorate participant access in such a manner that would violate the AEC’s principles 1 and 2. Thus, as per the AEC’s thinking in responding to the Central-West Orana REZ access regime, these principles can largely be achieved without a high-powered dispatch timeframe congestion management scheme.

Nevertheless, the AEC accepts that there is room for dispatch efficiency to be improved. In particular the incentives around the operation of controllable load, for example storage, upstream of a constraint, are serious and require solution. In this regard, conceptually the relatively low-powered optional CRM has attractions that could theoretically resolve the most obvious instances of inefficiency such as these, provided the benefits exceed the cost of implementation.

The AEC agrees with the Paper that the CRM’s original expression, as a “two-pass” dispatch process was non-convergent and thus not implementable in that form. The paper has continued to engage with the CRM conceptually, but has not adequately yet described exactly how it would be implemented in dispatch. This is an essential, but still missing explanation, that has to be resolved before it can be reasonably engaged with by industry.

Despite not having laid out a cogent form of implementation, the Paper has nevertheless assessed an implementation cost drawn from AEMO’s previous estimates to implement a fully distributed network model of dispatch¹. Such a project is obviously much more expensive than a simple financial settlement adjustment built off the marginal price of hub and spoke constraints. Whilst the redesign of the CRM remains unspecified, there is a gap in the Paper in explaining why the network model is mandatory for its implementation.

¹ The present dispatch operates on a highly simplified “hub and spoke” network representation

If the redesign does confirm the need for a network model, the AEC notes the following potentially mitigating factors to the \$300m cost estimate:

- A network model has many other benefits in improving system operation, that should be considered as offsetting the burden to be allocated against the reform itself.
- AEMO is introducing a network model into the Short-Term PASA process at, the AEC understands, very moderate cost and from this experience AEMO may be able to review its previous estimate.

Whilst recognising the issues that it attempts to address, the industry has not shown an appetite for the Congestion Management Model (CMM) with universal rebates as expressed in the paper and at earlier stages.

The CMM would improve dispatch efficiency in some scenarios, but in the forms specified to date, it does not appear to resolve the serious status quo issue of mis-priced dispatchable load, such as storage.

In other ways CMM includes backward steps. It introduces a new dispatch inefficiency of incentivising infra-marginal plant to bid below cost in order to obtain congestion rebates. The paper proposes dealing with this problem through administrative limits on access to the rebates based on plants' Short-Run-Marginal-Cost (SRMC). This introduces a new problem for the market as SRMCs are very difficult to determine externally. The transitioning power system is moving from conventional and unlimited fossil fuel resources to one based primarily on opportunity costs. The opportunity cost of energy moves dramatically from day to day and cannot be derived from historical bidding patterns as proposed in the Paper.

There is also significant concern in industry that the CMM will introduce new complexities in predicting spot revenues that complicate trading of derivatives. The ESB has gone to considerable length to socialise the design in order to overcome this concerns, yet industry remains unreconciled to it. It is time to move on.

The AEC describes the CRM conceptually as a "low powered" dispatch mechanism because it is optional, whereas CMM, being mandatory, is "high powered". Were the CRM introduced as the only reform, it would violate the AEC's principles 1 and 2 in relation to stabilising access because it does not disincentivise inefficient new investment from degrading access.

But seen together with the investment timeframe mechanism that the AEC supports above, a low powered mechanism that addresses the more egregious dispatch inefficiencies, particularly in relation to storage, is adequate, and, assuming implementation costs can be clarified, of low regret.

Any questions about this submission should be addressed to me directly, by email to ben.skinner@energycouncil.com.au or by telephone on (03) 9205 3116.

Yours sincerely,



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