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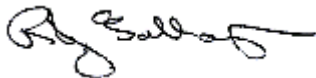
By email: submissions@aemc.gov.au

Dear John

Ref: EPR0019 – Transmission Frameworks Review

Thank you for the opportunity to comment on the Commission's Transmission Frameworks Review Directions Paper. Please find attached a brief submission on the matter. I would be pleased to discuss any of the issues raised in this submission with you or your staff if you wish.

Kind regards



Director

Att.

Transmission Service Provision – Two Alternative Models

“The Terms of Reference for the review require us to give consideration to the appropriate future role for transmission in providing efficient services to the competitive sectors of the NEM. In particular, we are to examine the nature, incentive properties and effectiveness of the existing access arrangements and alternative approaches to transmission service provision.”¹

“The Commission notes the issues presented by stakeholders relating to current Rule provisions. However, the Commission considers that any changes to the non-firm access arrangements in the NEM should best be considered from first principles rather than attempting to structure them to fit certain provisions in the Rules which might be ambiguous, unworkable and contentious, and which would not result in a coherent regime.”²

The above excerpts from the Directions Paper suggest, in the next stage of this Review, the Commission will be considering a range of alternative approaches for the delivery of TX services in the NEM.

“Following further in-depth analysis of each of the above issues, the Commission will publish a First Interim Report. It is intended that this will set out a number of comprehensive and internally consistent 'policy packages'. These packages will synthesise the findings from across the five key themes to provide a spectrum of potential options for stakeholder consideration and assessment.”³

“The next key step in this review will be to develop a set of internally consistent 'policy packages' for consultation and review. These packages will be underpinned by further analysis to be undertaken on each of the five workstreams. The insights gained from this further analysis will be synthesised into a set of potential models which take account of the interaction between the currently separate workstreams. These packages will be published in a First Interim Report for consultation.”⁴

This submission outlines 2 potential models; one attempts to maximise the integration of TX services into the competitive market environment (*The Integrated TX Services Model*) while the other attempts to isolate TX services from the market and minimise their direct impacts on competitive market outcomes (*The Isolated TX Services Model*).

The purpose of this submission is not to advocate any particular approach – its aim is merely to illustrate the extremes of what is potentially possible and to urge the Commission to take as broad a view as possible into the next stage of the Review. It is also important for the Commission to consider not just the “interaction between the currently separate workstreams” but also between each of the transmission access models and the totality of the competitive market arrangements.

1 AEMC Directions Paper, p. 18

2 AEMC Directions Paper, p. 27

3 AEMC Directions Paper, p. ii

4 AEMC Directions Paper, p. 12

In addition to these models outlined below, some years ago, Baldick⁵ and Gans⁶ both published proposals for TX rights based models for potential application in the NEM, and their ideas still have considerable merit today. In short, there is no shortage of options for the Commission to consider, and it should not dismiss any of them out of hand prematurely.

The Integrated TX Services Model

Conventional wisdom, and much of the literature published on the subject, suggests full integration of TX services into the market as a competitive sector of the supply chain is utterly infeasible. Lack of controllability of individual TX element power flows, lumpiness of investment, the type and complexity of security constraints, and the highly dynamic nature and interdependencies of TX element capacity and operation are all cited as reasons for this. While this may well be true, it still leaves open the possibility of establishing competitive markets for a much higher proportion of TX services than is the case within the current model. It is accepted most of the models described in the literature to date would not achieve full integration and neither would the Integrated TX Services model described below. However, if it proves to be feasible and practical to implement, it would go a long way towards that objective.

The model, which is still conceptual only, proposes a mix of regulated and competitive TX service provision. It is conceptual because a considerable amount of research and detailed design, demonstration and testing work would be required to confirm its efficacy and practicality for commercial application in a real market environment.

The model involves:

- multiple localised transmission access zones, each consisting of a number of transmission injection and/or off-take points which would normally be in close proximity to one another;
- three forms of contractually based transmission rights:- connection rights, local access rights & inter-zonal access rights;
- inter-zonal access rights would be biddable and dispatchable and have both a physical and a financial dimension – *physical*:- the eligibility to offer a particular right into the dispatch process may be tied to the availability of specific physical elements in the power system and/or the dispatch of other specific ancillary services, and *financial*:- the rights holder would submit price/quantity offers into the dispatch process and receive revenues based on the market clearing price for any quantity of the right that was dispatched through a virtual toll-gate surrounding each of the relevant export and import local access zones;
- the dispatch process would involve co-optimisation of all the various services being offered into the market to match supply and demand while satisfying all system security standards at the lowest overall cost – i.e. inter-zonal access rights could be scheduled either for energy transportation or for various types of reserve duty in much the same way as generator outputs and demand-side services are now; and

5 *Border Flow Rights and Contracts for Differences of Differences: Models for Transmission Property Rights*, Ross Baldick, May 2005

6 *Options for Electricity Transmission Regulation in Australia*, Joshua Gans and Stephen King, University of Melbourne, 10 September 1999

- full nodal pricing would apply even within the local access zones, and local access contracts would address the allocation of risks associated with price separation within zones.

There is no doubt that a dispatch engine and the associated procedures to operate the power system and the real time market described above are all quite feasible. The practicality of this model therefore depends on being able to design and implement an access regime which allows inter-zonal access rights to be created, traded and even destroyed as and when the market requires in a way that is economically efficient, commercially robust and not susceptible to market power abuse by either network owners or holders of the rights to whom they have been on-sold by the network owners.

If achievable, such a model would:

- provide clear, contractually based network access rights for all users directly connected to the TX network - connection and local access rights would be determined by direct negotiation with the relevant TNSP, and, to the extent that they continue to be a regulated monopoly service, the negotiations would be under regulatory supervision as required, whereas most if not all inter-zonal rights would be sourced more broadly through a competitive market established for the provision of such services;
- leave it to the market to incentivise willing coalitions of participants to financially back most inter-zonal network augmentation as and when required;
- significantly reduce the amount of TX services that would be treated as monopoly services and subject to economic regulation and the application of a Regulatory Investment Test; and
- largely overcome the locational price signalling issue for transmission by incorporating this directly into spot market pricing of energy and reserves.

It should be noted that this model would not necessarily result in exposing TNSPs to additional market risk, although at least some increase in this area under certain clearly defined network conditions would be desirable. One would expect spot prices in such a market to be considerably more volatile than is the case with the current NEM design, with much stronger incentives for market participants to maintain a high degree of forward contract cover for energy and inter-zonal transmission services.

At the same time however, participant access to suitable hedge instruments to manage price risk should be considerably enhanced. One would expect that, in addition to the regular auctions to optimise the configuration of simultaneously feasible long-term primary inter-zonal access rights across the TX network, markets would also develop in:

- bilateral sale of short-term primary inter-zonal access rights; and
- exchange-based secondary derivatives markets of standardised financial products.

In certain cases, such as augmenting the TX system to serve some low load density regional areas, it may be necessary to call on the DNSPs to take on this responsibility as part of their regulated network services. This could be readily accommodated within the model as currently envisaged.

The Isolated TX Services Model

If one takes the view that:

- true integration of TX into the competitive power market is infeasible; and
- the tensions between a regulated TX network and a competitive energy market cannot be reduced to a commercially manageable level that would facilitate economically efficient levels of investment in generation;

then arguably, the most pragmatic solution may well be to completely isolate network effects from having any direct impact on the commercial outcomes in the spot markets.

This could be achieved by making TNSPs responsible for all TX network related costs including electrical losses, network congestion, NCAS and even FCAS costs in excess of what would be required if the network were lossless and congestion free. All of these costs would then be recovered via regulated network charges, and the regulator would incentivise the TNSPs to manage these costs efficiently via the structure of their network charges, supplementary bilateral agreements between TNSPs and network users and/or ancillary service providers, and hedge contracts for energy and reserves.

The form of network charges and the supplementary bilateral agreements involving generators in particular are the centrepiece in this model. These commercial arrangements would be a critical factor in driving economically efficient investment in and operation of the generation sector under this model. The contracts would also ultimately determine the extent of sharing the cost risks associated with network outages. Generators would probably see some benefit in this approach compared to the status quo. First, their starting position is one of firm access which they would only negotiate away with the relevant TNSP if it were commercially prudent for them to do so. Secondly, the regulatory framework for those negotiations would impose a duty of care on the TNSP to pursue economically efficient outcomes for the market, and generators would have access to an independent arbitrator to resolve serious disputes which arise during the negotiations.

In such a market, a single market clearing price would apply across the entire NEM, all scheduled resources in the dispatch process would be compensated by AEMO for being constrained on or off and the TNSPs collectively would reimburse AEMO for the cost of network losses and constraints and a component of FCAS costs. Regulated TNSP revenues would probably need to increase by the order of 50% to account for the additional cost responsibilities of the TNSPs. If implemented efficiently, the additional TNSP related charges would be more than offset by reductions in spot market prices and other costs incurred by participants via AEMO's settlements process.

With the expected growth in embedded generation, some of the elements of the above model could also be applied to DNSPs. For example, DNSPs could be held directly responsible for managing distribution network losses instead of these being allocated to embedded generators and loads via Distribution Loss Factors. This would have the added advantage of also making the DNSPs directly responsible for managing energy theft and conservation of energy losses on their network.

It's worth noting that when one compares the 2 models, ironically TNSPs would probably bear considerably more congestion and outage risk under the Isolated TX Services Model even though it involves a much higher proportion of regulated TX services than is the case for the Integrated TX Services Model.

Arguably, either of these models could potentially deliver economically efficient outcomes for future investment in, and operation of, the NEM even though philosophically, they take a fundamentally different approach to the issue of TX access and its interaction with the functionality of the market. As is the case with most NEM related issues and potential solutions, “the devil is in the detail”.

Ultimately, it comes down to just how well one can design and implement all of the various interactive components of both the network access regime and the market functionality to work together pragmatically as intended to deliver efficient market outcomes. There can be any number of limiting factors – political, institutional, legal, technical, financial and human – which collectively have the effect of undermining even a well designed, internally consistent model from being implemented properly and/or operating as intended.

Practical operating experiences over more than a decade with the current model have highlighted its many weaknesses and there have been countless attempts to address at least some of these through various market reviews, legislative change, new institutional arrangements and Market Rules amendments. In spite of this, significant issues still remain. Whether the Commission decides to support persisting with the current model or opts for something substantially different should be decided on what is likely to deliver the best outcomes for the NEM taking into account what the Commission believes are the true limiting factors at play impacting on the NEM.

In summary, I suggest it would be beneficial for the next stage of the Review if the Commission:

- takes as broad a view as possible of potential models for transmission access and associated market arrangements and not short-list them prematurely;
- focuses the formulation of its 'policy packages' for each of the workstreams in the first instance on preferred stakeholder incentives and market outcomes without being prescriptive about any particular feature of the market and/or TX access arrangements;
- opts for a more holistic view of TX access and its interaction with the market for competitive generation and/or retail services when analysing the merits of any model;
- develops and articulates its views on what it believes are the political constraints and other true limiting factors that it must take into account when deciding eventually on its preferred model; and
- includes in the 1st Interim Report some details on how it envisages each of its 'policy packages' would translate into a practical model of institutional, regulatory and other commercial arrangements, what transition steps may be needed, and how each model would most likely impact on each key market stakeholder group.

There are no easy fixes. And even if the Commission can find and agree on a practical package of solutions, I am reminded of the following sobering comment by Larry Ruff re energy industry and market reform:

“The fact that 'we' think we know how to do it right does not mean 'they' will do it right.”⁷

⁷ *Unrederegulating Electricity: Hard Times for the True Believer*, presentation by Larry E. Ruff to the Kennedy School of Government, Harvard University, 1 May 2003