



13 August 2020

Ms Merryn York  
Acting Chair  
Australian Energy Market Commission  
PO Box A2449  
SYDNEY SOUTH NSW 1235

Dear Merryn

**Re: ERC0300 Efficient management of system strength on the power system**

CitiPower, Powercor and United Energy welcome the opportunity to respond to Australian Energy Market Commission's (AEMC) consultation relating to efficient management of system strength on the power system.

In general, we support TransGrid's proposal to allow for transmission network service providers (TNSPs) to be more proactive in the provision of system strength in the National Electricity Market (NEM). However, system strength issues occur not only transmission systems but also the sub-transmission and distribution networks. Therefore, a system strength planning standard met by all network service providers (NSPs), including distribution network service providers (DNSPs), would more effectively, and proactively, deliver adequate system strength.

Currently, DNSPs are not recognised as system strength service providers. We expanded on this point in our prior submission to EPR0076 - *Investigation into system strength frameworks in the NEM*. DNSPs must form part of any co-ordinated solution to managing system strength. In some cases, DNSPs will have the ability to address system strength shortfalls in a far more efficient and distributed manner with greater flexibility, scalability and redundancy than TNSPs. If a DNSP is able to deliver an equivalent level of system shortfall strengths to a TNSP at lower cost, it has to be better outcome for customers.

Contrary to TransGrid's proposal, we consider that the "do no harm" obligation should be retained to ensure that new generators continue to design their systems in a way that does not cause any material negative impact on the network, to existing generators and/or customers. However, we do believe the current framework should be revised to address the issues identified in the TransGrid proposal, with the focus on allowing a more efficient connection process, as well as better processes for co-ordination between the connecting NSPs and generators. The "do no harm" principle can be co-ordinated with, or integrated into, the generator technical performance standard to ensure appropriate generator design is achieved.

Please find attached the submission template where we respond to the AEMC's questions.

Should you have any queries, please contact Elizabeth Carlile on 0419 878 852 or [ecarlile@powercor.com.au](mailto:ecarlile@powercor.com.au).

Yours sincerely

Brent Cleeve  
**Head of Regulation**  
**CitiPower, Powercor and United Energy**

## Appendix A

### CHAPTER 5 – THE RULE CHANGE REQUESTS

Question 7: Section 5.1 – Infigen – Fast frequency response ancillary service market

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| 1) What are stakeholders' views on the issues raised by Infigen in its rule change request, Fast frequency response market ancillary service?   |  |
| 2) Do stakeholders agree with Infigen's view that a change to the NER is required to encourage efficient provision of FFR services in the NEM following contingency events?   |  |
| 3) What are stakeholders' views on if there are any other issues or concerns in relation to frequency control in the NEM as levels of synchronous inertia decline?  |  |
| 4) Do stakeholders consider there are alternative solutions that could be considered to improve the frequency control arrangements in the NEM for managing the risk of contingency events as the power system transforms? |  |
| 5) Do stakeholders consider that 5-minute markets for FFR ancillary services likely to be effective and efficient in the global interconnected NEM and on a regional basis?   |  |
| 6) Do stakeholders consider Infigen's proposal will provide adequate pricing signals to drive efficient investment in FFR capability in the NEM?  |  |
| 7) What are stakeholders' views on, if introduced, how the costs associated with any new FFR market ancillary services should be allocated?   |  |
| 8) What do stakeholders consider to be the likely costs associated with establishing two new ancillary service markets for FFR in the NEM?  |  |
| 9) What are stakeholders' views on how the proposed solution may result in any substantial adverse or unintended consequences in the NEM?   |  |
| 10) Are there specific issues with FFR that stakeholders think should be addressed in the NER as part of the establishment of markets for FFR services?   |  |

Question 8: Section 5.2 – Infigen – Operating reserves market

1) Do stakeholders agree with Infigen that tight capacity conditions and increasing uncertainty in market outcomes are problems that an operating reserve would address?	
2) Are there alternative solutions that could be considered to address tight capacity conditions and increasing uncertainty in market outcomes?	
3) Do stakeholders consider Infigen's proposal would provide adequate pricing signals to drive efficient use of and investment in operating reserve services now and in the future?	
4) How do stakeholders think separate operating reserves arrangements would affect available capacity in the spot, contracts and FCAS markets now and in the future?	
5) How do stakeholders think separate operating reserves arrangements would affect prices in the spot, contracts and FCAS markets now and in the future?	
6) How could the design of an operating reserve market (e.g. criteria for eligible capacity) best support competitive outcomes both in the operating reserves market but also energy and FCAS markets?	
7) What are the factors that should be considered when seeking to set and procure efficient levels of operating reserve?	
8) Would Infigen's proposed operating reserve market result in any substantial adverse or unintended consequences in the NEM?	
9) What are the costs associated with establishing an operating reserve market in the NEM? If introduced, how should these costs be allocated?	
10) What kind of incentive/penalty arrangements would be necessary to be confident the operating reserves procured are available when needed?	
Question 9: Section 5.3 – Delta Electricity – Introduction of ramping services	
1) Do stakeholders agree with Delta that price volatility that occurs when dispatchable generators ramp through their energy bid stacks in response to predictable, daily, high rates of change from solar ramping up and down is a problem that needs addressing?	
2) Do stakeholders think that a new raise and lower 30-minute FCAS would address the price volatility at these times? Are there alternatives that could be considered to address this problem?	

3) Do stakeholders consider Delta's proposal would provide adequate pricing signals to drive more efficient use of and investment in ramping services thanks existing price signals and information provided through the PASA and pre-dispatch processes?	
4) How do stakeholders think a separate 30 minute ramping product would affect available capacity in the spot, contracts and FCAS markets now and in the future?	
5) How do stakeholders think a separate 30 minute ramping product would affect prices in the spot, contracts and FCAS markets, now and in the future?	
6) How could the design of a ramping FCAS product (e.g. criteria for eligible capacity) support competitive outcomes in both energy and FCAS markets?	
7) What are the factors that should be considered when seeking to set and procure efficient levels of ramping services?	
8) Would Delta's proposed new 30-minute raise and lower FCAS products result in any substantial adverse or unintended consequences in the NEM?	
9) What are the costs associated with establishing new 30-minute raise and lower FCAS products in the NEM? If introduced, how should these costs be allocated?	
10) What kind of incentive/penalty arrangements would be necessary to be confident the new 30-minute raise and lower FCAS products procured are available when needed?	

Question 10: Section 5.4 – Delta Electricity – Capacity commitment mechanism for system security and reliability

1) Do stakeholders agree with Delta that there is an increasing risk that capacity capable of providing reserves or services may not be available at times when the power system may need them to respond to unexpected events because of increasing incentives to de-commit?	
2) Do stakeholders think that a mechanism to commit capacity one day ahead of time would deliver the reserves or services needed? Are there alternatives that could be considered to address this problem?	
3) Do stakeholders consider Delta's proposal would provide adequate pricing signals to drive more efficient use of and investment in reserves and system services?	
4) How do stakeholders think Delta's capacity commitment payment would affect available capacity in the spot, contracts and FCAS markets now and in the future?	

5) How do stakeholders think Delta's capacity commitment mechanism would affect prices in the spot, contracts and FCAS markets now and in the future?	
6) How would a capacity commitment mechanism and payment affect entry, exit and competition in the NEM over the short and long term?	
7) What are the factors that should be considered when deciding how much capacity to commit ahead of time?	
8) Would Delta's proposed capacity commitment mechanism result in any substantial adverse or unintended consequences in the NEM?	
9) What are the costs associated with establishing a capacity commitment mechanism in the NEM? If introduced, how should these costs be allocated?	
10) What kind of incentive/penalty arrangements would be necessary to be confident that the committed capacity would be available throughout the commitment period and/or when called upon?	
Question 11: Section 5.5 – Hydro Tasmania – Synchronous services markets	
1) Do stakeholders consider this rule change proposal presents a viable model for the provision synchronous services? a) Could this proposed model be used to provide the essential levels of system strength (and / or inertia and voltage control) needed to maintain security and the stable operation of non-synchronous generation? b) Could this proposed model be used to provide levels of system strength (and / or inertia and voltage control) above the essential level required for security?	
2) Do stakeholders consider that the creation of a synchronous services market could have any adverse impacts on other markets in the NEM? If so, what are these impacts?	
3) Would the proposed model set out in the rule change request efficiently price and allocate costs for synchronous services in the NEM?	
4) Do stakeholders consider the model set out in the rule change request to be capable of sending price signals sufficient to encourage new investment in synchronous capacity?	

5) Do stakeholders consider the rule change provides an appropriate incentive mechanism for existing synchronous generators to make operational decisions to provide synchronous services?	
6) Do stakeholders consider the rule change provides the appropriate locational signals for the provision of synchronous generators to provide synchronous services?	
7) What do stakeholders see as the primary opportunities / limitations of the mechanism as proposed by Hydro Tasmania?	
8) Would the model proposed in the rule change request enable effective competition in the market for the provision of synchronous services?	
9) What suggestions do stakeholders have in relation to the first order changes that would be required in NEMDE to facilitate this proposal and any second order changes that may be required as a result of this rule change proposals' implementation?	

Question 12: Section 5.6 – TransGrid – Efficient management of system strength on the power system

1) Do stakeholders consider that TransGrid's approach addresses all issues related to system strength currently experienced in the NEM?	No, it does not address all issues related to system strength experienced in the NEM. For example, it still requires the Australian Energy Market Operator (AEMO) to define system strength node(s) in each region and the minimum fault level applicable at those nodes. There is currently a lack of information about this process, its suitability and appropriateness. The proposed probabilistic fault level standard is also a challenge since quantifying the consequence of the system strength issue will be complex and subjective.
2) Do stakeholders consider that a system strength planning standard met by TNSPs would effectively and pro-actively deliver adequate system strength?	A system strength planning standard met by all NSPs would efficiently, and proactively, deliver adequate system strength. But it should include both TNSPs and DNSPs since system strength issues occur on sub-transmission and distribution networks and not just on the transmission network. We believe that there may be cases where system strength solutions would be more efficiently implemented on the sub-transmission and/or distribution network. For example, a synchronous condenser installed on the transmission network may lead to a very small increase in fault level at a low system strength node in a sub-transmission network where there is significant penetration of inverter-based generators. The co-ordination between TNSPs and DNSPs (and AEMO) will be very important in achieving an optimised solution with the lowest cost for all customers.
3) Do stakeholders consider TransGrid's proposal will provide useful and timely locational and financial signals to new entrants?	Yes, it does to some extent. There are a number of details which need to be finalised for example the inclusion of DNSPs into the system strength planning standard, the probabilistic fault level standard, a better approach to define fault level nodes and minimum fault level, etc.

<p>4) Do stakeholders agree that the 'do no harm' obligations should be removed?</p> <p>a) If so, do stakeholders consider an alternative mechanism is required to regulate or incentivise the minimisation of a new connecting generator's impact on the local network and proximate plant?</p>	<p>No, the “do no harm” obligations should not be removed. New generators shall still attempt to not cause material negative impact to the network and/or to existing customers and generators. However, the “do no harm” definition as well as the method used to assess it should be revised to enable more efficient connection processes as well as better co-ordination between the connecting NSPs and generators. The “do no harm” principle can be co-ordinated with, or integrated into, the generator technical performance standard to ensure appropriate generator design is achieved.</p>
<p>5) What are stakeholder's views regarding generators' being required to make a financial contribution for provision of system strength services?</p>	<p>We support this proposal since it incentivises new generators to invest in stronger areas of the network where possible, or to factor in the cost of network upgrades (related to system strength) that are required upfront as part of their business case. It also recognises that system strength is one of the core elements of a stable network for new generator connections, similar to thermal capacity.</p>
<p>6) Would stakeholders be supportive of the ownership of existing private system strength assets being transferred to TNSPs, as suggested in TransGrid's rule change request?</p>	<p>Yes as this allows further flexibility and coordination of system strength planning in the future.</p>
<p>7) Would the proposed, TNSP-led solution to system strength result in any adverse or unintended consequences for market participants in the NEM?</p>	<p>If DNSPs are not included in the NSP-led solution, it may result in sub-optimal solutions. For example, a system strength issue occurring in the sub-transmission network (66kV) or distribution network (22kV, 11kV) would be more efficiently addressed within the relevant network by the relevant DNSP. A TNSP only-led solution would also act to disadvantage projects connecting to the sub-transmission and distribution networks.</p>