Enel X Australia Pty Ltd
Level 18, 535 Bourke Street
Melbourne, Victoria 3000
Australia
T +61-3-8643-5900
www.enelx.com/au/

Sebastien Henry
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

13 August 2020

Dear Sebastien

RE: Consultation Paper on System Strength Rule Changes

We welcome the opportunity to provide feedback on the consultation paper *System Services Rule Changes* in response to rule changes proposed by Hydro Tasmania, TransGrid, Infigen Energy and Delta Electricity.

Enel X works with commercial and industrial energy users to offer demand side capacity into the National Electricity Market's (NEM) frequency control ancillary services (FCAS) markets. Since October 2017 we have participated in the fast raise (R6), slow raise (R60) and delayed raise (R5) contingency FCAS markets. We also provide demand response under the Reliability and Emergency Reserve Trader mechanism to support the grid during emergencies.

Our views are summarised as follows:

- Solutions should be considered in the context of the shift to a low carbon NEM. New markets for essential system services should support this transition and not rely on old technology which will ultimately be retiring from the market. The assessment framework should reflect this principle.
- Provided they're technology neutral and sensibly designed and implemented, we support the addition of both a fast frequency response (FFR) market and some form of operating reserves or other mechanism to bring additional capacity into the market to address unforeseen imbalances between supply and demand. FFR in particular could provide a "quick win".
- We also support a technology neutral approach to valuing other services, such as inertia, and for these to be co-optimised with energy and ancillary markets to achieve an efficient overall mix of services to support the system.
- While the AEMC acknowledges that common issues are being addressed as part of the Energy Security Board's NEM post 2025 process, it is not clear from the consultation paper how the rule change process and the ESB processes will interact to ensure consistent outcomes.

If you have any questions about this submission, please do not hesitate to contact me.

Regards

Elisabeth Ross
Consultant, Industry Engagement and Regulatory Affairs
elisabeth.ross@enel.com

1. INTRODUCTION

This submission sets out Enel X's response to the AEMC's *System Strength Rule Changes* Consultation Paper. It provides comments on:

- the proposed assessment framework
- the rule change proposals that address near real time system security
- the rule change proposals that seek to bring additional capacity into the market over a longer time frame
- interactions with the ESB process.

We have not provided any specific comments on the rule change request from TransGrid that proposes to amend the minimum system strength requirements. However, as discussed further below, any linkages between the solutions for this and the other rule changes should be clearly and transparently considered.

2. ASSESSMENT FRAMEWORK

Enel X supports the proposed assessment framework, including the system services objective and the principles for assessment. In particular, we consider the AEMC's principle of technology neutrality is important in the context of the proposed rule changes. We agree with the AEMC's description of the principle, but would add that technology neutrality is critical to ensuring low cost outcomes for consumers by allowing the greatest possible pool of resources to compete.

We encourage the AEMC to add a further principle that solutions are considered in the context of the shift to a low carbon NEM. Any amendments to the NER, including the introduction of new markets for Essential System Services (ESS), should support new and low carbon technologies and be sufficiently flexible to encourage and incorporate innovative new solutions to providing ESS. The development of new value streams for such technologies provides an opportunity to transition more quickly to a low carbon economy.

Conversely, the regulatory framework should not be designed around the capabilities of old technology. It is prudent not to continue to rely on ESS being provided by generators that are expected to retire from the market in the foreseeable future. By addressing system security issues arising from a lack of synchronous generation now, we can avoid having to resolve these problems again in the near future.

In this context, it is worth noting the success of AEMO's Virtual Power Plant (VPP) trials. In their latest knowledge sharing report, AEMO state that "VPPs continue to demonstrate their effective capability to respond to both contingency FCAS events and energy market price signals".[1] While VPPs have some way to go to being rolled out at scale, AEMO notes that "Evidence indicates that VPPs could alleviate operational challenges such as low generation reserves and low minimum demands as they grow in scale",[2] suggesting VPPs will play a role in supporting the system in the future.

It would also be helpful if the AEMC explained how it will consider trade-offs between the issues that the different rule changes are seeking to address and their potential solutions. As the AEMC notes in its consultation paper, some ESS are interrelated e.g. frequency control and inertia. If the rule changes continue to be assessed separately, rather than consolidated, the AEMC will need to explain how it will

[1] AEMO, Virtual Power Plant Demonstrations, Knowledge Sharing Report #2, July 2020, p6.
[2] Ibid.

factor in trade-offs between procuring different ESS and how those trade-offs will be made transparent to stakeholders.

The timing of the various rule change processes will also require careful consideration. There is a risk that if the rule changes are progressed along different timelines that any rule made for one rule change could lock in certain solutions for subsequent rule changes. Again, the AEMC will need to be very clear about how it is taking these issues into account.

3. FREQUENCY RESPONSE AND SYNCHRONOUS SERVICES

Infigen Energy's FFR and Hydro Tasmania's synchronous services rule change proposals both seek to address the system security issues arising from having a lower proportion of synchronous generation in the market, including declining system inertia and increasing variability and unpredictability leading to more frequent contingency events.

Infigen Energy proposes to address this issue through a fast frequency response service, while Hydro Tasmania proposes to integrate the dispatch of inertia and related services with existing energy and FCAS spot markets. Delta has also submitted two rule change requests that would also go some way to addressing the issues identified by Infigen Energy and Hydro Tasmania, which we discuss in section 4 of this submission.

3.1. Fast frequency response

Enel X agrees the NEM would benefit from a FFR market that values and, as such, promotes investment in and better use of technology that can respond very quickly to arrest changes in frequency. While not obviating the need for inertia, FFR would greatly increase the capability of the system to respond to contingency events as the level of inertia in the system reduces. We consider that introducing a FFR market would provide a "quick win" that could help address existing and emerging system security concerns.

We generally support Infigen's proposal for two new FFR markets – raise and lower – that operate in the same way as the existing FCAS markets. The benefits of this proposal are:

- It works within the existing frameworks. Market participants are already familiar with the way in which contingency markets operate. Consequently it is relatively straight forward to implement and can be implemented quickly.
- It is market based and provides a clear price signal.
- It is technology neutral. A number of technology types are capable of providing FFR, providing a broad pool that will allow a competitive market to develop and ensuring an efficient price for the provision of these services. In this regard, we note that when the FCAS markets were opened up to aggregated demand response and batteries, the additional competition contributed to a reduction in FCAS costs.[3]
- It supports the use of technologies that will become increasingly important in the future, particularly demand response, batteries and VPPs, rather than relying on outdated technologies. Adding a FFR FCAS market would provide an additional value stream that would help support the investment case for these technologies, which have been recognised by the AEMC as a critical source of FCAS as thermal generation plant retires.[4]

[3] AEMO, Quarterly Energy Dynamics – Q2 2019, August 2019, p18.
[4] AEMC, Mandatory primary frequency response, Draft rule determination, 19 December 2019, p71.

Infigen has proposed a response time of 2 seconds, or potentially lower. Enel X would support a faster response time of 1 second or even 0.5 seconds.[5] The faster the response, the more quickly any sudden changes in frequency can be arrested and the greater the ability to co-optimise between FFR and inertia. This will become increasingly important as the level of inertia in the system reduces. South Australia, in particular, would benefit from a very fast FCAS market being implemented in the near term due to the already high penetration of variable renewable energy and rooftop solar PV increasing the variability of both supply and demand. South Australia also has a number of resources readily available to provide these services, including grid scale batteries and
Enel X's existing demand response portfolio.

AEMO is able to set up to three time specifications in the Market Ancillary Services Specifications – currently 6 seconds, 60 seconds and 5 minutes. Consequently a rule change would not be required if FFR replaced one of the existing time specifications. However, Enel X considers there are likely to be benefits in providing AEMO with the flexibility to include additional markets. Adding, rather than replacing, a market is likely to maximise the opportunity for a variety of providers to be able to offer FCAS across the four time specifications.

3.2. Synchronous services

In principle, Enel X agrees that there is a cohort of services, including inertia and related services, which are not currently appropriately valued. Introducing a market for these services would provide a price signal to encourage investment in and the ongoing provision of these services. Co-optimising this market with the existing energy and FCAS markets would allow the system to be supported via an efficient – and so lowest cost – mix of services

Unlike introducing a market for FFR, which could readily fit within the existing framework, defining and developing a market for other services and identifying how these can be co-optimised with existing markets will be a complex task. For this reason we consider the introduction of FFR could be progressed more quickly and the design of a market for inertia and related services should be considered in that context.

We also note that, as per the AEMC's assessment framework, the design of any market for inertia and related services must be technology neutral. Hydro Tasmania's proposal appears to focus on the provision of these services by synchronous generators. However, any new market should provide signals for – and not pose a barrier to – the development of new technology in this space including synthetic and virtual inertia.

4. RESERVE SERVICES

Infigen Energy's operating reserves and Delta's capacity commitment mechanism rule change proposals both seek to ensure there are sufficient reserves available to keep supply and demand in balance in the event of unforeseen circumstances or due to variability in both generation and demand.

We support the principle of introducing a market for operating reserves, but note that it will need to be carefully designed to ensure that its technology neutral and able to support participation by a range of technologies. We would expect the operating reserves market primarily to address reliability issues, but note that these reserves could potentially be used to supplement other more targeted system security

[5] Enel X provides demand response in New Zealand's fast and sustained instantaneous reserves (FIR and SIR) markets, similar to the NEM's FCAS markets. The FIR market requires load to respond within 1 second.

mechanisms, such as FCAS, under certain circumstances, noting that operating reserves are unlikely to have the same capability to respond as resources used for FCAS.

4.1. Operating reserves

Enel X is generally supportive of Infigen Energy's proposal to establish in-market operating reserves that would operate in a similar manner to the existing FCAS markets, except that it would be raise only. We consider Infigen's proposal has the following benefits:

- It is market-based and provides a clear price signal for the need for operating reserves.
- Operating reserves are able to be co-optimised with energy and ancillary services markets, allowing market participants to provide capacity where it is most needed and resulting in efficient pricing outcomes across the markets.
- Similar to the FFR proposal, it is technology neutral and supports the uptake of technologies that will be increasingly relied upon in the future. As well as contributing to a secure system, creating a market for operating reserves will provide an additional value stream that will help support the investment case for demand response and battery storage.
- It proposes a 30 minute notice period, which is sufficient for most demand response to participate.

However, the details for the implementation of an operating reserves market are critical to its effectiveness, particularly in encouraging demand response providers to participate.

The notice period for dispatch, in particular, is important. While the wholesale demand response mechanism will go some way to allowing demand response to offer capacity into the market, there is a proportion of customers that cannot respond to real time dispatch instructions. An operating reserves market with a sufficiently long notice period (at least 30 minutes and up to four hours[6]) could allow additional demand response resources that could not otherwise participate in the market to provide capacity.

We also note that if this mechanism was to replace the existing Reliability and Emergency Reserve Trader (RERT) mechanism – or at least encourage current demand response RERT providers into the market, as suggested by Infigen Energy[7] – then it will need to be designed so that demand response capability continues to be offered into the market under this new scheme. This can be managed by setting an appropriate response time,[8] avoiding the need for specific targets or ramping profiles, and simple monitoring and compliance frameworks that are not unduly costly for demand response participants.

4.2. Ramping

Delta has proposed an extension to the current suite of FCAS Raise and Lower services to include sustained ramping over a 30 minute period (both raise and lower). This is intended to accommodate the solar generation profile.

This rule change proposal appears to address similar issues to those identified in Infigen Energy's proposal to introduce a market for operating reserves. However, unlike Infigen Energy's proposed

[6] There is a limit to how much notice is helpful, as some loads cannot commit too far in advance.
[7] Infigen Energy, Operating Reserves and Fast Frequency Response Rule Change, 18 March 2020, p10.
[8] RERT providers currently receive up to 60 minutes notice of dispatch.

solution, Delta's rule change proposal is not technology neutral as it would appear to only apply to generating plant with 30 minute ramping capability,[9] locking out other technologies.[10]

Enel X considers that variability in generation and demand is better addressed through a combination of FFR and the establishment of a market for operating reserves. As noted above, these markets are technology neutral and provide clear price signals for the efficient investment in and use of a range of technologies, and so are more likely to lead to lower cost outcomes.

4.3. Capacity commitment mechanism for system security and reliability services

Delta has proposed an ex-ante, day ahead capacity commitment mechanism and payment to provide access to operational reserve and other required system security or reliability services. Delta has pitched the rule change proposal as an interim solution until a more enduring solution is implemented via the ESB's post 2025 process.

Like the ramping proposal Delta's proposal for a capacity commitment mechanism appears to be limited to scheduled generators and, as such, is not technology neutral.[11] Indeed, the proposed solution appears to be designed exclusively around the requirements of slow-start thermal generators. As a consequence, this approach is unlikely to bring an efficient mix of capacity into the market and so will not lead to lowest cost outcomes for consumers.

Further, while Enel X supports some form of ahead market, we question whether a day-ahead market is the most appropriate time frame. Having to commit to participating in a particular market 24 hours ahead of the real time market makes it harder to co-optimise across multiple services. As such, we consider there is a risk that an efficient combination of resources across energy, operating reserves, FCAS and other system services may not result.

5. INTERACTIONS WITH ESB PROCESSES

While the AEMC acknowledges the interactions with the ESB post 2025 process, it is not clear from the consultation paper how the two processes will be reconciled. The issues raised in the rule change requests cover similar issues to those being considered by the ESB in its ahead markets and ESS work streams.

The two processes are very different, including in respect to scope, degree of stakeholder consultation, the assessment framework being used to assess potential options, and the outcome. Whereas the AEMC process could lead directly to rule changes, the ESB process will result in a recommendation to the COAG Energy Council.

It would be helpful if the AEMC could provide greater clarity on how it will ensure that any solutions proposed under the two processes will be consistent.

---

[9] Delta, New 30-minute FCAS Raise and Lower NEM Rule Change Request, 4 June 2020.

[10] While the proposal could potentially be expanded to included demand response, we note that the ability of demand response to provide ramping services would depend on how the market is designed. Specifically, demand response cannot cost effectively provide linear ramping capabilities, and so would be unlikely to participate in a meaningful way were this a requirement.

[11] Delta states "Eligibility criteria are proposed that are targeted towards any scheduled generator that would be likely subject to direction under the status quo." Delta, NEM Rule Change Request - Capacity Commitment Mechanism for Operational Reserve and Other System Security Services, 4 June 2020, p9.