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Dr Kerry Schott AO
Chair
Energy Security Board
Submitted by email: info@esb.org.au

4 November 2020

Dear Dr Schott

RE: Post 2025 market design consultation paper

Thank you for the opportunity to provide feedback on the Energy Security Board's (ESB) post 2025 market design consultation paper (Consultation Paper).

Enel X operates Australia's largest virtual power plant.[1] We work with commercial and industrial energy users to develop demand-side flexibility and offer it into the NEM's energy and ancillary services markets, the RERT mechanism, and to network businesses.

The energy system is undergoing a fundamental shift, and it is valuable to consider whether the current market design will continue to meet the needs of consumers over the long term. In this respect, we generally agree with the ESB's characterisation of the issues and the need to find solutions. Similarly, we support the ESB's recognition of the role the demand side can play in meeting the identified challenges.

However, we encourage the ESB to not duplicate consideration of, and consultation on, issues that will be addressed through existing rule change processes. Doing so can create market uncertainty and will strain the industry's capacity to contribute meaningfully to each process. In Enel X's view, the best way that the ESB can add value is by providing guidance on how all of the pieces of the market design puzzle fit together.

The remainder of this submission provides Enel X's views on five of the market design initiatives. In many cases, further detail on the various proposals under each of the initiatives would be helpful for stakeholders to provide more valuable input.

I look forward to continued engagement with the ESB on this reform process. If you have any questions or would like to discuss this submission further, please do not hesitate to contact me.

Regards

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[1] Bloomberg NEF, December 2019.

KEY POINTS:

- Demand flexibility is already, and will continue to be, an important contributor to reliability and security in the NEM.
- A number of new and impending reforms (WDRM, 5MS) are expected to have an impact on price signals and participation in the NEM. It is important to assess the impact of these reforms before introducing others.
- Of the various proposals in this paper, the introduction of an FFR market and an operating reserve mechanism would appear to be the most justified in terms of the identified need and potential benefits. They are also relatively straightforward to design and implement.
- The existing FCAS framework functions well and is understood by industry, and thus provides a good starting point for the design of an FFR market and operating reserves.
- The case for the introduction of a capacity mechanism and ahead markets is less clear. These reforms would benefit from further consultation and analysis of their impact on the signals market participants currently use to make investment and operational decisions.
- And, while supportive of a move to a two-sided market, we do not agree with the starting assumption that load must be scheduled in order to receive the spot price. Scheduling requirements are a significant barrier to entry and would limit participation by the demand side.
- Be careful not to entrench gentailer market power when designing capacity mechanisms, or the traditional retail model when designing a two-sided market.
- Any new markets or mechanisms must enable:
    - all capable technologies, whether on the supply side or demand side, to participate
    - independent aggregators (not just retailers) to participate on behalf of energy consumers,

  to maximise participation and efficient outcomes for consumers.
- While flexibility is important as the system changes, giving AEMO too much control over which services are needed and how they are delivered is likely to create regulatory and investment uncertainty for market participants.
- The ESB work should look beyond just creating new markets and mechanisms. Enel X, as a relatively new provider of demand flexibility using distributed energy resources, has encountered a number of administrative and financial barriers to introducing demand side capacity into the NEM's *existing* market frameworks.

1. MARKET DESIGN AND THE ROLE OF DEMAND FLEXIBILITY

Historically, the NEM has provided limited ability for demand flexibility to participate. This is gradually changing, with the opening up of the FCAS markets to demand side aggregators in late 2017, and the decision to implement a wholesale demand response mechanism in late 2021. Through its participation in the FCAS markets and RERT mechanism, Enel X and its customers have demonstrated the valuable role that demand flexibility can play in meeting the reliability and security needs of the changing system. But the demand side is capable of much more.

We are pleased to see the ESB's recognition of this potential. We now need to turn this goal into reality by making sure all existing, and any new, market frameworks support participation by all capable technologies and providers, including demand flexibility.

Many of the proposed reforms are, in principle, positive in this respect. A number of the reform options proposed (FFR, operating reserves) will provide additional means for demand flexibility to offer their capability and access additional revenue streams. This will help providers value stack, which will support efficient investment in technologies that can provide the services the system needs.

However, any new market design must provide opportunities for <u>independent</u> aggregators (not just retailers) to participate on behalf of energy consumers. This is the clear lesson of opening up the NEM's FCAS markets to independent providers. Participation in the FCAS markets using aggregated loads is an opportunity that has been open to retail customers for many years, but until the ancillary service unbundling rule change came into effect in 2017, only one large customer load did so. Enel X's portfolio of commercial and industrial energy users now represents about 20 per cent of the contingency raise FCAS markets – driving competition and lower prices for all energy consumers.

And while we support a technology neutral approach, the reality is that the supply and demand sides of our system are made up of a range of technologies with varying capabilities. Market design should, to the extent feasible, seek to maximise market participation by accommodating these various capabilities. Having one set of rules that applies to all technologies doesn't achieve "technology neutrality" if those rules are better suited to some technologies.

Lastly, it's not just a matter of creating new markets and pricing the required services. AEMO's current market registration processes present a significant administrative and financial barrier to new providers of *existing* services, particularly those that do not fit the traditional market participant mould. If we are expecting distributed energy resources to participate in these new market frameworks, such barriers to entry must be addressed as well.

2. INTERACTION WITH AEMC PROCESSES

The issues being addressed by the ESB in the resource adequacy mechanisms work stream, ahead markets work stream and essential system services work stream cover issues that are currently being assessed by the AEMC through several rule change requests.

The ESB and AEMC processes are very different, including with respect to scope, degree of stakeholder consultation, assessment framework and outcome. While AEMC processes can lead directly to rule changes, the ESB process will result in a recommendation to the COAG Energy Council, after which the next steps are unclear. It would be helpful if the ESB and AEMC provided greater clarity on how any solutions proposed under the two processes will be reconciled.

More specifically, we encourage the ESB not to duplicate consideration of the issues that will be addressed through these rule change processes. Doing so can in itself create market uncertainty, and will strain the industry's capacity to contribute meaningfully to each process.

In Enel X's view, the best way that the ESB can add value is by providing guidance on how all of the pieces of the market design puzzle fit together.

3. MDI A: RESOURCE ADEQUACY MECHANISMS

3.1. Sharpening real time prices

Changes that seek to improve real time price signals will help encourage new investment in capacity, whether that be demand flexibility, batteries or generation. The introduction of five minute settlement and the wholesale demand response mechanism in 2021 will improve price signals for dispatchable capacity and explicitly enable the demand side to respond to these signals. It would be prudent to wait and understand the impact of these reforms on real time prices and projections of resource adequacy before introducing any additional mechanisms.

If the ESB believes that further sharpening of real time prices is required, Enel X agrees that an operating reserve is the option worth exploring in more detail. Sharpened real time prices would provide a stronger incentive for resources that are able to respond at short notice during times of scarcity. However, it's not clear from the paper how an operating reserve would work in practice, and thus how this "sharpening" would occur. Specifically:

- Would operating reserves be procured at all times, or just in periods of tight supply/demand? The decision on this will affect the attractiveness of the market. Markets/mechanisms that are turned on and off make it difficult for providers to participate.
- What would a participant in the operating reserves market be required to do when called on? Offer into the energy market?
- Would market participants be able to offer into the energy market *and* the operating reserve market? Surely the objective should be to incentivise as much capacity to participate in the energy market as possible, with the operating reserves market and RERT mechanism only used as backstops, provided by resources that otherwise cannot participate in the energy market.
- It is not clear what the impact on the clearing prices for reserves, energy and FCAS would be. Modelling of this would be beneficial.

The design of an operating reserves market is critical to its effectiveness. Enel X generally supports the model proposed by Infigen Energy in its rule change request, which seeks to establish an operating reserves market akin to the FCAS markets.[2]

A well-designed operating reserve would have the following characteristics:

- **Market based.** A market-based approach would provide a clear price signal for the need for operating reserves. Co-optimisation with the energy and FCAS markets would, if effective, direct capacity to where it is most needed, leading to efficient pricing outcomes across the three markets.

[2] Enel X's detailed comments on this proposal are set out in our submission to the AEMC's consultation paper on the system services rule changes.

- **Technology neutral.** An operating reserve market must be open to both the supply and demand sides, to maximise participation and support investment. Similarly, the technical requirements of the service should be designed to maximise participation by resources with valuable capabilities.
- **Sufficient notice period for dispatch.** While the wholesale demand response mechanism will go some way to bringing demand response capacity into the market, some energy users cannot respond to real time dispatch instructions. An operating reserves market with a sufficiently long notice period (at least 30 minutes) could bring more demand response resources into the energy market.
- **Flexible ramping profile**. Very few loads can follow a linear ramp up or ramp down profile, so some flexibility in this regard is required when determining the notice period for dispatch and the dispatch duration.
- **Permit over-delivery**. Demand response must be able to over-deliver, if dispatched. This is currently permitted in the FCAS markets, and it allows an aggregator to over-subscribe demand response resources to ensure its total capacity requirement is delivered reliably when needed.
- **Certainty**. A well-designed mechanism would give the industry greater visibility of the volume of reserves required and associated costs, and more clarity about the procurement process. These are some of the shortcomings of the current RERT mechanism.

A well-designed mechanism might incentivise some existing demand response capability to offer reserves where it otherwise would not, including the kind of capacity that cannot or is not incentivised to provide wholesale demand response. Ultimately, the degree of participation in the mechanism will depend on the prices being offered and the requirements for participation.

An investigation of the relative costs and benefits of an operating reserve vs. the status quo would be beneficial.

3.2. Strengthening signals for investment

The NEM's scarcity pricing arrangements encourage the efficient dispatch of *existing* supply sources. However, it is difficult for businesses to make an investment in *new* capacity on this basis. Capacity mechanisms, if well-designed, can provide the assurance needed for businesses to make investments in new capacity. They also result in substantially lower cost of capital to generators, and provide greater assurance to governments and system operators that the reliability standard will be met.

However, AEMO's 2020 ESOO states that unserved energy is not forecast to exceed the reliability standard in any NEM region over the next nine years. For the upcoming summer, unserved energy is not forecast to exceed even the interim reliability measure of 0.0006% in any NEM region. These findings suggest that existing market signals and other measures are providing the necessary capacity to meet projections of future demand. The RRO and the interim out of market reserve have been put in place to assuage further concern about meeting the reliability standard.

As noted in the paper, there are a number of reforms underway that are likely to enhance resource adequacy in the NEM. Enel X recommends that the ESB assess the impact of these substantial reforms before looking to implement any additional resource adequacy mechanisms, which come at a cost to consumers.

If the ESB concludes that stronger signals are required, or that wholesale price volatility cannot be relied upon to drive investment, then any new/expanded capacity mechanism should:

- be technology neutral, to ensure all capable technologies, including demand flexibility, are able to offer capacity and be remunerated on equal footing
- have standardised, tradeable units of resources, to support market liquidity and thus greater competition and lower prices for consumers
- be capable of delivering the required reliability characteristics (most notably response time) both now and into the future.

We do not support the RRO framework as the basis for developing a permanent capacity mechanism. The on/off nature of this framework and the uncertainty about how demand response can participate provides little incentive for investment in demand flexibility. An expanded RRO would also further entrench gentailers' market power, particularly if there was a requirement for contracts to be physically backed. Under such an approach, it is unlikely that the NEM would see any new investment in demand-side capacity or meaningful participation by third-party operated DER, including energy storage.

3.3. Consequential changes to RERT

As noted in the paper, we expect that there would be less need for the RERT should an operating reserve mechanism and/or capacity market be introduced. However, until those decisions are made, it is not clear what consequential changes to the RERT, if any, would be needed.

4. MDI C: ESSENTIAL SYSTEM SERVICES

Enel X agrees that there is a need for additional mechanisms to support system security as the energy mix changes. We support the ESB's preference for real-time markets for services where the system and technologies allow.

The introduction of an FFR market is a "quick win" that would go some way to resolving system security concerns in the short term. The NEM's FCAS markets have, to date, functioned well, and provide an excellent starting point for the design of new system service markets.

And, while agility is important as the system changes, giving AEMO too much control over which services are needed and how they are delivered is likely to create uncertainty for market participants and limit investment.

4.1. Operating reserves

Enel X's comments on an operating reserve mechanism (in the context of reliability) are set out in section 3.1.

The regulatory framework has to date made quite a clear distinction between reliability and security, and the services procured to achieve these outcomes. An operating reserve that provides both reliability and security services would seem to blur this distinction, but the overall objective is still the same: to ensure that there are enough resources on standby to provide a response that restores the supply-demand balance.

An FFR market and an operating reserve could book-end the existing FCAS markets to deliver on this objective – from a very short time horizon (e.g. a 0.5-2 second FFR market) through to a longer horizon (e.g. a 30 min reserve product). This suite of services would provide a range of markets for existing resources with different response times to offer capacity, giving assurance to AEMO that it has the tools it needs to ensure a secure and reliable system in a future of increased uncertainty.

4.2. Frequency control

The NEM would benefit from an 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 improve the capability of the system to respond to contingency events as the level of inertia in the system reduces.

We generally support the proposal made by Infigen in its rule change request: two new FFR markets – raise and lower – that operate in the same way as the existing FCAS markets.[3] Again, the design of any market must be technology neutral. Demand side resources can provide a high quality FFR – in many cases providing a faster response by dropping load (in as little as 0.5 seconds) than generators increasing power output. Given this capability, it is important not to preclude demand side participation by requiring FFR resources to provide a proportional, rather than switched, response.

Similarly, we support the development of a mechanism that values primary frequency response where that service can be provided on a competitive basis.

4.3. Inertia and system strength

Enel X agrees that there are several system services, including inertia and system strength, that are not currently appropriately valued in the NEM. Introducing markets for these services would provide a price signal to encourage investment in and the ongoing provision of these services. It would also be much less distortionary than the current approach, where AEMO issues directions as a workaround for the absence of markets. Co-optimising these new markets with the existing energy and FCAS markets would allow the system to be supported via an efficient – and so lowest cost – mix of services.

However, defining and developing markets for these services, and identifying how they can be co-optimised with existing markets, will be a complex task, particularly in the case of location-specific services like system strength. So, while important, their consideration should not hold up other "quick wins".

The paper suggests that the only providers of certain essential system services will be synchronous generators. This should not be the starting proposition. The design of any procurement mechanism/market for inertia and other services must be technology neutral, and not based on the capability of the existing providers of these services. A well-designed market will provide signals for the development of new technologies that can provide the service, e.g. synthetic inertia. The framework should also recognise that the service could be provided by decentralised resources.

5. MDI D: SCHEDULING AND AHEAD MECHANISMS

It is not clear from the paper what issue is trying to be solved through the creation of an ahead market. Is it intended to provide price certainty for market participants, or resource certainty for AEMO? The objective of a *voluntary* ahead market would seem to provide price certainty for those participants seeking it. If not compulsory, could it provide AEMO with sufficient assurance of resource availability?

Further analysis and consultation on the following would be beneficial:

- the impact of an ahead market on real time prices, which are the basis on which participants currently make investment and operational decisions

[3] Our detailed comments on this proposal are set out in our submission to the AEMC's consultation paper on the system services rule changes.

- how the co-optimisation process would work without undermining overall market efficiency
- the actual impact that increasing variance between pre-dispatch and actual prices is having on participants' commitment decisions and AEMO's ability to schedule resources, and whether this is best addressed by an ahead mechanism.

Many of the issues set out in the paper as justification for the consideration of ahead markets will potentially be addressed by the other proposed reforms (e.g. introduction of system strength service). Thus the case for an ahead mechanism is not clear. As noted in the paper, market participants cannot converge on a dispatch that meets system service requirements "because there is no price for it to respond to". The failure of dispatch to converge may be driven by AEMO's interventions, or expectations of such. Pricing the required services therefore seems to be the first logical step.

Nevertheless, ahead markets are common in international markets. And there may be a benefit for some demand response providers if they are able to lock in a price ahead of time and schedule their operations accordingly. However, the value of this will depend on what price is available, and how much time they need to prepare for a demand response event. Given the potential for system conditions and prices to change over a day, a day-ahead market is unlikely to provide much benefit for a customer that only needs an hour or so to make a decision on participation (based on price) and prepare for an event.

Ultimately, the degree of participation in a voluntary ahead market will depend on:

- the attractiveness of the prices there
- what obligations are imposed on participants who are cleared in the ahead market
- how much market participants value price certainty ahead of time.

As with our comments in previous sections, if an ahead market is to be introduced, it must enable participation by independent aggregators, not just retailers.

Enel X would support further analysis and consultation on ahead markets, and their suitability in the context of the other reforms.

6. MDI E: TWO-SIDED MARKETS

6.1. Enabling and incentivising demand response is critical

Enel X supports the ESB's efforts to identify mechanisms that would support greater participation by the demand side in the wholesale market. We also agree with the ESB's conclusion that "the value of a MW of demand saved is equivalent to the cost of a MW of supply that does not need to be generated" and, as such, customers or their demand response aggregator should be paid the spot price for any reductions in demand they offer.

Demand response has an important role to play in providing a low cost means to help maintain reliability and security. Enel X has partnered with more than 200 commercial and industrial businesses to manage over 400 MW of flexibility assets across Australia and New Zealand. Our customers curtail load and offer their generation capacity to maintain security and reliability via the energy and FCAS markets, and the RERT mechanism.

However, the NEM's demand response capability is largely untapped. We estimate that there are over 2.5 GW of latent capacity that could be activated to provide demand flexibility across a number of Australia's commercial and industrial sectors. This includes the capability in pumps, chillers, compressors, uninterruptible power supplies and backup generators. The incentives for businesses to

offer this flexibility will increase if the signals are there to support its enablement. Tapping into this significant resource will reduce the need for investment in more expensive generation and network capacity. It also requires specialist skills that independent demand response aggregators bring to the market.

6.2. Designing the framework

As noted by the ESB, there are still a number of barriers to demand response participating in the NEM. The ESB's first priority should be reducing those barriers.

Below are Enel X's comments on some design aspects of the proposed two-sided market.

Scheduling

It's not clear why the starting assumption is that a customer's consumption must be scheduled in order to receive the spot price. Requiring loads to schedule their consumption, and be subjected to the various other scheduling obligations, only adds more barriers to customer participation. Similar proposals in other jurisdictions, e.g. NZ, have seen very limited uptake by the demand side when there is a requirement to be scheduled. Rather, the key is in the separation of retail supply from flexibility, which is what the WDRM will achieve. In this way, the customer's flexibility can be scheduled, but their energy consumption does not have to be.

Enel X understand that AEMO would prefer to have a greater degree of oversight and to know what resources are available to be scheduled and dispatched. However, we consider the focus of the ESB's reforms should be on reducing the existing barriers, given the low base of demand response that the NEM is starting from. As more demand response enters the market, perhaps once a certain threshold is met, then further consideration can be given to visibility.

Participation by independent aggregators

A range of new business models are emerging in line with the emergence of new technologies to manage all aspects of customers' energy use. The ESB should not entrench the traditional retail model by assuming that it will continue to be the dominant model of electricity supply in the future.

The framework must allow for and incentivise entry by independent aggregators (i.e. non-retailers) and technology providers to deliver an efficient level of flexibility. To date, retailers have delivered very limited amounts of demand flexibility in the NEM. The ESB will therefore need to be careful to ensure that the design of the two-sided market does not inadvertently exclude provision of independent aggregation services or fail to remove critical barriers that currently exist.

The ESB has recognised the existing barrier created by the requirement that there only be a single FRMP at a connection point.[4] This prevents customers from engaging independent aggregators to access the wholesale market on their behalf, and is therefore an essential issue to resolve to bring additional demand flexibility into the market. In part it's for this reason that the WDRM was introduced, to allow customers or their independent aggregator to access the spot market without the involvement of the retailer. While this is a welcome development, the WDRM is not appropriate for all potential providers of demand flexibility, some of whom may not be able to participate in a 5-minute market. Thus, the issue of multiple FRMPs still needs a resolution, but it's not clear from the paper that there is a path forward on this.

There are also contractual barriers to participation by independent aggregators. In Enel X's experience, many business customers have retail contracts that inhibit or explicitly prohibit their ability to engage in

[4] ESB, Post 2025 Market Design Consultation Paper, September 2020, p88.

any load management or curtailment activities with a third party, thereby limiting customers' ability to offer their flexibility.

Participation by large customers

The focus of this work stream appears to be on bringing small customer loads into the market. While small customers have a unique set of requirements, including the need for customer protections, there is still a lot to do to bring many more C&I customers into the wholesale market. Although a WDRM will soon be in place, the scheduling and baselining requirements are not suitable for all large consumers.

Thus, in designing a market for small customers, it will be important to ensure it also works for C&I customers. This includes ensuring that the distinction between retail load and flexibility, and the ability for consumers to engage separate providers for each, is a cornerstone of the framework.

6.3. Proposed reforms

Second connection point

During technical workshops, the ESB indicated that the small generator aggregator (SGA) framework could be expanded to included load. This would enable an entity to physically separate out flexible loads and meter them separately, at a new primary connection point with a different FRMP from the customer's retailer.

Enel X, as both an SGA and demand response provider, has a number of concerns with this approach and considers it is unlikely to be a workable solution. Establishing a second connection point:

- requires dedicated wiring from the boundary to the device, which can be deep within the customer's site, creating additional costs associated with re-wiring
    - Further, there is a requirement that if any electrical works are completed on site, the site needs to be brought up to the latest standards. Following a standards change in 2018, this is likely to impact many sites.
- can be highly disruptive to the customer as in many cases the supply to the whole site will need to be switched off
- can be problematic if existing switchboards cannot accommodate a second meter and where jurisdictional wiring rules are overly prescriptive about where meters can be located
- requires the involvement of the local network service provider for any new connection point including assessing the impact on the network
- will impose an additional, ongoing cost to customers as a result of incurring a second set of fixed network charges.

The costs of establishing a second connection point therefore often outweigh the benefits the customer might gain from offering their demand flexibility.

Partly due to the challenges and costs associated with creating a second primary connection point, Enel X sets up generation under our SGA licence via an embedded network, where we can be the FRMP at the child connection point to which the generator is connected. The customer's retailer remains the FRMP at the parent connection point. While there are challenges with this approach, it is more cost effective than setting up a second "parent" connection point.

Requiring demand response providers to establish a second parent connection point would presumably also require them to obtain a retail licence to supply that load. As noted above, aggregators have quite a

different skill set from retailers, as the management and aggregation of flexible load is very different from the bulk supply of energy. In our view, you shouldn't have to become one to provide the other.

Many distributed energy resources and appliances have built-in meters. These cannot currently be used to provide metering data for the purposes of settlement. Amending the sub-metering arrangements to allow this would facilitate the provision of demand flexibility at low cost, and by multiple service providers. And, while it is important that metering is as accurate as possible, we question whether sub-meters (or downstream meters) require the same degree of metering accuracy or traceability standards as the primary (or upstream) meter. Any errors will only affect the allocation of energy between the upstream and downstream meters, with no impact on global settlement or on the amount of energy the customer pays for.[5] We therefore consider this to be an avenue worth exploring.

Consolidating market participant categories

Consolidating registration and classification may help simplify registration processes and so make it easier for new participants to enter the market. However, the potential benefits shouldn't be overstated. Despite the administrative and financial barriers mentioned above, market registration in itself is not a critical barrier to the provision of demand flexibility by independent aggregators. Without more fundamental reforms, this proposal will not achieve greater demand side participation in the NEM.

Scheduled lite

There is much to be done to encourage demand response into the market, and some way to go before demand response reaches sufficient size to warrant scheduling. However, if this remains a central tenet of the two sided market, we agree with the ESB's view that the obligations around participating in central dispatch should be reduced in order to remove barriers to aggregating supply and demand.

In the absence of further detail, it is difficult to comment on whether a scheduled lite approach would encourage demand flexibility to enter the market.

7. MDI F: VALUING DEMAND FLEXIBILITY AND INTEGRATING DER

With the rapid uptake of new technologies that enable customers to use their energy more flexibly and add value to the wider system, Enel X agrees there is a need to consider how flexible demand can be integrated into market frameworks.

As a first step, it would be useful to define what is meant by "distributed energy resources". The term is often used to describe solar PV, batteries, electric vehicles and home management systems. However, there is not a comprehensive definition within the consultation paper. It is not always clear where the boundaries of the term lie, particularly in relation to demand response.

Perhaps because of the focus on DER as encompassing technologies like solar PV, EVs and controllable air-conditioning units, discussions on integrating DER often tend to focus on the household level. As noted in the previous section, small customers require a specific set of considerations, particularly

[5] In Great Britain, a code change proposal (P375 'Metering Behind the Boundary Point') currently under consideration would allow sub-metering of assets for balancing mechanism purposes. The proposed Asset Metering Code of Practice 11 (https://www.elexon.co.uk/wp-content/uploads/2019/09/CoP11-Asset-Metering-for-use-in-Balancing-Services-Registration-Validation-v0.5-FINAL.docx) allows fairly relaxed accuracy requirements for devices under a certain threshold (e.g. an error between -3.5% and +2.5% for devices less than 100kW), as well as not requiring them to have displays. The proposal would also allow DC metering. The expectation is that devices such as EV chargers and inverters will start to include built-in CoP11 metering as standard.

around ensuring appropriate consumer protections. However, DER integration issues for C&I customers should not be overlooked.

We agree that it is appropriate to characterise the integration of DER and development of a two-sided market as "flexible demand", and to combine these two work streams.

Frameworks for integrating DER must also make sure there are sufficient incentives for consumers to continue to invest in DER, including at the C&I level. The more that DER is subject to technical or regulatory requirements, rather than acknowledging and extracting the value that DER can contribute, the lower the value to customers that choose to invest in DER. Ultimately this could risk dis-incentivising investment in DER by customers, with flow-on effects to all customers if DER cannot be used in place of more expensive investment in centralised generation capacity and networks.

Where technical or regulatory requirements are considered necessary for reasons such as system security, these should be implemented in such a way so that the requirements do not create unnecessary barriers to uptake.

How willing customers with DER are to use their investments to benefit the wider system will depend on their ability to value stack across different markets. This will depend not only on providing access to those markets but on ensuring that market participation is not overly complex. Further, market participation will be maximised when customers offering flexibility aren't exposed to unnecessary downsides, such as being penalised for un-forecast changes in consumption, or requiring rewiring, or having to surrender control to the DNSP in some circumstances.