Locked Bag 14051
Melbourne City Mail Centre
Victoria 8001 Australia
T: 1300 360 795
www.ausnetservices.com.au

May 18, 2020

Dr Kerry Schott AO
Chair
Energy Security Board

Via email: info@esb.org.au

Dear Dr Schott,

RE: Response to Energy Security Board (ESB) Consultation Paper on Two-Sided Markets

AusNet Services welcomes the opportunity to comment on the Energy Security Board's (ESB') consultation ('this Paper') on two-sided market reform issued in April 2020.

AusNet Services owns and operates Victoria's electricity transmission network and distribution network for the eastern half of Victoria. The significant growth of new renewables generation across both networks will require that this be transitioned in a reliable, least cost manner whilst enabling consumers to participate and respond. Accordingly, our business has interest in this market reform and the broader 2025 program.

The key points in our submission are:

- We see significant potential to our energy system from a more active demand-side but a scenario-based transitional pathway would best address the inherent complexity and challenges to achieve outcome;
- A rigorous cost-benefit analysis should precede the implementation of a two-sided market;
- Caution is needed when considering mandatory extension of a two-sided market to residential customers, as it needs to consider complexity, cost, and protections to reflect different status of households to large businesses;
- Locational marginal pricing is challenging and publishing technical operating envelopes for export/charging provides more appropriate support for efficient investment decisions in distribution, particularly residential; and
- An operational DER framework in distribution will support a two-sided market but this does not require a complex model.

1. Benefits of a two-sided market

Benefits from reform

AusNet Services agrees with the general principle that a bilateral market, with greater responsiveness to price from the demand side, would produce more efficient market outcomes and lower energy prices.

However, the path to achieve this ultimate objective is complex and challenged.

AusNet Services recommends a scenario-based roadmap to a two-sided market be developed as part of this P2025 Review to identify, sequence and prioritise necessary reforms, technological capabilities and policies that would enable progress towards a two-sided market.

Given the extensive interaction between the two-sided markets workstream and other reform workstreams across the entire electricity supply chain, acknowledged in Figure 1 of the ESB's Consultation Paper, it will be important to lay this thinking out to better understand the steps and changes required to enable a two-sided market.

The above would assist in assessing how a two-sided market regime would unlock new demand response, in quantities and price, and any cumulative reduction in overall energy cost for consumers, beyond what our current one-sided market regime can achieve.

In theory, benefits would be energy cost savings driven from:

1. Genuine new response by customers, either directly or via a 'trader', to adjust bid demand volumes to price; or
2. Potential for more accurate demand forecast by Retailers and Aggregators under a two-sided regime, rather than AEMO – avoiding cost of inefficient supply or ancillary services otherwise scheduled.

Demand response exists in the current market, but in small quantities. The reported potential for NEM demand response is ~3,500MW[1], representing some 10% of 32,000MW of peak NEM demand in 2019-20. However, less than 300MW are forecasted demand-side participants, with 2,600MW relating to network-controlled loads for water heating that are already factored in AEMO's demand forecast.

This highlights the complexity in assessing likelihood of effective demand-side participation from this reform and resultant impact on total energy costs. Customers need to have availability (discretion to respond within their energy use profile); capability (technology to participate in wholesale dispatch); and behavioural incentive (price threshold and appetite to adjust demand).

We note these are challenges in the Retail market and framework that need addressing. We recommend the proposed pace on implementing elements of two-sided wholesale market design should accommodate expected progress on those challenges. They should not be underestimated and should inform the appropriate transition path.

Cost-benefit analysis required

The ESB's Post 2025 Market Design Issues Paper sets out that any proposed framework design should promote the long-term interest of consumers, in terms of affordability, satisfaction and reliability.

In line with this, we support a rigorous analysis of customer benefits and cost of implementation be undertaken as part of this reform, in addition to the qualitative principles outlined in the Issues Paper's assessment framework.

This cost-benefits analysis should precede any market reform implementation, and confirm the 'best' value outcome having regard to:

- Practicable design options as offered (whether the indicative models suggested in this Paper or not);
- A comparative baseline of existing mechanisms or reforms in-play.
  For example, given the purpose of implementing the wholesale demand response mechanism (~Oct 2021) is to elicit additional response from large customers, the benefits of any two-sided market design option should be measured relative to a baseline which includes outcomes from the wholesale demand response mechanism; and
- Other reforms that may already achieve some of the same customer benefits.
  For example, this Paper on p6 refers to benefits of addressing minimum level demand issues (during high solar PV days) through customer response to increase consumption under a two-sided market. Minimum demand issues could be addressed by wholesale dispatch co-optimising with distributed resources, whether via one of the various DER operational frameworks as examined by the Open Energy Networks project, or implementation of working VPP aggregation model.

A critical examination of implementation costs, and associated cost certainty, should be conducted. This is best supported by further work on a detailed definition of technical and operating model design of the proposed option, across market participants materially affected.

Customer segment

It would be prudent to assess learnings from the implementation for *Wholesale demand response mechanism* rule change to inform a wider two-sided market design. The AEMC draft determination concludes, amongst other things, that:

[1] AEMO, Demand side participation forecast and methodology, Aug 2019

- large customers whose demand can be scheduled as part of central dispatch should be the subject of this new rule change, and
- Behavioural demand response, i.e. discretionary change in energy use that is not controllable (which more reflects the current capability of residential customers) is not suited to dispatch.

This suggests large customers are an obvious customer segment to target for additional demand response, with the larger opportunity and controllable capability to respond than residential or smaller customers.

It therefore remains unclear if residential customers, as a group, have, at this time, the technological capability, availability or appetite to participate in scheduled dispatch, that would support a mandatory inclusion in a two-sided market. To the extent technology might be available, as paper suggests, it would need to be scalable, integrated into market systems, and considered a justifiable investment to customers on a case by case basis.

More work is needed to understand whether reasonably credible and workable 'trader' business models are possible to enable reliable scheduling of dispatch for residential customers, and incremental value of doing so.

If traders cannot secure some potential for dispatchable residential customer response, demand bids under a two-sided market regime appear unlikely to improve against those achieved under AEMO forecast in today's one-sided market.

Transitional Pathway

Given the implementation complexity and variability of energy scenarios, we support taking a transitional pathway, involving incremental and staged steps towards the preferred two-sided market. As each stage progresses, the incremental net benefits of a fuller two-sided market should be assessed, to provide clarity and confidence on the continuing investment borne by customers.

2. Key concepts in a two-sided market design

Roles and obligations

The paper acknowledges the need to assess proportionality between demand bid's firmness and market impact before determining a suitable framework to incentivise accurate demand bids. It further observes that this consideration needs to balance against the desire to encourage market participation; minimising barrier for new entrants; and that it may not be realistic that traders can meet dispatch targets in each interval.

We agree with the approach but caution against adding new participants that introduce less certainty into scheduling without a corresponding cost recovery mechanism; or present no material improvement to scheduling and market outcomes. Increased participation should be predicated on reduced energy costs for consumers.

Consumer Protection

AusNet Services supports consumer protections that ensure customers are provided with the right information to understand the impact of their decision, particularly for life support customers, and customers that are vulnerable or with hardship.

Rather than prohibiting interactions for specific services or specific customers, we suggest that the framework supports a safety net provided for residential customers, as a minimum, under 'default terms or price offer' basis. We should align to existing initiatives that address consumer concerns reflected in existing default offer regimes in all States.

Further consideration needs to be given to how any 'risk pass-through' on demand bids operate under 'trader' contracts to customers, but we acknowledge the need to maximise opportunity for market innovation by traders to better serve customer needs. This may sufficiently be addressed by minimum information provision.

3. Interaction with Ahead markets

We do not see a strong dependency between a two-sided market reform to an ahead market. Simply, the current spot market operates without an ahead market, and a two-sided market can operate in the same way. The potential benefit examples as described by the paper could be possible without an ahead market.

We agree that further work to explore this interdependency would be useful. This would be best supported by clarifying benefits of an ahead market that would not otherwise be achieved, or achieved sub-optimally, within the current spot market.

4. Access, charging and integrating DER

Location marginal pricing and network costs recovery

We support the objectives of reforms being considered under the COGATI review that seek to address transmission investment barriers and help improve the efficiency of investments that need to be made. We note its implementation must assist generators to manage risks nor should it impose costs that outweigh its benefits.

Firstly, it is important to draw distinction between:

- locational marginal pricing (LMP) as envisaged under COGATI in the transmission network to reflect locational congestion into the wholesale electricity price earned by generators, and
- the recovery of Network costs for the physical distribution infrastructure.

Simply, LMP represents the marginal value of electricity (as set by supply and demand conditions at that location on the network), with the view that this should incentivise generators to locate in areas with high price, and away from those with low price. Networks costs are not specifically priced in the LMP. Rather, network constraints are used to calculate relevant LMP – insofar as constraints bind and are priced at the marginal value of energy supplied by a more expensive generator.

Secondly, we do not see material benefits in seeking to alter the distribution networks cost recovery framework in support of a two-sided wholesale market intent of promoting efficient short-run dispatch.

- Network costs are largely fixed, varying little in the immediate or short-term. The principal cost driver is to maintain network reliability for our connected customers (whether this involves replacing or maintaining assets to maintain reliability standards and recovery for sunk reliability-driven capital works).

  Varying daily energy use does not materially reduce the need (and work) to address longer-term asset or network reliability risk. Furthermore, delaying upgrades due to increasing consumption requires low-cost and reliable load deferment, typically on days with highest demand and most unfavourable conditions for embedded generation.
- We are cognisant of minimising increasing complexity in pricing for customers.

Thirdly, applying LMP principles in distribution is likely to be challenging and provide poor value for the intended outcome.

Instead, addressing the implications of locational congestion in distribution could be better achieved through publishing technical operating envelopes for export and charging, and embedding the same in network operations. This would better support efficient investment decisions on renewables in distribution, and is being explored by Networks and discussed in the Open Energy Networks project.

- The value of locational congestion, as represented by LMP, scales with the size of generation investments being made. The importance and effectiveness of an efficient locational investment signal in transmission is material, particularly if it can be used to fund a 'financial transmission right' to make that investment. In distribution, and particularly at a small customer lever, generating units are much smaller, indicating the value of a locational signal could be expected to be low.
- Distribution prosumers are different compared to transmission generators. The largest proportion of DER owners are residential customers with solar PVs. They are not commercial operators, and their location in the system is often inflexible; it is unlikely their residential location is decided on the basis of LMP; and the value of such a locational signal could be expected to be low.
- Distribution networks are not currently extensively monitored nor fully modelled at the HV/LV network level. This is a prerequisite to calculating technical operating envelope, i.e. 'safe' capacity, and locational congestion. No distribution business is currently in a position to undertake the latter.

Whilst the exact mechanism is being explored, technical operating envelopes would signal the current capacity to export and charge at key network locations (and, for example, at different times of day) for new connecting customers and, under a more dynamically managed network, optimise the capacity available for same for existing connected customers.

In any event, it would be prudent to consider the learnings from an LMP model operating in transmission and assess the merits of extending a practicable version to distribution. Efforts should be directed at exploring simpler options to harness residential participation and response without exposing customers to complex arrangements.

Open Energy Networks and DER

AusNet Services agree that the existing Networks and AEMO trials, along with Open Energy Networks Project, to develop an operational framework for DER have an important part to play in facilitating a two-sided market.

Key outcomes include:

- Improving sophistication of how Networks monitor and manage technical limits on export or load, for example, a technical operating envelope;
- Optimising network technical limits as proportion of two-way energy flow increases and a higher share of storage increases the variability of demand and export on the network; and
- Assessing a distributed market potential to facilitate participation of DER in the wholesale market and other services.

An established DER operational framework will:

- Allow re-use of same capabilities to equally support dispatch of demand bidding securely within the distribution network, under a two-sided market; and
- Provide more accurate assessment of net demand for wholesale – useful under either a one-sided or two-sided market framework.

Any operating DER framework model that achieves above should support a two-sided market reform. It does not necessarily require a complex model and can include the incremental approach to cost-effective DER integration as proposed by the Energy Networks Association.

Lastly, given a two-sided market is intended to increase responsiveness (and hence, increase potential variability) of demand volume and location, it becomes imperative for network reliability that distribution network operators gain visibility and interaction with participant bids, actions and preferences.

If you would like to discuss any of the issues raised in this submission, please contact Jack San at jack.san@ausnetservices.com.au or myself.

Yours sincerely,

Anh Mai
Head of Energy Market Reform
AusNet Services
(03) 9695 6627
anh.mai@ausnetservices.com.au