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Name of submitter:

Electricity Networks Association

Industry/area of interest:

Utilities/infrastructure

Contact details

Graeme Peters, Chief Executive

Address:

Level 5, Legal House

101 Lambton Quay

WELLINGTON 6011

Telephone:

64 4 471 1335

Email:

gpeters@electricity.org.nz

Mass participation in the electricity market

Submission to the Electricity Authority

Final

From the Electricity Networks Association

Contents

1. Introduction

1. The Electricity Networks Association (ENA) appreciates the opportunity to make a submission to Electricity Authority (authority) on the consultation paper **Enabling mass participation in the electricity market, 30 May 2017 (the Consultation paper).**

2. The ENA represents all of New Zealand's 27 electricity distribution businesses (EDBs) or lines companies, who provide critical infrastructure to New Zealand residential and business customers. Apart from a small number of major industrial users connected directly to the national grid and embedded networks (which are themselves connected to an EDB network), electricity consumers are connected to a distribution network operated by an ENA member, distributing power to consumers through regional networks of overhead wires and underground cables. Together, EDB networks total 150,000 km of lines. Some of the largest distribution network companies are at least partially publicly listed or privately owned, or owned by local government, but most are owned by consumer or community trusts.

2. Submission summary

3. ENA appreciate the opportunity to comment on the potential for mass participation in electricity markets. ENA encourages the authority to engage with industry and support our collective efforts to further the already substantial participation levels by other parties in services for and within distribution networks.[1]

2.1. Network pricing reform is the prime enabler

4. As the authority is aware, ENA members are currently embarked on a significant transformation project to design and implement new distribution pricing approaches which will provide mass market consumers with relative price points to make improved choices about the electricity services they wish to receive. Even without differences in relative network prices[2], we are already seeing significant retail market innovation including spot price-based products and 'hour of power'. As distributors transition to new pricing approaches, which will generally entail some form of peak-related signal, we can expect even further innovation in the retail product markets to take advantage of relative price differences. For example, products are likely to be developed which reward people with solar to store this energy for use or discharge into the grid during peak times.

5. As authority representatives would have observed at the recent, well-attended distributor-retailer workshop on July 4, there is clear appetite and commitment from retailers and distributors to work through the implementation challenges associated with network pricing reform. Network businesses are highly motivated to ensure prices better reflect higher network costs at peak times. This will ensure that it is firmly embedded in consumer psyche that there are clear benefits from limiting discretionary uses during peak periods before electric vehicles become mainstream.

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[1] By way of example many of our members already have both consumers and meter owners investing in assets to provide services to members' networks.

[2] By 'relative network prices' we mean different price points at different times of the day, week or year that consumers can factor into their appliance and use decisions.

6. It seems very likely that as network pricing reforms are progressively introduced to the market we will see some degree of reduction in peak demand as consumers start to react to relative price differences. This is likely to slow the need for network upgrades to meet higher demands, and provide time to transition to what the ENA has suggested will be the second phase of network pricing reform. This will be to overlay further dynamic and location-based price signals to elicit demand or supply responses (what the authority refers to as 'network support') to mitigate or resolve specific localised network issues.

2.2. The Authority must support the whole sector

7. Accordingly, the ENA considers that the most immediate role for the authority is to remain an active and even-handed supporter and promoter of:

    - Network pricing reform. There is likely to be at least pockets of potentially vocal consumer opposition to reform, which may impact on populist political pressure. The authority must play a key role in promoting the long-term benefits of network pricing reform.
    - Retail market competition. We understand the authority has been active in assisting new entrants into the market by explaining the market rules they must comply with and promoting the benefits of shopping around for electricity retailers that best meet a consumer's needs. Much of this focus has been on price savings, but in future, as retailers differentiate further on types of price offerings and service offerings, the authority will have an important role to play in assisting consumers make comparisons. It is now clear that websites like 'Powerswitch' and 'what's my number' already need to be capable of accommodating significantly different pricing arrangements and need to use much more complex consumer data (e.g., consumption profiles, not just annual consumption).

8. Over the longer term, the ENA submits that the authority and/or MBIE should carry out research on the following matters:

    - The sustainability and desirability of the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations (the low fixed charge regulations). The other side of low fixed prices are high variable prices (be that capacity, demand, or time of use). Such high variable prices may over-signal the merits of consumer responses (for example, the network support benefits of discharging a battery when there isn't a network constraint). Worse still, rather than see consumers shift demands from peak to off-peak periods, there may be inefficient substitution to other energy sources.
    - The impact of the formulation of the 'continuity of supply obligations'. Distributors are required under the Electricity Industry Act to continue supply to customers that connected prior to 1993. However, it is likely that network support or network alternatives are likely to be most economic at the fringes of networks on long rural spurs. The current formulation of the obligation to continue supply provides effective veto rights to single consumers even if all other consumers on a feeder were willing to take alternative sources of supply.
    - The merits of permitting multiple traders at an ICP. In many markets consumers can choose, on a daily basis, who they wish to trade with. Would participation be enhanced if a consumer could choose a retailer for their purchases and another party for their excess solar sales?

2.3. Distributors actively support mass participation

9. From the tenor of the consultation paper, the authority appears to be concerned that distributors acting in their 'privileged position' would seek to undermine or limit the growth of network support services provided by others, while at the same time noting that distributors need not own or control the assets that provide such services. We do not share the authority's concerns that distributors may seek to monopolise these adjacent markets/services. As we note above, distributors are focussed on a transformational change project which will enable price signals of the value/cost of consuming at different points in time to be put in the market. Our expectation is that retailers and third parties will build value propositions to consumers based on network, transmission and energy market signals which will further enable mass participation.

10. With respect to existing mass participation, it should be noted that in many, if not most cases, distributors do not own the ripple receivers, the hot water cylinders, or the meters on their own networks. It is therefore hard to envisage that there would be an attempt by distributors to prevent competition in equivalent new services that could be provided by batteries or any other new technology. In short, it is ENA's view that so long as the pricing reform process can progress effectively, the opportunity for mass participation will follow.

11. Members consider that some of the questions in the paper are well ahead of any evidence regarding further mass participation in distribution services and they will likely promote uninformed speculation in response and could stifle network planning. We also consider the authority positioning distributors as being privileged is untrue and unhelpful to this or any other discussion. The purpose of Part 4, (in s52A), is to ensure that Part 4 regulation replicates outcomes of a competitive market. Accordingly, we consider this a substantial restraint on distributor behaviour and that privilege would occur if distributors were unconstrained.

12. Further, parts of both the Electricity and Commerce Acts were written for the purpose of EDB restraint. If issues relating to whether these arrangements work, in light of industry disruption, and/or that natural monopoly characteristics no longer hold, then that is a discussion to have at policy level.[3] Put simply, we do not see evidence of harm to customers from current arrangements. Hence, we are unclear as to the problems that need to be solved in respect to this consultation.

13. ENA also submits that there is significant opportunity for New Zealand to learn from overseas experiences. New Zealand is in the fortunate position of having a strong renewables portfolio in the energy market, with significant flexibility in the hydro system to manage large intra-day variability. We also have a legacy ripple control system which provides significant demand-side flexibility, given the size of water heating loads relative to household demands. Every household needs water heating and the incremental cost of making that controllable is small, with no loss of consumer benefits. While battery storage and home energy management technologies appear to be advancing quickly, what network benefits they offer in New Zealand is unclear relative to the substantial cost.[4] The ENA suggests that

[3] In saying this, we do recognize that the authority has a role in market monitoring which could result in recommendations for change being made to the Minister.

[4] To put this in context: the installed cost of a ripple receiver might be $150, and offer 3kW of controllable load. Conversely, a battery might cost $10,000 and offer 5kW of capacity. The key point is that there are orders of magnitude difference between the costs of the

participation beyond existing levels is likely to evolve more from ensuring that, at a high level, the regulatory settings will allow an efficient level of participation to develop, rather than indulge in more detailed code changes.

2.4. Effective enablers for greater participation

14. The ENA recommends that a primary precondition (or enabler) to greater levels of efficient mass participation is to have price signals that reflect costs and relate to services that are bought or sold. This then should provide efficient outcomes. To the extent that demand is disengaged from market participation, this too could be seen as a precondition that also needs to be overcome.

15. A number of authority questions in this consultation paper relate to market structures and participant conduct. The issues around market structure and conduct, in light of the potential for technology and market changes, were considered carefully by the Commerce Commission during their 2016 IM review. The questions are therefore pre-emptive of MBIE undertaking its policy role following the IM review. We consider that the authority should be considering Code changes (if needed) as aspects of *enablement*, but that the structural regulation of the sector sits outside of its domain.

16. The other key issue to remember will be how the network is balanced in real time with these evolving markets. The reality is that most people will continue to place demand on the networks at the same time and those who are able to inject (or offer demand response) may be unwilling to do so at peak time. Valuing/monetising these alternatives will be challenging but is critical to the development of further market participation.

17. While these new technologies and commercial opportunities are exciting and have the potential to offer greater consumer choice, ultimately the EDBs have responsibilities to provide secure and reliable electricity supply to consumers. Having EDBs involved in this process means that they can also be conscious of any negative effects on system reliability/security that may arise.

18. We are also mindful that EDBs also have a service obligation to their consumers. While ownership or direct control of non-network solutions may not be necessary to provide service delivery, a non-network alternative would still largely have to have the characteristics of a network solution.[5]

19. We have considered the authority's current work programme against our feedback to this consultation paper and we are satisfied that our prime enablers – support of pricing reform, improved retail market competition and the potential for multiple trading arrangements will assist with participation and market developments.

current technology to achieve effective network management and the costs of battery storage technologies, so there is significant time for New Zealand to observe how such technologies are integrated into other markets and the regulatory setting that enable this to occur.

[5] By way of example, because most EDBs don't own the ripple receivers at consumers premises, clearly ownership is not an issue for EDBs.

3. Responses to Authority questions

Question	Comment
Q1. What is your view of the potential competition, reliability and efficiency benefits of more participation?	In principle, more participation in markets is a good thing, provided that transaction costs make it viable for both entry and participation. It is also important that market structures develop in a manner that will promote the right conduct by participants resulting in the desired outcomes (consumer engagement, competition, and efficiency). At this stage, we are unable to comment much on reliability but this will need to be managed as markets that develop for distribution network services will likely impact performance of these networks.
Q2. What is your view of the opportunities to promote competition and more participation in the electricity industry?	As in Q1 above the market conditions need to be such that market entry is available and is not cost prohibitive. Opportunities for greater participation already exist under today's market structures. We are beginning to see how this will develop over time. ENA members actively support the developing market participation but for this to develop on a growing scale, members consider that there are a necessary set of conditions (or enablers). First, the price signals must be right. This is the priority that the industry is working on and is part of the authority work programme. Second, the customer must be able to adopt new services including being supplied or receiving services through multiple trading arrangements. This will facilitate customer choice, which will become increasingly important over time. To facilitate this, attention is required at the retailer-customer interfaces so that multiple trading relationships can develop and be managed. Unlocking customer choice via these changes will challenge existing ways of billing and settling energy data so that new entrants can offer innovation.
Q3. What other issues might inhibit efficient mass participation? Please provide your reasons.	There appears to be a material gap/disconnect between the economic and market regulators. This will increasingly impact the efficient performance of existing regulated entities as well as the entry and performance of new participants. We recommend MBiE review the industry arrangements including the continued merits of the delineation of responsibilities between the statutory regulators. Other government policy issues, including health and safety will

	likely need to be taken into consideration. It is important to keep the frame of this review in perspective and ensure that the review is for 'the long-term benefit of consumers and New Zealand'.
Q4. What is your view of the opportunities for network businesses to obtain external help to provide aspects of the network service using competition or market mechanisms?	This is an area of participation that already exists for many ENA members and members agree that the current situation provides a good basis for exploring further opportunities. We note the Lightning Lab mass market demand aggregation project that is underway with ENA support, as an example of new opportunities.
Q5. What do you think are the main challenges to be dealt with to increase the use of competition in supplying network services? What are your reasons?	We have commented earlier about the existing, substantial levels of participation among our members, and that we see opportunities for growth in the future. We need to get the enablers in place so that greater participation in a broader range of markets can develop. By enablers we primarily mean getting the prices right and enabling multiple trading arrangements for end consumers so that we can build on the solid foundation of participation that already exists. Getting the price right allows participants to have the market signals that allow them to act on how they see their participation opportunities unfolding. At the 4 July pricing reform workshop, participants agreed to initiate joint EDB/retailer technical implementation workstreams to enable network pricing reform to be carried out. Resolving these technical issues will also be required for the second phase of pricing reform involving a further overlay of dynamic and location-specific price signals.
Q6. What is your view on whether open access is required and what would be the elements for an effective open access framework?	Open access for participants already exists, as we have identified earlier in our submission. Part 3 of the Electricity Act and Part 4 of the Commerce Act both deliver open access to members networks. Our priority is to engage consumers in the first wave of network pricing reform and then, given the inherent flexibility in the NZ system plus the excellent system we already have for ripple control, we can learn from the experiences and value propositions in other markets to enable further mass participation in the provision of network support services.
Q7. How effective are the existing arrangements for open access? What are the	The existing levels of participation suggests that access arrangements are adequate. This is a good base on which to build greater levels of participation. We consider this is

problems?	a future workstream and part of the second wave of reforms after the enablers – pricing reform and multiple trading relationships, are realised.
Q8. What type of distributor behaviours and outcomes should the Authority focus on to understand whether changes are required to support open access?	ENA members consider that the existing access arrangements form a solid foundation on which to build markets for distribution services. ENA members consider that the authority and stakeholders should view the existing access arrangements as an appropriate starting point and allow them to evolve as opportunities emerge. These are new technologies and nascent markets and it is sensible for EDBs to play a role in developing these markets before thinking of regulatory intervention. If market participants (including EDBs) can generate good evidence that issues are arising, then the authority (or the Commission as appropriate) can consider making changes, but it is dangerous to do so without any evidence of likely detriment. Ignoring evidence risks raising the costs to customers to pay for the transaction costs involved with potentially unnecessary prescriptive regulation. Members also consider that the authority should not ignore retailer behaviour when considering promotion of competition and efficiency. 'Zero dollars down' offers for solar or battery solutions bundled with electricity retail, which lock consumers into 15-20-year contracts but allow retailers flexibility to vary electricity retail prices, may be a hindrance to competition and efficiency. The authority should consider whether enhancements to price comparison websites need to include these wider service offerings to enable consumers to make informed long-term commitments.
Q9. What changes to existing arrangements might be required to enable a peer-to-peer electricity exchange?	The only genuine peer-to-peer exchange of physical electricity is, for example, for a solar producer to fill up a battery and provide it to a purchaser. The export of solar generation into a network and use by another can be likened to one person throwing a bucket of water into a lake and simultaneously another person withdrawing a bucket of water. There is no peer to peer physical exchange, merely a notional financial transaction. The authority should not ignore this fundamental 'physical laws of electricity' reality, and therefore the ENA submits that there is little preventing retailers from providing notional products to allow for pseudo peer-to-peer exchange. Potentially an enhancement could be made to current arrangements to provide for multiple traders at an ICP so that a consumer may be able to sell exported solar power to a different trader than the retailer they purchase energy

	from. Alternatively, this could simply be by arrangement between retailers, who could reconcile imports and exports between them.
Q10. What are the costs and the benefits of enabling peer-to-peer electricity exchange?	As per ENA's response to question 9, it is clear that the market already provides for peer-to-peer trading to occur at a financial level, but that physical trading is impossible given the pooled nature of the electricity supply chain.
Q11. What is your view of the possibility for, and impact of, any current or future blurring of participant type? What are your reasons?	It is not clear who the participants will be and how they will participate. It is likely some participants could fill more than one role in the 'services stack', but any comments on blurring of participant types would be pure guess work at this stage. Another important point to remember is that disruption often comes from non-participants.
Q12. What types of participation are or might be prevented because the party is not recognised as a participant? What are the potential impacts?	Issues with participant recognition will likely identify themselves as opportunities emerge and if market participation is revealed as having problems. Remember: identify and scope the problem; analyse and identify options for remedy; and then devise solutions!
Q13. What challenges might new forms of generation, such as virtual power plants, or small and dispersed generators, face in entering the market?	We have commented elsewhere in this submission about the importance of early consideration of multiple trading relationships and encourage the authority to make sure this is a priority in it work programme. However, ENA members principle concern is reliability and security of supply for consumers. With that in mind, as a minimum, members need visibility of participants who make significant impacts upon the power characteristics of EDB networks, and tools to intervene if necessary. The authority needs to complete the TPM review to remove the regulatory uncertainty about the impacts of transmission pricing on financial outcomes for different forms of generation.
Q14. What changes might be required to the rule book to facilitate the emergence of virtual power plants or demand response?	It is too speculative to guess on regulatory rules this far ahead of time. There is a reality that there are certain technical and performance characteristics that must be met to participate in the market which cannot be ignored or watered down. We suspect that 'aggregators' may well be required to lower the transaction costs for small scale participants, just as retailers do currently when they purchase exported solar. As aggregators already exist in the market (e.g., Enernoc) there is not an obvious issue that needs to be resolved, although the authority should remain vigilant to ensuring

	that the Code is not excessive. We understand that one of the largest costs to new entrants is coming to grips with the Code, which could really do with a fundamental review.
Q15. Would the functioning of the market for hedges and PPAs and the availability of finance be improved if there were greater transparency of long- term prices and greater standardisation of terms and conditions for long-term contracts?	No comment.

4. Appendix

The Electricity Networks Association makes this submission along with the explicit support of its members, listed below.

Alpine Energy

Aurora Energy

Buller Electricity

Centralines

Counties Power

Eastland Network

Electra

EA Networks

Horizon Energy Distribution

Mainpower NZ

Marlborough Lines

Nelson Electricity

Network Tasman

Network Waitaki

Northpower

Orion New Zealand

Powerco

PowerNet

Scanpower

The Lines Company

Top Energy

Unison Networks

Vector

Waipa Networks

WEL Networks

Wellington Electricity Lines

Westpower