

To:
Submissions
Electricity Authority
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City Financial submission on the consultation paper: Enabling mass participation in the electricity market

City Financial welcomes the opportunity to provide comments on “Enabling mass participation in the electricity market: How can we promote innovation and participation?” The electricity market is changing rapidly, and consumers have clearer expectations about the services they require, demanding greater flexibility and choice in the services they are paying for. The new technologies coming to the market are likely to change the way in which consumers use electricity, and thereby change the historical relationship between consumers and retailers or distributors. Enabling greater participation in the electricity market has the potential to change the existing market environment, so that (i) consumers are more in control of the service offers they take on, and (ii) the market is more responsive to opportunities that can improve the efficiency of service delivery. The new market paradigm driven by technological advancement will also challenge the way in which monopolies have operated historically.

Defining more participation

We view ‘mass participation’ in broad terms, covering the different segments of the electricity market, including generation, distribution, retail and third-party services like aggregators. We believe that there are opportunities for service innovation across all these segments.

The focus should be on service delivery

The discussion of mass participation in the electricity market should encompass the provision of a wide set of services, and not just of electricity demanded. Innovation responds to price signals that reflect the consumer’s willingness to pay for a service and a provider’s willingness to supply that service. To enable innovation, prices in the electricity market must be reflective of the costs involved in delivering all services to the market.

The current discussion on innovation of service provision has been too narrowly focused on capacity issues. We believe that there are opportunities for innovation across the entire spectrum of services currently provided by distributors: network services (thermal capacity, voltage specification, frequency specification and power quality specification, N-1 reliability), energy (distributed generation

and demand response) and power services¹. These services could be provided by a range of third parties: aggregators, retailers, and consumers themselves. Consumers and aggregators will also be able to provide services themselves, either on a peer to peer basis or back to the network, e.g. ancillary services such as interruptible load for instantaneous or extended reserve.

Although distributors are responsible for providing or conveying these services, they are not able to control them all. As a result, distributors have historically procured some of these services from other parties (e.g. the frequency standard is currently almost entirely provided from the transmission network and wholesale market). With the advance of new technologies, more such services could be provided by third parties such as aggregators or individual consumers. For example, the level of voltage provided by the distributor to some customers could be lowered if customers are able to provide the remainder of the service by themselves through an AC to AC converter(s). In this case, the distributor's charge should be reflective of the lower service provided.

Distribution pricing

The discussion of service innovation in the electricity market goes hand-in-hand with the premise that electricity prices should be service-based (i.e. reflective of service costs). Currently, however, distribution pricing structures do not align with the cost structure that distributors face when providing their services. The reliance on consumption charges to recover common costs perpetuates market inefficiencies because such charges signal the need to invest in fixed assets without providing incentives for consumers to better manage their demand for electricity services. As a consequence, resources are not allocated in a way that delivers maximum value, thereby distorting the market.

We welcome the distribution pricing reform currently being investigated by the Authority, which we believe is critical to incentivise behaviour consistent with the customers' best long-term interests. We caution, however, against the narrow focus on time-of-use rate structures. Service-based pricing should reflect the wider range of services provided in the electricity market, not just those related to thermal capacity. Furthermore, service-based pricing should create both negative and positive incentives. Negative incentives aim to discourage electricity consumption that would otherwise jeopardise the quality of service delivery. Positive incentives, on the other hand, would encourage the provision of new services such that existing service requirements can be met more cost-effectively.

Distributors are not accustomed to thinking about pricing dynamically and in terms of opportunity costs. Their approach tends to be static and focused on the cost recovery of existing assets. Therefore, even though distributors may move to time-of-use pricing that may help reduce peak electricity demand, the reduction may not be large enough to avoid uneconomic network investment, whether for thermal capacity or to maintain power quality. A pricing design that features a time-of-use rate structure focused only on existing cost recovery is likely to discourage use of under-utilised assets and fail to discourage use of over-utilised assets. An appropriately short run opportunity cost focused time of use rate structure, combined with an incentive, based on long run opportunity costs, for demand to provide support during periods of high asset utilisation would be more cost-reflective.

¹ In the context of this response, we use power to denote the provision of useful capacity to a customer which requires not only thermal capacity in the distribution and transmission networks, but also generation of energy covering instantaneous needs.

A major issue with the current distribution pricing is that it is based on an allocation methodology that enables over-investments in the network at an increasing price. Distributors have an incentive to reinforce the current paradigm whereby (i) distributor ROIC and the assets base are regulated, and (ii) the potential contribution by third parties to network services does not need to be recognised. Cost-reflective pricing would defer new investments in the regulated assets base when services could be provided by third parties in a more cost-effective manner. The EA should encourage distributors to adopt cost-reflective prices more quickly. Although this will not necessarily change the distributors' incentives, it will bring the existing market design issues to the forefront.

Innovation will most likely occur where there is the strongest competition

We are concerned with the level of attention the ENA's Distribution Pricing Working Group is giving to criteria such as simplicity. The question of the structure of delivered energy price to the customer is one not well answered by monopolies. Simplicity is a desirable objective but not at the expense of correctly solving the key problem. Cost reflectivity is the key criteria and should not be sacrificed for simplicity for simplicity's sake. Friction from incumbent retailers and distributors who resist positive change based on yesterday's business models or IT systems aren't compatible with the new energy paradigm and should not prevent reform. Neither should concern that complex prices will be passed on to customers.

If retailers see cost reflective pricing some will innovate to get the maximum engagement from their customers in minimising distribution costs. Others may choose not to engage customers but, ultimately, they won't remain competitive if other retailers, or alternative providers such as aggregators or Peer 2 Peer platforms, have a lower cost base. Retailers will be forced to pass on the savings to customers due to competitive pressures.

Retailers may not pass on the charges as they are charged but will experiment and test the market to see what consumers will respond to. This is a problem well suited to the innovation and competition present in the retail market. Electricity Distribution Businesses (EDBs) should not try to solve the problem of what consumers will respond to as part of this process. Cost reflective pricing should be the focus and will mean retailers will be sent the right signal to encourage new products that engage consumers in the right ways. If retailers don't encourage customer engagement they will be surpassed by those who do.

Open Access

We note that demand response does not have open access, first, because distribution charges are not cost reflective, and then because DR does not need to be recognised as a service by distributors. We define Network Dispatched Demand Response (NDDR) as a service where a distributor pays for load reduction in parts of the network that are close to congesting. For example, a distribution company pays a retailer 75k NZD for the right to call 1 MW of load reduction for up to 20 hours per year, the product can be called with a 2-hours' notice for up to a total of 20 hours per year and not more than 3 hours on any single day. The retailer innovates in a competitive environment to find ways to incentivise customers to deliver the demand response. The distributor and the retailer measure and verify the demand response by benchmarking the retailers' recent consumption in the relevant area

to the consumption in the dispatch period. In practice, the NDDR may be underpinned by load reductions or control of distributed storage, and retailers will innovate to find the lower-cost options.

Distributors have no incentive to consider NDDR, and indeed many discourage such products on the basis that they potentially interfere with the distributor's own mandated (non-market) ripple injection load control. We note that, since Transpower was encouraged to trial demand response in the Upper South Island, Transpower's NDDR platform has been continuously developed and has gained strong participation. Some distributors may argue that they don't have the technological capability or organisational scale to manage an NDDR product. However, there is no reason why the distributor, as an asset owner, must be the operator of network and energy services, particularly where these need to be coordinated. For example, distributors could be encouraged to participate in Transpower's NDDR platform, with NDDR recognised either through truly cost reflective prices or explicit payments based on opportunity costs.

Yours Sincerely,



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Answers to the Authority's submission questions:

Question	Comment
<p>Q1. What is your view of the potential competition, reliability and efficiency benefits of more participation?</p>	<p>Competition. The extent to which more participation can lead to greater competition depends on the arrangements concerning open access to distribution networks. We discuss this in Q6.</p> <p>Reliability. More participation will increase reliability because new technologies will provide consumers with greater options for managing their electricity demand, which will reduce network congestion and make electricity supply more reliable. However, on its own, the availability of a wider set of options is not sufficient. Consumers must be incentivised to apply those options in a most efficient way, which requires service-based pricing structures. For example, although the difference between day and night tariffs may incentivise a consumer to charge his battery during night time, it would not necessarily also cause him to draw electricity from the battery during peak times, unless the consumer tariff reflects the cost of peak thermal capacity service.</p> <p>Efficiency. More participation and greater service differentiation will ensure a more efficient allocation of resources in the electricity market. Service differentiation will provide consumers with a better choice on how they would like a particular service to be met. A greater choice of service will avoid unnecessary investments in new networks and will also reduce the costs of electricity generation. One type of such service is network dispatched demand response (NDDR) as described in the cover letter.</p>
<p>Q2. What is your view of the opportunities to promote competition and more participation in the electricity industry?</p>	<p>The international experience shows that the take-up of new technologies significantly accelerates once these technologies reach a certain price point. The advent of new technologies has already encouraged the emergence of new service providers in the NZ electricity market (e.g. aggregators). Consumers will increasingly demand differentiated services and cost-reflective prices. The question is not whether this will happen, but the <i>rate</i> at which this will happen.</p> <p>As mentioned in the cover letter, the current distribution price structures do not promote competition for service delivery. However, the cost of competing technologies may fall so low that consumers may consider disconnecting from the network, causing the distributors' assets to become stranded. Distributors stand to benefit if they proactively adapt their business models to the realities of a new-technology world.</p> <p>In addition to pricing structures, open access to the distributor's network is also an issue that may affect competition. This is discussed in Q6.</p>
<p>Q3. What other issues might inhibit efficient mass participation?</p>	<p>Regulatory barriers</p> <p>The Energy Safety Regulations 2010 stipulate that electricity at installations operating at a voltage of 200-250V must be supplied at 230V ± 6% (Section 28). This means that even if some of the required</p>

Question	Comment
<p>Please provide your reasons.</p>	<p>voltage can be covered by the consumer, the distributor is still obliged to supply the electricity within the voltage parameters specified by the Regulations. This can perpetuate inefficiencies in the market because it leads to decisions on new network investments regardless of whether or not alternative service provision can help avoid the cost of those investments.</p> <p>In addition to voltage, the Regulations also specify the requirements for frequency and power quality (e.g. the frequency of electricity must be maintained within 1.5% of 50 hertz). To ensure that these requirements are met, distributors may claim that they need control over third-party services so that their requirement to deliver to a specified frequency or power quality is not affected. This behaviour, however, directly prevents competition in the electricity market. Arguably, this is also a reason why the provider of a service should not also be the coordinator of services as discussed further below in the answer to Q13.</p> <p>Finally, another barrier relates to the regulation of distributors' revenues. Distributors seek to recover their revenue requirements (regulated by the Commerce Commission) via distribution pricing structures applied on consumers, and the regulated revenue allows the distributors to earn a regulated rate of return. Such a market structure, however, is at odds with an increased competition and more cost-reflective pricing in the electricity market. If the ultimate goal of broader participation is the provision of better and cost-effective services to consumers, the regulatory environment must ensure that consumer protection remains the primary regulatory objective, undiluted by favourable treatment of certain market participants.</p>
<p>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?</p>	<p>There are plenty of opportunities for network businesses to use third parties to provide some network services. As mentioned in the cover letter, the opportunities are not limited to the provision of thermal capacity services alone. Network services (thermal capacity, voltage, frequency and power quality specifications) are inter-connected (to a degree), so the focus on single services can prevent opportunities for service optimisation (whereby services are differentiated by quality and price) and stifle innovation in the market.</p>
<p>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?</p>	<p>See cover letter.</p>
<p>Q6. What is your view on whether open access</p>	<p>We agree that the existing arrangements governing open access should be reviewed in order to ensure a level playing field for new</p>

Question	Comment
<p>is required and what would be the elements for an effective open access framework?</p>	<p>service providers. An open access framework should enable third parties to provide services that can help avoid unnecessary investments in the regulated assets base (RAB). A key element of such a framework is therefore cost-reflective prices that would reduce the distributors' incentives to grow their RAB by being able to recover costs through postage stamp charges.</p> <p>The discussion of open access arrangements should not be limited to thermal capacity services, and should cover the provision of a broader set of services, as described in the cover letter. A number of regulatory barriers must be overcome to achieve this – these are also described in Q3.</p> <p>Finally, your paper raises concerns that more participation can affect network and reliability (p.24). We believe that this may be an issue if a coordination role is missing for balancing supply and demand and for managing network congestion in real time. We discuss this coordination role in Q13.</p>
<p>Q7. How effective are the existing arrangements for open access? What are the problems?</p>	<p>See Q6</p>
<p>Q8. What type of distributor behaviours and outcomes should the Authority focus on to understand whether changes are required to support open access?</p>	<p>The following types of behaviour are inconsistent with an open access framework:</p> <ul style="list-style-type: none"> • The distributors' ability to choose the standards by which third parties can connect to the network, the services that these parties must take on from the distributor, and the price at which such services are provided. If innovation is to diffuse in the electricity market, distributors should not be provided with so much discretion. Broad market participation is not consistent with the presence of monopolies dictating these kinds of rules. • The distributors' cross-subsidisation of unregulated activities, which can stifle competition. However, we believe that the EA should first address the role of monopolies in the context of an open access framework as described in the previous bullet point; if the traditional monopolistic behaviour is gradually phased out, the issue of cross-subsidisation will become less of a concern over time. • The distributor's incentives to invest in their RAB despite opportunities for more cost-effective provision of services by third parties. This is described in the distribution pricing section of the cover letter.
<p>Q9. What changes to existing arrangements might be required to</p>	<p>Reconciliation information is at the core of P2P platforms, and it is currently defined by the Code specifically in relation to the provision of electricity. We believe, however, that P2P platforms could exist not just for the provision of electric energy, but for the wider set of</p>

Question	Comment
enable peer-to-peer electricity exchange?	<p>services as discussed in the cover letter. Even so, focusing on the settlement of energy services, the current market arrangements assume that a retail customer has a single energy supplier. This means that it is not possible to recognise a third party transaction for the purpose of reconciling energy provision services.</p> <p>Technology can undoubtedly solve these issues but we cannot predict how such technologies will develop. Nevertheless, the Authority might consider how to alter the existing reconciliation rules to recognise multiple suppliers to a single customer, and be open to new technology for metering and reconciling the different services provided.</p>
Q10. What are the costs and the benefits of enabling peer-to-peer electricity exchange?	
Q11. What is your view of the possibility for, and impact of, any current or future blurring of participant type? What are your reasons?	<p>We believe that there is no blurring of participant types because the potential counterparties to a P2P platform are obliged to sell their services to a market participant. The providers of P2P platforms will need to meet some market requirements, particularly around metering, reconciliation and settlement. If P2P reconciliation (as discussed in Q9) can be done, there is no need for their counterparties to be treated as market participants. The P2P platform providers will technically be defined as retailers under the Act and Code, but as long as the rules that apply to them as P2P retailers are appropriate then this should not prevent economic innovation.</p>
Q12. What types of participation are or might be prevented because the party is not recognised as a participant? What are the potential impacts?	See Q11
Q13 What challenges might new forms of generation, such as virtual power plants, or small and dispersed generators, face in entering the market?	<p>The challenges relate to open access to the network. The VPP (an aggregator) could access the grid if the distributor chooses to set up a connection services contract. However, the distributor may decide not to recognise the aggregator as counterparty (as an agent of the consumers) on the basis that the distributor has individual contracts with consumers.</p> <p>With regards to distributed small generators, the challenge concerns their integration into the grid, which would require real-time management of energy supply and demand, and of other constraints like frequency loads on power lines and minimum loads on generators. There is thus need for a coordination service to ensure security and dispatch. This could be provided by VPPs, which could</p>

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	<p>also serve as a coordination interface with the rest of the system. To avoid biased operation of the network, the coordination effort should not be provided by the distributors.</p>
<p>Q14. What changes might be required to the rule book to facilitate the emergence of virtual power plants or demand response?</p>	<p>We reiterate that distribution pricing remains a key concern with respect to innovation within distribution networks.</p> <p>We're not aware of any rules that explicitly prevent either VPP or demand response. Although the inability to recognise a separate purchaser from supplier for customers with embedded, distributed generation may be a problem for VPPs.</p> <p>The greater issue is the need for coordination services in the network and the undue influence that can be wielded by distributors. It is difficult to see how innovation can flourish until the coordination of network, energy and power services is independent of asset owners. We note considerable resource is applied to establishing the independence of the System Operator while remaining entirely within Transpower. However, the replication of the Transpower model to 29 distributors is likely to be impractical, lose economies of scale and significantly increase the need for regulatory oversight.</p>
<p>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?</p>	<p>We do not think the (non)availability of finance is an issue.</p>