

Appendix A Format for submissions

Submitter	SEANZ - Sustainable Electricity Association New Zealand
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Question	Comment
Q1. What is your view of the potential competition, reliability and efficiency benefits of more participation?	<p>Competition</p> <p>Allowing consumers to respond to real time prices for generation and other services while being fairly rewarded for their contribution to supply, via arbitrage will provide competition which will help deliver lowest cost options to the market and all consumers.</p> <p>Reliability</p> <p>Introduction of a market for off-grid or distributed generation during extreme events would extend overall supply reliability to include resilience against supply disruption particularly in areas where the conventional network cannot (eg major disruption from unplanned or natural disaster events). This applies to the use of mini and micro grids and neighbourhood based groupings in the residential, industrial and commercial sectors.</p> <p>Efficiency</p> <p>Substantial technical efficiency benefits are possible from customer options such as load shedding and deferral. DG reduces line losses. Distributors such as Orion have shown by their economic analysis that demand participation is much more economically efficient than adding infrastructure capacity to meet unfettered demand. However, supply resilience during network disruption has more to do with social and welfare benefits for citizens than improved economic efficiency. Utilising appropriate technology where applicable to provide efficiency and economic benefits in terms of deferred investment (for the supplier in this case) leading to reduced costs for consumers as Vector have with implementation of its grid scale battery installation in Glenn Innes in Auckland.</p>
Q2. What is your view of the opportunities to promote competition and more participation in the electricity industry?	<p>Demand side participation is a valuable resource which should be used to increase the competitiveness of the electricity market, rather than used to simply reduce the demand for central supply.</p>

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<p>Q3. What other issues might inhibit efficient mass participation? Please provide your reasons.</p>	<p>DG such as solar PV is competitive with centralised generation in many situations and instances, particularly when the local value of the energy is taken in to account and the value of solar PV (and now batteries) is measured as a potential contributor to the grid and the consumers it serves. The use of batteries by residential, commercial and industrial consumers will offer more secure generation, supply and capacity than would be available from intermittent generation alone such as solar PV.</p> <p>SEANZ is of the opinion that use of demand participation technologies can be best facilitated through the introduction of local distribution markets which would provide competition to centralised generators and also deliver least cost solutions for distributors. This market could be administered by the distributor or appointed agent under a regulatory framework so that the benefit of ancillary services available can be maximised. This is based on a platform business model where other & new services are offered for consumers at a competitive rate over and above the fundamental core of poles & wires with electricity supplied over such. Energy which stays on the distribution networks should be traded at the distribution level, not at the centralised grid level which delivers considerable market distortions – eventually impacting all consumers. (market gardeners do not sell produce at the gate at supermarket wholesale prices. Why should they?)</p> <p>Centralised wholesale market rules operating at the distribution level prevent consumers from selling energy and other services such as emergency generation at local “at the gate” prices.</p> <p>Technical rules don't allow the convenient connection of small scale consumer equipment that can offer distribution services such as capacity, VARs and emergency generation.</p> <p>Delayed, inadequate, inefficient or incorrect investment decisions in new distribution technology that allows two way power flows and metering and data processing capability to calculate fair payment/arbitrage for consumers may inhibit installation of technology that could make least cost contributions to energy and network services markets.</p> <p>Inefficient processes of decision, policy and rule making based on current models and thinking which may exclude innovative concepts,</p>

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<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>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>technologies and business models that can impact efficiencies for all consumers in the mid to long term.</p> <p>Lessons learnt from international experiences must be considered. The benefits of the New York REV experience - initiated by a natural disaster event has resulted in the development of a P2P mini grid market at the distribution level based on DG. Resilience, competition for supply utilities, lower costs for participating consumers and self-management, which is a typical new generational characteristic, are examples of what is being delivered.</p> <p>Development in inverter technology for solar PV and battery systems that communicate effectively with the grid as well as IoT, all combine to provide consumer self-management of supply, aggregation and demand, are limited in consumer take-up, being driven by distribution of incorrect data by government agency overreach. The wider benefits are derived with new technology take-up leading to greater competition for incumbents and reduced consumers electricity costs may inhibit greater mass participation.</p> <p>Why can EDB/network businesses not obtain external help to do such? They be mandated to offer wide consumer participation in all potential areas of network service – primarily the use of their networks to distribute electricity from DG sources like solar PV and batteries - eg from mini-grids for which both parties are fairly compensated.</p> <p>Consumer participation may be determined nationally or regionally to provide other potential benefits to consumer electricity supply, including feeder voltage management, or the provision of local supply “hotspots” during major supply disruption emergencies.</p> <p>Opportunities abound globally in this space as attested in US, Japan, Germany and others.</p> <p>The main challenge is the range of different approaches across NZ to the costing and pricing and therefore allocation of charges for network services. These charges are not consistent and we believe need to be rationalised and follow formulae based on the environment in which they operate. Understanding the geographical challenges faced by some is of course necessary. Currently some exceptions have been winners - which in some cases provided an advantage but penalised consumers.</p>

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<p>Q6. What is your view on whether open access is required and what would be the elements for an effective open access framework?</p>	<p>We believe a clear simple good example is Orion's pricing approach – which is based on a set of rational, pragmatic principles which send appropriate cost signals to consumers. Why can't networks be mandated to conform to similar pricing formulae?</p> <p>From this, a consistent set of pricing for consumer participation services could be developed based on the specific service – arbitrage for consumer supply with cost allocation for EDB “network hireage services”.</p> <p>Or to improve resilience to mass supply disruption, networks could be required to develop and implement plans using DG, mini and micro grid supply or virtual generation plants to provide faster timely response than is currently possible under all likely events, such as earthquakes, floods, snowstorms etc.</p> <p>Open access is a requirement for mass consumer participation in the market. The introduction of separate distribution markets as suggested in our response to Q2 would not require substantial change to the current wholesale electricity market, apart from areas being withdrawn from its scope/jurisdiction.</p> <p>Consumers must be allowed to sell generation to “distribution retailers” other than their chosen “grid retailer”, just as they would need to be able to sell distribution services directly to their EDB/distribution co.</p> <p>Distribution level markets for the various consumer support products including for example P2P energy sales, capacity and PQ (voltage), and disaster recovery. The provision of a market with open access to all consumers could be a mandatory responsibility of all lines cos (or appointed agents thereof).</p> <p>An innovative action with obvious resulting benefits are say if an EDB/distribution co did not want to pursue this or take an active role, they would be required to outsource the management of these markets by appointing a third party infrastructure or management business or a suitably qualified DG/PV system integrator management business or a P2P distributor aggregator or to an associated lines co who has expertise in the space - but the EDB will still be required to take governance responsibility within their region.</p>

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<p>Q7. How effective are the existing arrangements for open access? What are the problems?</p>	<p>The existing arrangements are not effective in allowing, driving and encouraging open access and its benefits. The contrary exists today. The SEANZ view that the current energy market arrangements are unfair to prosumers, what they stand for, how they can assist the current market and deliver value is no secret.</p> <p>The obvious issue is the current model under which EDB's operate – pipe based services which reflect their pricing for a service offering as opposed to a platform based model whereby numerous services are offered enabling mass participation.</p> <p>It is our view that the business model and thinking this model has developed over the decades, means most EDB's in NZ do not understand or do not want to understand the “value of solar PV and batteries” to their networks (unlike progressive EDB's in other countries) as they see such as a hindrance and not an enabler. The value of such is not simply an economic value or what will it do to my network and how much I will lose in immediate revenue – what value is placed on system resilience, trimming peak demand times, lower capex et al.</p> <p>Most don't get consumer centric generating and storage and demand management technology at the premise level, generational attitudinal change and the resulting impacts. To develop EDB thinking beyond the current position requires mandated terms for them to explore and understand the options available, what can be achieved and the niche in which they may deliver their competitive proposition.</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>This question is answered in part as per Q7.</p> <p>However to answer this question in more detail, we need to understand more about the services proposed under “open access”.</p> <p>The most important requirement is for EDB's/ distributors to charge or pay for services used, NOT services offered.</p> <p>Services which are of value will accordingly be provided, while those which are not needed will become obsolete. Wit is our belief that the fundamental purpose of an EDB/distributor is to distribute and convey electricity to help drive the development of residential, commercial and industrial communities.</p>

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<p>Q9. What changes to existing arrangements might be required to enable peer-to-peer electricity exchange?</p> <p>Q10. What are the costs and the benefits of enabling peer-to-peer electricity exchange?</p> <p>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>	<p>In our view, charging directly for capacity has distorted the market and will continue to do so. Pricing for mass participation services should always be based on the time value of the service, because this is what is actually used, rather than a “fixed payment mechanism”. This of course requires adequate time interval metering.</p> <p>In other energy industries such as vehicle fuel sales, consumers purchase energy as litres of fuel, because this is the product they need to travel. They pay for a car wash, etc as an extra. They don't pay a retainer as a fixed cost to help pay for the petrol company's infrastructure and overheads. Fixed “capacity” charges or payments are not in the best interests of consumers.</p> <p>Competitive choice is a natural progression of our society. Prosumers generating and consuming their own electricity should be able to freely define and nominate who they sell their excess electricity to.</p> <p>Distribution services however, can only be sold to the local lines co which is why this market needs to be closely regulated since there is no competition. Peak demand periods and electricity market prices often coincide with high demand for network services, and this is why we believe the most pragmatic way of managing a mass demand participation market is via the EDB's – as long as they are mandated accordingly to enact and provide the abovementioned services for consumers and prosumers. The objectives for demand reduction and distribution services can therefore be best aligned and coordinated.</p> <p>Detailed costings and benefits for any particular service are for EA and industry to define.</p> <p>SEANZ, its partners in the P2P space (2 partners) as well as engaged members are able and willing to provide such services under separate cover.</p> <p>We urge and encourage EA to undertake and commission the analysis.</p> <p>The prosumer (individual or group) will participate as a consumer, generator and provider, but not a retailer, as the prosumer nominates/defines who they gift or sell to. A retailer continues in their current mode. The EDB, who are most instrumental in the programme will serve as the service conduit to deliver an offering from the prosumer. The core fundamental participant definitions will need to be clearly spelled out</p>

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<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?</p>	<p>along with responsibilities, but we envisage such definitions will alter over time given the advancement of both technology and the resulting enablement of models and processes.</p> <p>We assume this question presupposes that the existing wholesale market is expanded to cater for individual consumers. SEANZ does not consider that this can ever be made “participative” for small prosumers and consumers.</p> <p>Our view is that a new market operating at distribution level in each EDB/distributors region must be introduced to provide the necessary platform for full participation.</p> <p>All services normally required at that level (obviously excluding grid frequency keeping, but including future micro grid frequency keeping) could be candidates, although some might not be currently activated through lack of technology availability or competitiveness.</p>
<p>Q13. What challenges might new forms of generation, such as virtual power plants, or small and dispersed generators, face in entering the market?</p>	<p>The first challenge for new generation entrants is acceptance by incumbents, through whatever means that such new forms of generation and participants are likely. Beyond that we believe most of the challenges are technical.</p> <p>The current electricity market is a human-defined artefact that now requires adjustment to meet new demands, and accordingly can be freely adapted to suit its objectives.</p> <p>The main technical challenge we believe is for EDB's/lines cos to modernise their networks so that large numbers of aggregated small (>~5kW) generators and other sources (eg batteries) can be connected and clustered to provide the services required. If EDB's do not, this may impose connection issues of groups or many solar PV systems/batteries in specific regions/cities. This may slow down the growth and limit the innovation opportunity.</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>More information is required to fully address this question.</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 have a clear and comprehensive understanding of this area of the wholesale market, however transparency of long term wholesale prices to a “distribution market” would be essential for all to operate effectively. The standardisation of T&C's for long term contracts would be beneficial.</p>

