ELECTRICITY AUTHORITY

ENABLING MASS PARTICIPATION IN THE ELECTRICITY MARKET

How can we promote innovation and participation?

11 JULY 2017

Electricity Retailers' Association of New Zealand
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Introduction

1. Established in August 2015 Electricity Retailers' Association of New Zealand (ERANZ) represents a collective voice for electricity retailers. Our role is to promote and enhance a competitive and sustainable electricity retail market for the benefit of customers.

2. ERANZ membership represents 99.5% of the retail market by ICP count and includes Genesis Energy, Contact Energy, Mercury, Meridian, Trustpower, Nova Energy, Pulse Energy, Prime Energy, Powershop, Energy Online, Bosco, Glo-bug, Grey Power Electricity, Just Energy, King Country Electricity, Tiny Mighty Power, Wise Prepay and Flick Electric Co.

3. ERANZ commends the Electricity Authority (EA) for their ambitious issues paper. This is a very important piece of work for New Zealand that requires proper and thorough consideration. The EA's consultation arrives at a critical juncture. Although uptake of emerging technologies has not been material to date due to their relatively high cost, the coming years are predicted to see rapid developments and cost reductions, which are expected to result in greater penetration over a the short to medium term. We cannot adopt a wait and see approach. Furthermore, this work is not just important for emerging technologies but also the improved participation of existing technologies and services (such as demand response and energy efficiency tools) across the electricity sector.

4. We have submitted in detail on the questions raised by the EA in the **attached** table. We also offer these overarching general comments.

ERANZ wants to promote innovation and enable mass participation

5. ERANZ and individual members are submitting on this consultation for **four** core reasons:

   (i) Enabling innovation and mass participation will provide consumers with greater autonomy and energy choices

   Technologies – in the form of behind the meter solar / battery storage systems - can provide multiple value-streams within the electricity value-chain. However, not all value-streams can be derived simultaneously. Who controls the technology determines which value-streams are realised and therefore which party is the main beneficiary. Recent

research and analysis shows that for customers to gain the maximum benefit then they must have choice and control of the technologies on offer.

However, it acknowledged that while greater consumer participation bestows a range of opportunities, it also presents several challenges.

Without the right regulatory framework, the development of competitive markets around nascent technologies, and the services they provide, will be stymied, resulting in poor outcomes for consumers.

(ii) Contestable markets deliver the best long-term outcomes for consumers

Realising the potential consumer benefits from new (and existing) technologies is best achieved via the dynamic efficiencies resulting from a fully competitive market.

If allowed to develop, market distortion may result in consumers having less choice and facing higher costs over the long term. This is because they will have limited choice and potentially be locked in to an option. A fully competitive market can only develop where there is a level playing field for existing and prospective participants. A level playing field means participants must be exposed to the same opportunities, risks, and financial incentives.

Monopolies, such as electricity distribution businesses (EDBs), can distort and dominate competitive markets as they are not exposed to the same risks, and have greater opportunities, than other competitors in that market. Prospective entrants might be reluctant to enter a market where their competitor is both a buyer and seller in that market, and could use its monopoly position to advantage itself. Inefficient or unfairly priced emerging technology or services can serve to have a cooling effect on other entrants entering the market, thereby, restricting consumer choice and the development of innovation.

The New Zealand market is too small to wait for failure before reviewing existing market design.

(iii) New Zealand needs to redraft the regulatory framework to develop and enhance these contestable markets for the long-term benefit of consumers.

ERANZ believes that ensuring the following components are covered by a regulatory framework will best enable consumers to benefit from mass participation:

- There needs to be a clearer distinction between competitive and non-competitive services. This is a fundamental principle of the electricity market design. The only way to ensure a level playing field is to have a greater degree of separation between the provision of regulated assets, and the provision of assets that can be used for both regulated and unregulated services. There are sound reasons for this division which should inform the approach to the rules around monopoly involvement in contestable markets. The underlying rationale for structural separation is to facilitate competition and dynamic efficiencies by appropriately allocating risks. There are already examples were the blurring of this line is causing a cooling effect on competition or on investment into the contestable markets for new technologies or services.

- Enabling mass participation requires a transparency of opportunities which in turn requires greater information disclosure, particularly for services to the distribution sector. There is currently information asymmetry. Would-be innovators or investors have little information on where services from the contestable market may provide the greatest benefits. Similarly, consumers and third parties need better information to objectively verifying that an EDB has selected the least cost, or most efficient supplier of alternatives to traditional network assets. This transparency of opportunities and maintaining structural separation encompasses a neutral access policy, particularly so that competitors can objectively verify that an EDBs' own businesses have not received favourable treatment regarding connection, use of the network, or investment opportunities. A successful model already exists in New Zealand in the principles behind the regulations that cover the National Grid (Transpower) and we consider that similar could be adopted for distribution networks. Transpower procures network services (such as reserves, frequency keeping, and demand response) from contestable markets. It does not compete in those markets itself.

- Cost-reflective and service-based distribution pricing which provide more accurate price signals for customers, consumers, and other parties on which to invest, buy and sell, but also on the constraints that networks may be experiencing. There are currently imperfect price signals which see network prices reflect a focus on cost-recovery rather than efficient price signals reflecting underlying costs. This includes impediments caused by the low-fixed charge regulations. Retailers know that consumer expectations and technology are changing the electricity sector. There are increasing opportunities for consumers to use, or want to use, the network to

provide a distribution service in a different way. This is a key area where dynamic efficiencies should develop to allow better long-term investments on behalf of consumers, but also the sector.

- Standardisation to unblock the transaction costs of contractual arrangements and technical arrangements for connection and use of different networks. One of the biggest inhibitors to a widespread rollout across the country of a service or product can be unnecessary customisation for every region, which creates transaction costs. This can be everything from how pricing is done, how billing reconciliation is managed, how outages are communicated and other matters in between.

  Improving the uptake of the standardisation of these basic industry structures would aid more third parties and retailers to participate in the market. We acknowledge that significant steps have been taken in this area by some EDBs, and we encourage that work.

(iv) Unlocking consumer benefit from mass participation will require resolving a combination of issues by the three regulatory agencies

Existing regulatory arrangements were not designed with the emerging opportunities for mass participation in mind. The current regulatory setting reflects the underlying division of roles and responsibilities associated with the functional separation that has existed since the electricity sector was liberalised in the late 1990s. This regulatory model was designed prior to the potential for emerging technologies to deliver significant benefits to consumers. It is also true that New Zealand is not alone in considering these issues. The world's most advanced economies have all one way or another sought to ring-fence the competitive provision of emerging services and create a contestable market, particularly in storage, from the risk of monopolisation by distribution and transmission network owners. Depending on the nature of the regulatory regime, this may take different forms, ranging from requiring a competitive procurement process (such as in California and New York), or restrictions on ownership such as in the United Kingdom, or strict ring-fencing such as in Australia.

New Zealand must find its own approach, but ERANZ contends that the current regulatory model provides too much uncertainty or lack of information to those in the contestable market, and therefore will not deliver the benefits for customers across the different functions of the electricity sector. This is an opportunity to get the policy and regulatory settings right in New Zealand. As a result, as well as the Electricity Authority, the Commerce

Commission, and the Ministry of Business, Innovation and Employment, will be required to address the issues that affect their areas of current responsibility to develop a new regulatory framework that is fit for purpose in the modern age.

Conclusion

6. This consultation largely captures all the questions and issues that ERANZ and members have been raising on the concern of the blurring of the line between what is a contestable service and what is a monopoly service. ERANZ supports the creation of a regulatory framework that allows contestable markets to efficiently drive the adoption of emerging and existing technologies. Where a market is contestable, the regulatory framework should be as neutral as possible in terms of impact. We contend that this will deliver a proportionate regulatory intervention, facilitate dynamic efficiencies, provide a level playing field for mass participation, and deliver the results that are in the long-term interests of consumers.

Thank you for the consideration of this submission. We are happy to discuss any parts of this submission in more detail if required.

Yours sincerely

Jenny Cameron
Chief Executive

Appendix: response to questions

Submitter	Electricity Retailers Association of New Zealand (ERANZ)

Q1. What is your view of the potential competition, reliability and efficiency benefits of more participation?

ERANZ believes the consumer should be the main beneficiary from emerging technology

ERANZ believes that enabling mass participation – in the form of 'behind the meter system', such as home solar / battery systems, smart appliances and home energy management applications – will provide consumers with greater autonomy and energy choices.

These emerging technologies will enable retailers to increase the scope of their service offerings to consumers. Technology will also enable new retailers to enter the market. The result of all of this is greater choice for consumers.

However, bi-directional energy flows and multiple value streams via emerging technology also creates greater complexity. While some consumers are ready to grapple with that complexity, the process of procuring electricity at a competitive price must also remain a simple process for consumers. The role of retailers in providing consumers choice, and simplifying the customer experience by removing the complexity of the electricity systems, becomes increasingly valuable.

Q2. What is your view of the opportunities to promote competition and more participation in the electricity industry?

ERANZ view is that fully competitive markets deliver the best long-term outcomes for consumers

There is a consensus that emerging technologies will have the capacity to provide significant benefits to consumers through new services or combinations of services, reduced costs, and revised ways of doing business. These changes present a range of challenges and opportunities for the New Zealand electricity industry.

ERANZ believes that the opportunities to promote competition and more participation in the electricity sector come from:

1. Ensuring a level playing field
2. Increasing visibility of opportunities
3. Reducing barriers to entry
4. Coordination across regulatory agencies

1. Ensuring a level playing field

EDBs also being a buyer and seller of network services within a framework that does not have clear structural separation creates the risk of an uneven playing field. This is because:

- EDBs can cross-subsidise to distort the competitive market and gain a more dominant market position than they otherwise would have been able to achieve. The development of a competitive market for the provision of new technologies such as home solar / battery systems will be stymied through the advantages lines monopolies can employ over their competitors in the contestable supply of those products and services.

- EDBs that do not price in a competitive manner may have a cooling effect on others entering the market, thereby restricting competition and ultimately choice and innovation for the consumer. They can leverage their regulated asset base to make sub-commercial forays into other markets, offering them below cost or "free", thereby distorting the opportunities in the competitive market.

- EDBs may also face a conflict of interest, i.e. where they may be incentivised to maintain pricing plans that favour their own commercial activities, e.g. potentially maintaining flat-rate connection costs to ensure high penetration of residential PV systems, or rather than incentivising peak loads through pricing, favouring investing in additional assets to manage those loads.

Consumers will suffer as they will pay higher prices over the longer-term than they otherwise would, and face reduced consumer choice, having forgone the dynamic benefits of effective competition.

Regulatory frameworks can enable competitive markets by ensuring that participants, competing in the provision of emerging, and existing, technologies and the associated services they provide, are doing so on a fair and equitable basis. A level playing field will ensure competition, avoiding technology lock-in, and allocating risks (and costs) to those best placed to manage them. This should enable

dynamic efficiencies for consumers. In the case of electricity that is more efficient pricing, more choice of who and how it is provided and control with how it is used.

The only way to ensure a level playing field is to have a clear separation between the provision of lines assets, and the provision of assets that can be used for both regulated and unregulated services.

The International Energy Agency (IEA) noted the issue of EDB investment in competitive markets in their recent report[1]:

> *"There are emerging concerns with regulated distribution businesses being able to compete in unregulated parts of the sector. The most obvious are battery technologies, which enable a distributor to defer/avoid line investment but can also be used to sell electricity into the wholesale and ancillary services market. There is potential here to create an "unlevel" playing field and undermine competition, which in the case of New Zealand could have serious ramifications. Rapid technology change and uptake problems in this regard could be exploited rapidly and it may be hard to "turn back the clock".*

2. Increase visibility of opportunities

Transparency of upcoming network opportunities for third party providers of network services or products is a key way to ensure a level playing field and encourage greater participation and competition in the electricity market. As part of their network planning EDBs routinely determine where network issues and constraints lie now, and are likely to arise in the future. EDBs will then look at the various options to mitigate those issues and constraints, and determine which of those options is the best fit for those circumstances. This would typically involve ranking options via cost benefit analysis and other criteria. However, this process currently has little visibility outside of the EDB. This was not an issue as network solutions to date available have generally been limited to a suite of what could be termed stock-standard 'poles and wires' solutions which fit comfortably within and EDBs expertise and experience. However emerging technologies now present an opportunity for third parties to provide network services to EDBs which are outside of the suite of traditional solutions. However, third parties cannot offer solutions for consideration if they are unaware of the opportunities. Likewise, EDBs may not be aware there are now other options available which could now be considered.

[1] Energy Policies of IEA Countries - New Zealand 2017 Review (at page 142)

We note that EDBs do provide details of their network issues within their Asset Management Plans. However, these documents can be difficult for interested parties to readily comprehend or do not provide the requisite detail to make investment decisions.

ERANZ believes that, where EDBs are procuring goods or services from contestable markets, their tendering processes must be transparent and competitive. This is especially important where an EDB's related entity operates to provide services or equipment within that competitive market.

In a practical sense, potential solutions to enable greater transparency could take the form of:

1. Development of a network opportunities map, as a tool to inform third parties (including consumers) about proposed network investments and assist in identifying opportunities for demand management, distributed energy resources, and other non-network solutions, to defer investment. A network opportunity "heat map" has been developed in Australia[2]. This is a very useful tool allowing anyone to access the data about network investment considerations and how third parties might be able to offer services to the lines companies. We note a New Zealand example of such a tool was that produced by Powerco, as part of its suite of CPP consultation documents, to assist their stakeholders to understand the network issues they were looking to mitigate via their proposed investments. EDBs providing more accessible user-friendly materials, such as those provided by Powerco and Australian electricity networks, would greatly aid interested parties to understand the distribution network issues prevalent in each region, and would also provide non-related entities visibility of future opportunities.

2. More extensive information about planning and implementation of EDB network development projects is required for third parties to ascertain whether they could compete to participate in those projects or offer alternatives that might defer or reduce the costs of those projects, for the long-term benefit of the regulated consumer.

3. It should also clear to stakeholders how EDBs are making decisions to invest in certain technologies in preference to others and enable consumers to understand which technologies contribute to the regulated service (for which they are paying) and to roc activities.

[2]Ausgrid, 15 electricity networks in Australia, and the Institute of Sustainable Futures at University of Technology Sydney, have developed an online tool: http://www.ausgrid.com.au/Common/Industry/Demand-management/Network-opportunity-maps.aspx

The following case studies provide real-world examples demonstrating why the principles of market structural separation need to be preserved. Otherwise an uneven playing field may be created for the contestable market, thereby reducing competition and consumer choice over the longer term.

Case Study 1: Information asymmetry for network service opportunities

The fact that an EDB seeks to purchase businesses in the contestable market that provide unregulated revenue is not in itself an issue. Concerns arise if there is not appropriate separation and safeguards to ensure the regulated business does not favour its own unregulated business and thereby distort the market for those contestable services. Opportunities to provide services to address a network need, such as addressing a constraint issue or providing a mechanism to reduce peak load, or helping a consumer to reduce their power bill, are contestable services that should be competitively procured.

An EDB announced in the media that they had installed free solar panels and batteries into consumers' homes for energy efficiency purposes[3]. The entities used to provide the solar and batteries were the EDB's own solar and battery businesses. The same EDB has also noted that it has embarked on a programme to install, own and maintain 1,000 residential battery energy systems [4][5]. That network has now identified areas where "network batteries" will be placed with homeowners[6]. There is no available public evidence to demonstrate that a competitive procurement process was followed for the purchase of these assets.

As noted above, the concern is not that EDBs have these businesses as part of their unregulated enterprises, but the way in which the business is conducted between the regulated and unregulated parts of the business. This extends not just to the cost allocations between the businesses, but the distortion of the competitive markets for those services that are not natural monopoly services. What is being done in the name of the regulated monopoly and what is being done as part of the unregulated business is getting increasingly blurred. Opportunities to provide the services to the network and consumers are being prevented by a lack of contestability and transparency.

The EDB should operate as a neutral platform for the distribution of electricity and procure the services from the competitive market that will help it to deliver the lines functions in the best possible way for consumers. If a network has an unregulated business that is a solar supplier or a battery supplier, then it should be able to bid into the process and compete on the same grounds as any other solar or

[3] http://www.nzherald.co.nz/vector/news/article.cfm?c_id=1503810&objectid=11821755
[4] http://vectorenergy.com.au/tesla-powerwall
[5] https://www.vector.co.nz/personal/batteries
[6] https://www.vector.co.nz/personal/batteries/network-batteries

battery supplier to that network. In that way, the market for those assets and services will develop across the country to a greater degree than if each network is only looking at its own scope of possible services.

EDBs can also distort the market by using their regulated business as a vehicle to advertise their unregulated businesses[7]. This was something that the Australian Energy Regulator (AER) clearly identified as demonstrating a need to more clearly articulate the separation between entities because of the risk of distorting the market and favouring its own related businesses[8]. The AER states "the Guideline addresses the risk of a Distribution Network Service Provider favouring its own negotiated services or other distribution services, or an affiliated entity's other electricity services, in contestable markets. The Guideline does this by imposing behavioural obligations on DNSPs, including restrictions on sharing and co-locating staff, information and on co-branding of advertising materials"

The blurring of these boundaries was also evident with an EDB's announcement of a $10M project requiring the installation of 630 solar panels and utility scale battery[9]. Again, there is no publicly available evidence that this project was competitively tendered for either the battery or solar generation assets. Accounting methodologies that separate out in hindsight the regulated revenue from the unregulated revenue cannot adequately address the distortions caused to the competitive market and the cooling effect made on innovation and participation in these markets.

Case Study 2: Development of competitive EV charging infrastructure for the benefit of NZ

The provision of EV charging station infrastructure is a fledgling market which highlights the challenges independent providers face when trying to invest and build a business in an unclear regulatory framework.

Several EDBs have installed EV charging stations and provide the charging service to consumers on a non-competitive basis, as opposed to partnering with a business that can provide a contestable market-based service (as some EDBs have done). Some EDBs have installed the charging infrastructure and providing a charging service to EV owners but are not recovering the costs of either the equipment, or the electricity consumed in the charging process, from the electric vehicle owners using them[10]. EDBs providing 'free' EV charging are distorting the competitive business model and

[7] https://www.vector.co.nz/personal/solar
[8] Australian Energy Regulator (AER), Electricity Distribution Ring-fencing Guideline: Explanatory Statement, November 2016 https://www.aer.gov.au/system/files/AER%20Ring-fencing%20Guideline%20-%20Explanatory%20statement%20-%2030%20November%202016.DOCX
[9] https://www.vector.co.nz/news/auckland-harbour-bridge
[10] https://www.vector.co.nz/personal/ev-charging/ev-charging-station-faqs

may have a cooling effect at a time when development of a stable competitive environment for EV charging is critical. Many of these EDBs have installed the charging infrastructure for R&D purposes, but questions could be raised as to how valid the research will be if the research is based on a "free" service rather than one which is factoring in the true costs of the equipment, energy, and service.

The ability to frustrate or hinder the rollout of emerging technology is particularly relevant for electric vehicle charging infrastructure and solar installations. If the EDB is responsible for approving and facilitating access to the network, then there is risk that they could use their monopoly position to favour their own business or own related entities, ahead of those from the contestable market. It is therefore extremely important that there are robust mechanisms in place to ensure transparency and create an arms-length transaction.

3. Reducing barriers to entry

To promote competition and encourage participation EDBs can reduce barriers to entry by ensuring they operate an 'open access' platform which readily enables the application of emerging technology. Further, competition provided by existing and future third party providers of network and energy management services, and suppliers of emerging technology services and products, will be increased if a more common suite of charging, terms and conditions, and terminology is adopted across networks throughout the country. Increasing commonality of criteria across networks will lower the transaction costs which can present a barrier to existing providers expanding, particularly into less populous network areas. The counterfactual is consumers within networks outside of the main centres will have less choice than they otherwise would have. ERANZ submits that increasing commonality in the following areas will increase competition and consumer choice:

1. Network use of system agreements
2. Network pricing
3. Technical standards and terminology
4. Connection processes

In the absence of any consolidation of EDBs or their management, consideration need to be given to encouraging back-office efficiencies and practices across New Zealand. While the large retailers have sufficient staff, experience and systems to be able to meet the different EDBs requirements, the

https://www.pressreader.com/new-zealand/franklin-county-news/20170214/281621010086332
https://www.wel.co.nz/about-wel/news-about-wel-networks/wel-networks-increases-electric-vehicle-fast-chargers-in-waikato/
http://www.horizonnetworks.nz/electric-vehicle-ev-charging
http://www.networktasman.co.nz/new-electric-vehicle-fast-charging-station-in-nelson

complexities are inhibiting for new entrants, and add transaction costs for all retailers. To date the Energy Networks Association has made some useful gains, but uptake has been relatively slow. Whilst we accept that some EDBs will require some degree with customisation, local differences are not as great as the opportunities to achieve efficiencies across regions, which in the long-term will deliver value to end consumers.

4 Coordination across regulatory agencies

ERANZ believes that unlocking the potential of mass participation in New Zealand will require resolving a combination of issues by our three regulatory agencies: The Commerce Commission, the Electricity Authority, and the Ministry for Business, Innovation and Employment.

The existing regulatory arrangements were not designed with the emerging opportunities for mass participation in mind. The current regulatory setting reflects the underlying division of roles and responsibilities associated with the functional separation that has existed since the electricity sector was liberalised in the late 1990s. This regulatory model was designed prior to the potential for emerging technologies to deliver significant benefits to consumers. It is also true that New Zealand is not alone in considering these issues. The world's most advanced economies have all one way or another sought to ring-fence the competitive provision of emerging services and create a contestable market, particularly in storage, from the risk of monopolisation by distribution and transmission network owners. Depending on the nature of the regulatory regime, this may take different forms, ranging from requiring a competitive procurement process (such as in California and New York), or restrictions on ownership such as in the United Kingdom, or strict ring-fencing such as in Australia.

New Zealand must find its own approach, but ERANZ contends that the current regulatory model provides too much uncertainty or lack of information to those in the contestable market, and therefore will not deliver the benefits for customers across the different functions of the electricity sector. This is an opportunity to get the policy and regulatory settings right in New Zealand. As a result, as well as the Electricity Authority, the Commerce Commission, and the Ministry of Business, Innovation and Employment, will be required to address the issues that affect their areas of current responsibility to develop a new regulatory framework that is fit for purpose in the modern age.

ERANZ suggests that the regulatory framework for electricity transmission provides a proven starting point for the regulatory framework for mass participation. The principles behind the regulations that cover the National Grid (Transpower) have proven successful and could be adapted for distribution networks. Transpower procures network services (such as reserves, frequency keeping, and demand response) from contestable markets. It does not compete in those markets itself.

Q3. What other issues might inhibit efficient mass participation? Please provide your reasons

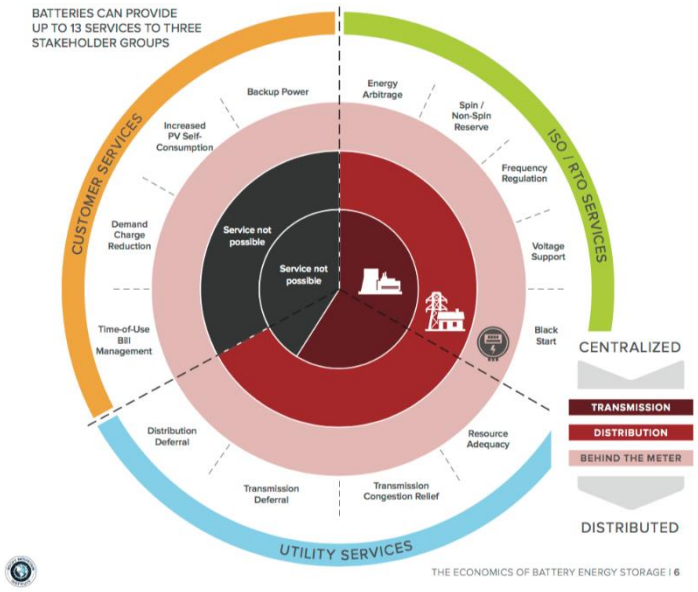
Operational control of technology is the crucial factor in determining which party realises the most benefit. Consumers being able to fully realise the benefits of emerging technology is critical in enabling mass participation.

Accumulative penetration of rooftop solar photovoltaic systems, battery storage, smart appliances, automated home energy management systems, electric vehicles and other technologies will have an increasing impact on the way consumers use electricity and interact with the electricity system. Technological innovation is making the functions these devices perform smarter, cheaper and more accessible to a wider range of users. This change will not only expand the choices that consumers have but can also deliver wider benefits to electricity networks.

ERANZ believes that it is the consumer who should be the main beneficiary from these emerging technologies. However, it is the party (EDB, retailer, or consumer) which controls the technology which is the crucial factor in determining which party realises the most benefit[11],[12]; which benefits are prioritised, and the party which realises the value of those benefits, is determined by who controls the technology. This is because the party which controls the technology determines which value-streams are realised - and thereby the degree by which each party benefits.

The diagram below[13] shows the potential range of services available from battery-based energy storage systems.

[11] Australian Energy Markets Commission (AEMC): Distribution market model – Draft report 6 June 2017
[12] Value of battery storage in the NZ electricity system: Transpower – July 2017
[13] From the Rocky Mountain Institute paper: 'The economics of battery energy storage (2015)'



Many of these services cannot be gained simultaneously. A recent report by the Australian Energy Market Commission (AEMC) noted[14]:

> *'Each of these services is a potential source of revenue, but not all of them can be monetised together – that is, by the same asset at the same time. For example, a battery could be used to alleviate network congestion (by being discharged) or to decrease frequency (by charging), both of which could be required at the same time. The party who controls the asset is therefore required to make trade-offs between the value place on utilising or selling the various services that the asset is capable of providing at any point in time'.*

The value of each of the various services, to each party, differs. The party which controls the system is incentivised to optimise the system to realise the value-stream of most value to itself. Because of this, if consumers are to realise their full benefits from those systems, careful consideration will be required around who can control of these systems.

A recent Transpower report[15] demonstrated that the highest value of battery storage systems is found at the customer end of the supply chain.

The AEMC concluded that for consumers to fully realise the benefits of these technologies, network owners should not be the owners of these systems:

[14] Australian Energy Markets Commission (AEMC): Distribution market model – Draft report 6 June 2017
[15] Value of battery storage in the NZ electricity system: Transpower – July 2017

'The Commission considers that the optimising function is best carried out by the party that does not have a financial or regulatory interest that would result in them favouring the provision of one service over another, other than in response to efficient price signals. The Commission does not consider it appropriate for the party who is responsible for providing common distribution services to take on the function of optimising investment in and operation of distributed energy resources and the services they provide'.

Further to this, a key risk of allowing EDBs to control these technologies and optimising energy flows such that the maximum benefits are to itself, is that it incentivises early adoption of nascent technologies through inefficient cross-subsidisation and inefficient investment – the risks of which are borne by consumers that have no choice.

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?

In stating that we want a level playing field, ERANZ is not saying that we wish to preclude EDBs, or any other parts of the sector, from investing in emerging technologies. There are many reasons to welcome the opportunities that these technologies could bring to the sector for the benefit of New Zealanders. However, we want to make sure that emerging technologies are adopted and developed in the way that best benefits consumers.

ERANZ position is that EDBs can realise the benefits of this technology through affiliates, but that the technology itself should not become part of an EDBs regulated services. This is the best way to enable benefits across the supply chain, and for dynamic efficiencies to result for the benefit of the consumer.

ERANZ are aware for several EDBs who are successfully working with affiliates - retailers, technology providers, and other agencies – to make use of technology as a service, rather than own the technology itself[16],[17]. Such models provide the opportunities which allow a competitive market for the supply of energy services to develop. It mitigates the problem of market distortion via cross subsidisation, and maintains a level playing field whereby existing and potential new providers of services and equipment are not put-off by the existence of a regulated competitor.

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?

[16] http://www.stuff.co.nz/business/94018297/wellingtonians-taking-part-in-virtual-solar-and-battery-power-plant-trial
[17] http://www.stuff.co.nz/business/industries/89930230/Genesis-Energy-chief-Marc-England-warns-Google-Tesla-could-eat-its-lunch

As per ERANZ response for question 2, the main challenges to increasing competition are a level playing field, awareness of opportunities, and the hindering of development of a competitive market via cross subsidisation and inefficient investment by regulated networks in favour of their unregulated entities.

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 to networks is key to the future development of the electricity market. Not only can we expect to see the development of residential PV and battery installations, but commercial scale PV projects and other large-scale storage technologies are expected to become viable; and the economic location of these is likely to be sensitive to network capacity and pricing, and potentially nearby demand patterns. Simply specifying a 'one price fits all' model across a network may preclude such developments.

As well as the supply side, large scale consumers should also be able to tender for the most economic supply options, which could include a combination of network connection and distributed generation. In such cases, consumers may also choose to adopt a lower or higher security of supply than is standard, e.g. the difference between a computer data centre which would want a very high level of security, versus a wood chipping operator which could probably cope with an intermittent supply.

Such situations require flexibility in network design and for EDBs to either be responsive to differing demands, or prepared to open up their networks to alternative configurations. These are not simple problems and solutions need to be found by parties working together rather than by the dictum of the network owner alone.

Under the current regulatory model, there is very little incentive for EDBs to respond to such challenges.

Access to data

Another important area related to open access is participant access to the data essential for making optimal investment decisions. The roll-out of advanced metering technology has enabled more detailed and timely data to be collected on electricity usage and supply quality. Access to data also encompasses data related to grid and network constraints so that third parties are able to also make investment decisions or provide innovative solutions (refer earlier 'heat map' suggestion on page 10).

Access to electricity consumption data and how that data is exchanged is an important issue for retailers and customers. The provision of data is governed by clear obligations under the Electricity Industry Participation Code 2010 as well as the Privacy Act 1993. A recent letter from the Privacy Commission highlighted the need to ensure customer data, how it is handled and for what purpose, is managed carefully.

ERANZ is of the view that there are currently no barriers to any interested parties reaching an appropriate commercial arrangement for the sharing of consumption data, provided that the rights to privacy of customers are fully respected.

Q7. How effective are the existing arrangements for open access? What are the problems?

There is a lack of transparency in the extent to which networks are currently being utilised or where there are opportunities for economic by-pass through non-network solutions. The fact that regulations are required to prevent EDBs from allocating unrelated network costs to distributed generators illustrates the challenge in addressing the issues.

Q8. What type of distributor behaviours and outcomes should the Authority focus on to understand whether changes are required to support open access?

As per our responses to the questions above, behaviour requiring attention is the potential for lines monopolies to favour related parties via cross subsidisation and / or award of provision of services or equipment without a procurement process allowing other providers to compete. EDBs can also favour related entities through provision of institutional knowledge that would advantage its entities over competitors for example the optimal network locations to install EV charging stations, and / or the provision of its in house expertise to assist with technical connection issues.

Q9. What changes to existing arrangements might be required to enable peer-to-peer electricity exchange

ERANZ believes that market design and regulatory frameworks must be nimble enough to allow for value streams from emerging technologies such as peer to peer trading. As noted by the Transpower report and the Rocky Mountain Institute report, solar / battery storage systems potentially have several value streams. However, in the New Zealand context the markets pricing and payment structures to enable widespread end consumer battery storage system participation in all areas of the market and services are not presently available.

Not all service values are readily accessible of have a transparent market mechanism to monetise their worth e.g. voltage support is currently provided by Grid assets or contracted directly with third party asset owners[18].

Q10. What are the costs and the benefits of enabling peer-to-peer electricity exchange?

Peer-to-peer (P2P) electricity exchange can both potentially improve the economics of distributed generation and reduce energy costs for some parties. As such it is appropriate to facilitate such trading within the Code. Any such development must, however, be considered in the context of:

- P2P trading is only likely to be of interest to a small minority of consumers. The cost of creating a regulatory environment suitable for p2p therefore must be such that it does not become an overall cost to the market;
- P2P trading should not be given a de-facto by-pass of the obligations that fall on other distributed generators or traders, i.e. if distributed generation is required to sell electricity into the wholesale spot market unless it has a direct connection with a consumer. On what basis should this be relaxed for P2P.
- Issues such as supply / demand mismatches need to be regulated so that other market participants are not wearing the cost of such events.

Q11. What is your view of the possibility for, and impact of, any current or future blurring of participant type? What are your reasons?

ERANZ does not believe that his is currently a material issue. However, the uptake of home batteries and electric vehicle charges may have unintended consequences when assessed against the current rulebook. We believe that this issue will need to be investigated further.

Q12. What types of participation are or might be prevented because the party is not recognised as a participant? What are the potential impacts?

ERANZ is unaware of any participation that is currently being prevented. However, issues will become apparent as technology develops and becomes more widespread. As for question 11 this will need to be investigated further, but we do not believe this is currently a material issue.

Q13. What challenges might new forms of generation, such as virtual power plants, or small and dispersed generators, face in entering the market?

ERANZ believes that market design and regulatory frameworks must be nimble enough to allow for value streams from emerging technologies such as virtual power plants.

[18] Value of battery storage in the NZ electricity system: Transpower – July 2017

There is no avoiding the fact that injecting electricity into any network creates complexities for a network owner, including power quality, voltage management, and safety when lines are disconnected - and it is not always apparent when lines are live downstream of the outage. As such it is important that there are clear standards and processes for connection, but these should not be used as an artificial barrier preventing the connection of small scale generation. A review of the standard information requirements for a distributed generator to connect to a network illustrates that challenge.

Q14. What changes might be required to the rule book to facilitate the emergence of virtual power plants or demand response.

It would be appropriate to define standard parameters for equipment that can be connected to any network in New Zealand, i.e. a manufacturer or supplier should be able to advise customers if their equipment is compliant, without prospective installations needing to meet different requirements for every EDB.

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?

Most traders in hedge contracts have the capacity to agree on a Master ISDA agreement already for short to medium term contracts.

Over the longer term, factors such as demand or production uncertainty, exchange rates, or the prices of raw materials or finished products all tend to be as uncertain as electricity prices. In such cases, parties sometimes link prices to another commodity or index.

It is unlikely that any regulatory overlay in this area would provide a net economic benefit overall.