Updating the Regulatory Settings for Distribution Networks

Summary of submissions on the December 2022 issues paper

Thursday 3 August 2023

ELECTRICITY AUTHORITY
TE MANA HIKO

Contents

1. Overview of the Consultation

1.1. In December 2022, the Electricity Authority (the Authority) released its issues paper: *Updating the Regulatory Settings for Distribution Networks*[1] (the issues paper). The issues paper followed a discussion paper released in July 2021 and a follow-up information request circulated to distributors, retailers, and metering equipment providers (MEPs) in March 2022.

1.2. The issues paper sought feedback on the prioritisation of concerns and tentative options on what we thought were the most pressing issues.

1.3. The issues paper posed 52 questions across five themes:

(a) equal access to data and information

(b) market settings for equal access

(c) capability and capacity

(d) operating agreements for flexibility services

(e) standards relating to Distributed Energy Resources (DER).

1.4. The original deadline for submissions was 28 February 2023. Near that date, the Authority recognised the efforts that were underway by industry to restore electricity supply to consumers affected by Cyclone Gabrielle and granted extensions to mid-March 2023 for some submitters.

[1] https://www.ea.govt.nz/assets/dms-assets/31/Issues-paper_-Updating-the-regulatory-settings-for-distribution-networks.pdf

2. Overview of submissions

2.1. The consultation process received a total of 40 submissions. All non-confidential submissions received will be published on our website.

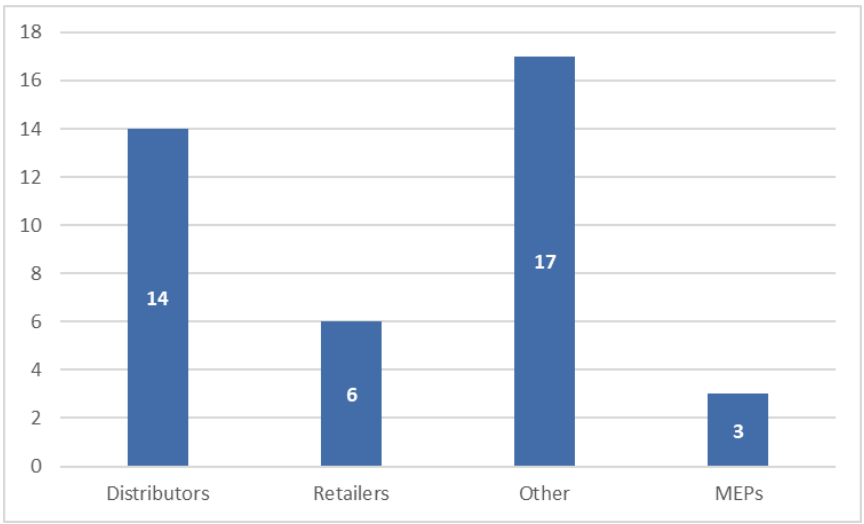
2.2. Where relevant, this paper discusses the general themes raised in submissions. The Authority has endeavoured to accurately summarise views expressed in the submissions. However, the summaries necessarily compress the information provided in submissions and the individual submissions should be read to obtain a full account of submitters' views.

2.3. A range of stakeholders responded to the issues paper. Figure 1 shows the breakdown of submissions by distributors, retailers, MEPs and 'Others'.

2.4. 'Others' describes a wide range of stakeholders. These include Ara Ake, Consumer Advocacy Council, Cortexo, FlexForum, Kāinga Ora, Independent Electricity Generators Association, Lone Wolf Enterprises, Manawa Energy, Overlay, solarZero, SwitchDin Industries, and Transpower.

2.5. Appendix A provides the list of all submitters.

Figure 1: Breakdown of submissions



Equal access to data and information

2.6. The chapter on equal access to data and information in the issues paper focussed on issues, priorities, and timing to consider in moving towards a fully digitised energy system. There was near universal agreement with the Authority's assessment that access to consumption and electricity quality data for the low voltage network is needed to improve the visibility of the low voltage network and support flexibility services. This was identified by submitters as a priority.

2.7. Distributors generally acknowledged that currently there is limited visibility of the low voltage network. Distributors considered that access to metering data was key to efficiently achieving low voltage network visibility. A lack of visibility remained a significant barrier to monitoring, planning, and ensuring efficient and timely rollout of

capacity in low voltage networks to meet growth. Having visibility of aggregated DER (especially electric vehicle charging) was also important to distributors.

2.8. Retailers agreed that taking steps to improve visibility of the low voltage network through data provision was a key priority. Several retailer submitters indicated comfort with distributors and MEPs working directly on data sharing.

2.9. MEPs also supported facilitating access for distributors and flexibility traders to smart meter data. However, MEPs noted that they have commercial incentives to provide consumption and power quality data to distributors and flexibility traders. MEPs did not support prescriptive regulation for data provision, but preferred market incentives to allow flexibility and innovation.

2.10. Submissions from 'Others' identified communication and connectivity of flexibility resources as a priority area. They also highlighted the importance of digitalisation of the electricity sector to the decarbonisation of the New Zealand economy and supporting consumer choice and benefit. Exchanging data between all 'players' in New Zealand's electricity supply and demand chain was described by one industry organisation as the thing underpinning efficient electrification of the economy.

2.11. We provide a more complete summary of all submissions on equal access to data and information in chapter four of this summary document.

Market settings for equal access

2.12. The Authority's preference (on page 48 of the issues paper) is that market settings should:

(a) ensure that both network and non-network solutions are considered for increasing the capacity of a distribution network, so the more efficient option is pursued

(b) ensure the benefits of market competition are realised by encouraging distributors to procure non-network solutions by competitive tender

(c) promote a level playing field for competitors in the market for non-network solutions, so that flexibility services can be offered to all buyers in the value stack.

2.13. The 'Market settings for equal access' chapter of the issues paper discussed three potential issues with adding capacity to distribution networks. The three issues stated were that:

(a) distributors may prefer network solutions when non-network solutions could be more efficient

(b) distributors may favour inhouse non-network solutions

(c) distributors could use their monopoly position in distribution to secure an advantage in contestable markets for non-network solutions.

2.14. There were a range of perspectives on whether there is an issue with distributors preferring network solutions over non-network solutions. Several submissions made

the point that the Commerce Commission's information disclosure regulations already require distributors to publish their approach to non-network solutions in their asset management plans. Several submitters also stated that they already considered non-network solutions as part of their network investment planning.

2.15. Many submissions suggested that the market for non-network solutions is emerging. They considered that there was still a lot of learning to be done, including the development and maturing of systems and processes across the industry.

2.16. Of the options put forward in the paper to address the issue that distributors may favour network solutions, targeted funding for trials or assistance for non-network solutions was the preferred option with distributors. This was the second most supported option overall. Some submitters considered that funding for trials and other help would de-risk and deepen the use and understanding of non-network solutions.

2.17. Requiring distributors to demonstrate they have explored non-network solutions for investments over a certain size and sharing information on what they have learnt when looking at non-network solutions, was also supported by distributors, retailers, and others.

2.18. Other ideas or options raised in submissions included:

(a) Share, and leverage off, evaluation templates to monitor and track progress of the consideration/use of non-network solutions by distributors

(b) data platforms are needed to inform distributors and others on the state of the network and these platforms are an important prerequisite to understand the need for non-network solutions

(c) it is useful to have disclosure requirements on distributors for the pricing of non-network solutions/flexibility services

(d) directors disclosing that the distributor has considered using non-network solutions/flexibility services.

2.19. We provide a more complete summary of all submissions on market settings for equal access in chapter five of this summary document.

Capability and capacity

2.20. Chapter six, ‘Capability and capacity’ of the issues paper highlighted that to realise the potential of DER and non-network solutions, sufficient human and financial resource are needed. The ideal state was that the sector had the sufficient capacity to design, build and implement both network and non-network solutions so that capacity is delivered at the lowest cost in a timely way.

2.21. The option advanced by the Authority to support developing capacity and capability was to support collaboration between distributors by providing guidance. There was also a possible extension to encourage distributor joint ventures.

2.22. Broadly, submitters provided examples of where collaboration is already happening, either amongst distributors or between distributors and the wider sector. All

distributors considered that guidance from the Authority on collaboration was currently unnecessary.

2.23. There was little support for encouraging collaboration. Some submitters suggested instead that the Authority should focus on creating an environment that supports learning-by-doing.

2.24. There was some support for the Authority doing more to encourage distributor joint ventures (the example of distribution system operation was given). It was noted that there may be competition law implications with some forms of collaboration that the Authority (or perhaps the Commerce Commission) could help with.

2.25. There were comments that one of the challenges facing the electricity sector is sourcing a skilled workforce to deal with the complex system of the future. As well as skills to plan and build networks, new skills such as managing data, engaging with customers on new issues, and scenario planning techniques were also needed. This capability and capacity issue was viewed by some submitters as severe enough that the Authority may need to help alleviate it.

2.26. We provide a more complete summary of all submissions on capability and capacity in chapter six of this summary document.

Operating agreements for flexibility services

2.27. The Authority's view in chapter seven of the issues paper 'Operating agreements' is that there are no significant issues to address with distributor agreements for flexibility services currently. However, the issues paper suggested that there could be value in providing some guidance on best practice, templates and/or standardisation to support industry-led developments.

2.28. The issues paper asked industry for views on the Authority's proposed monitoring approach. It also asked for suggestions on how the Authority can support industry-led work and monitor for issues that may arise in negotiations.

2.29. Distributors generally agreed with the Authority's assessment of the operating agreements issue as currently low priority. Several themes came from submissions, including that:

(a) understanding of the uses of non-network solutions is emerging, as is contracting for these kinds of services

(b) there is a need to consider an operating framework for distributors hosting DER on their network

(c) the allocation of risk between a buyer and seller of flexibility services is a fundamental and complex matter requiring industry to lead at this stage.

2.30. There were various suggestions on other ways the Authority could support the industry to develop standardised arrangements and monitor industry developments. These are discussed in the more complete summary of submissions in chapter seven of this summary document.

Standards relating to distributed energy resources

2.31. Chapter eight of the issues paper, ‘DER standards’ focussed on standards for distributed energy resources (DER standards). The issues paper focussed on ‘Part 6: Connection of distributed generation’, of the Electricity Industry Participation Code 2010 (the Code);and how Part 6 has not kept pace with the volume, size, and complexity of distributed generation (DG) applications.

2.32. The issues paper proposed a limited review of Part 6, focused on application processes, power quality standards and fees, and widening the scope of Part 6 to include more forms of DER. The Authority’s objective was that New Zealand has the DER standards it needs to underpin a competitive, reliable, and efficient electricity industry for the long-term benefit of consumers.

2.33. Overall, there was strong support for

(a) a Part 6 review, with most respondents wanting a full review of Part 6 (and where appropriate for DER, the wider Code)

(b) adding DER to Part 6 and/or the Code (in some capacity), with some suggestions on how best to do this

(c) mandating using the inverter performance Standard (AS/NZS 4777.2) and strengthening connection and operation standards, including monitoring and compliance

(d) reviewing Prescribed Maximum Fees and to consider alternative approaches (eg, Transpower approach)

(e) combining the Part 6 and pricing principles reviews.

2.34. Further, there was:

(a) very strong support to review the priority of applications clause in Part 6 and consider the Transpower connection process

(b) general agreement with the proposed changes to DG application processes, including the need to consider the complexity of large DG applications.

2.35. Submitters also suggested additional issues to consider for DER standards. These are discussed in the more complete summary of submissions in chapter eight of this summary document.

3. Next steps

3.1. The purpose of this workstream is to better support the electricity sector's transition to a low-emissions economy.

3.2. The Electricity Authority began engaging with stakeholders on the potential issues and options to improve the regulatory settings for distribution networks in 2021. We are committed to ensuring the right next steps are taken. Due to this, the complex nature of updating the regulatory settings for distribution networks, the dynamic and evolving environment, and our intention to not regulate new and emerging issues too early, this workstream has been a multi-year workstream.

3.3. Feedback from stakeholders has been crucial to further build on our understanding of how we can ensure the right updates are made to the regulatory settings, at the right time.

3.4. Using the insights gained from this consultation process, the Authority has developed a programme of work with concrete proposals to address the issues which will be taken to the Electricity Authority Board in September 2023. The Electricity Authority considered all submissions in full, along with our own detailed analysis, when developing the proposed work programme.

3.5. The Authority plans to publish a summary of the initial work programme in later in September 2023, followed promptly with detailed issue-by-issue proposals for final consultation with industry.

3.6. Thanks to the extensive consultation that has taken place over the past two years, the Authority is confident that we can move reasonably quickly to stand-up this work programme, following the final consultation round.

3.7. The following chapters provide a detailed summary of submissions from the December 2022 issues paper.

4. Equal access to data and information

4.1. The ‘Equal access to data and information’ chapter of the issues paper focussed on issues, priorities, and timing in moving towards a fully digitised energy system. This is a system where key data can be seamlessly accessed and exchanged in ‘real-time’ by authorised parties. The Authority considers that having open, transparent, and real-time data will be increasingly needed over time to unlock DER’s full potential. However, there are a series of steps to be prioritised to reach this objective.

4.2. Data is the key to efficient network planning, management, and pricing strategies. The Authority therefore wants to ensure equal access to data to create a ‘level playing field’ for distributors and flexibility traders, even though these parties may follow different paths and timing in needing access. Retailers’ privacy concerns in protecting consumers rights are also an important data consideration. The Authority sought feedback on whether the paper presented the important issues related to access and availability of key data, and how these should be prioritised.

Summary of submissions relating to access to data and information

Distributors

Distributors who provided feedback on this section: *Aurora Energy, Centralines, Counties Energy, Electra, Electricity Networks Association, Horizon Networks, Northern Energy Group, Northpower, Orion New Zealand, Powerco, PowerNet, Unison, Vector, WEL Networks, and Wellington Electricity*

4.3. Submissions showed that distributors considered that data exchange is a fundamental component of an effective and efficient electricity system. This is considered particularly important given the growth of electrification and the emerging role of DER in network management. Visibility of the low voltage (LV) network was considered critical in this transition. Distributors supported any practical steps to enhance data exchange to increase this visibility. This included making improvements to the Data Template to exchange data between distributors and retailers.

- Aurora stated: *“Access to metering data is key to efficiently achieving low voltage network visibility, and remains a significant barrier at present to monitoring, planning and ensuring efficient and timely capacity in low voltage networks to meet growth in solar and demand from electric vehicles and other electrification demand*.” (Aurora submission, p. 3, para. 3.1).

- Electricity Networks Aotearoa (ENA) stated: *“Data will be the beating heart of New Zealand’s electrified future. The exchange of data between all players in New Zealand’s electricity supply and demand chain will underpin the efficient electrification of the economy. The Authority has proposed common-sense changes to the data exchange template to remove some of the barriers to the exchange and use of data between distributors and retailers. ENA supports these changes.”* (ENA submission, p.4, para 1).

4.4. Distributors considered visibility of all aggregated DER was important. However, aside from large DER (which is likely to already be more visible), visibility and management of electric vehicle (EV) charging was generally the single type of DER considered most important to address.

4.5. Distributors were aware that increased DER adoption means a need for more 'real-time' data, as the electricity system requires more frequent and more two-way data exchanges. Several distributors noted that it must be recognised that the Default Distributor Agreement (DDA) Data Template, for example, was useful for static, historic data only. Submitters considered that it will become less useful as distributors push for access to near 'real-time' data.

4.6. Many distributors saw the need for 'real-time' data within, rather than after, five years to allow set-up time for systems to manage this data. Submitters noted that this will require sufficient funding to unlock the data's value and regulatory direction to set requirements.

4.7. The Northern Energy Group (NEG)[2], for example, identified two simultaneous issues regarding network visibility and data needs:

- *"Access – while some of our networks now have access to half-hourly kWh consumption data for much of their networks, others do not. The majority of our networks do not have access to any network operational data (NODs) from smart meters, at scale. While implementation can be phased, to transition to a two-way network, network operators will need real time data at most or all points of connection. This requires access to consumption and network operation data, in real time."* (NEG submission, pp. 4 – 5).
- *"Insufficient data – the focus of smart metering deployment to date has been on enabling the collection and provision of consumption data for retailers. This is not necessarily the data we need to operate the network, nor to implement some of the cost-reflective pricing advocated for by the Authority. Regulatory direction is needed to establish a standardised approach to smart meter data including the type, frequency and costs of information provided (and to ensure the equipment installed has the technical capability required)."* (NEG submission, pp. 4 – 5).

4.8. The need for a standardised approach to data exchange was a key theme emerging from distributors' submissions. While not proposed by the Authority, several distributors supported establishing a central data platform/registry to be accessible to consumers, retailers, distributors, and flexibility traders. This would be subject to conditions of use ensuring appropriate privacy.

- PowerNet stated: "*Without full, consistent data, provided in a timely manner, the value of the data is limited. A mutually agreeable standardised process for sourcing and sharing real-time network data across the entire distribution network, such as a centralised Application Programming Interface (API) without retailers as 'gatekeepers' but with appropriate access controls, is*

[2] Representing Counties Energy, Northpower, The Lines Company, Top Energy, Waipā Networks and Vector.

considered a key output to deliver improved access to information." (PowerNet submission, para. 3.19).

4.9. However, regarding improving DER visibility, most distributors preferred that the Registry data fields were enhanced rather than establishing a separate DER registry. Although the ability of the Registry to manage this was also questioned.

4.10. While there was some cautious support from distributors for flexibility traders to gain equal access to data, they also generally considered that distributors' data requirements needed addressing first. This was both to manage distributors' networks and interpret data to make it meaningful for flexibility traders.

4.11. Distributors strongly supported being able to negotiate directly with MEPs for data access (and considered flexibility traders should also have this ability). They noted inefficiencies in dealing with multiple retailers for data and retailers protecting their commercial position. Distributors acknowledged consumer privacy rights may impact on information sharing. Some distributors questioned whether some electricity-related data, in particular power quality data (PQD), warranted being treated as 'personal' data.

4.12. Finally, distributors commented on the need for a better understanding of current distribution network capacity, network congestion and power quality (particularly voltage). Understanding what PQD is available now and what could be made available in future was considered a critical area requiring focus.

Retailers

Retailers who provided feedback on this section: *Contact, Electricity Retailers' Association of New Zealand, Genesis, Mercury, Meridian, and Octopus Energy*

4.13. Retailers agreed that a key priority was taking steps to improve visibility of the low voltage network through data provision.

- Electricity Retailers' Association of New Zealand (ERANZ) stated: *"The short-term priority until 2025 is facilitating ICP-level historical consumption and power quality data to inform decisions on whether and where to invest in non-network solutions. This data would provide visibility of DER on the low voltage network and is needed to indicate congestion on the network to optimise DER hosting."* (ERANZ submission, p. 3).

4.14. ERANZ and several retailers submitting separately were comfortable with distributors negotiating directly with MEPs to receive data, providing that permitted purpose and consumer data privacy requirements were met. ERANZ suggested that it was not retailers' role, nor effective, to act as the sector's data repository. ERANZ also encouraged the Authority to keep working with the Ministry of Business, Innovation and Employment (MBIE) on the Consumer Data Right to ensure alignment in the electricity sector.

4.15. Octopus Energy's response also reflected a preference for an open access approach:

- *"In our view distributors and other approved parties (eg, a customer consented flexibility trader, System Operator, or Powerswitch) should be able to access any available data for an ICP directly from the MEP. We*

understand access is currently frustrated by the systems of some retailers and confidentiality requirements of commercial arrangements between some retailers and MEPs. A code change providing access, privacy/anonymization requirements and parameters for charging for data provision would resolve this." (Octopus Energy submission, p. 1).

4.16. Retailers generally supported improving the Data Template to facilitate data exchange between retailers and distributors, for permitted purposes. However, some retailers considered direct data provision from MEPs to distributors, and particularly to flexibility traders, was inappropriate. They argued that customers expected retailers to manage their data. Two retailers noted separate concerns about potential lack of flexibility traders' relationships with relevant parties: one regarding consumers, the other regarding retailers.

MEPs

MEPs who provided feedback on this section: *Influx, Intellihib, and Vector Metering*

4.17. MEPs' submissions supported facilitating access for distributors and flexibility traders to smart meter data. They considered this will benefit developing and implementing products and services to help consumers improve their energy use efficiency, help deliver benefits and promote innovation and competition in the energy industry.

4.18. A key theme emerging from MEPs submissions was that efforts to facilitate data access should be as flexible and unrestrictive as possible. This was so as not to distort market incentives and stifle innovation.

4.19. Some MEPs considered that they already had an existing commercial incentive (ie, to maximise revenue streams from their infrastructure investment) to provide consumption and power quality data to distributors and flexibility traders. They argued that this data exchange is already occurring.

4.20. The following statements from Intellihub's submission illustrates these views:

- *"We are also mindful of the potential for regulatory intervention to distort market incentives. For this reason, we consider that regulatory intervention should be a last resort, as there is a risk of 'regulatory error' in circumstances where markets and technology will rapidly evolve."* (Intellihub submission, p. 1, para. 4).
- *"We recommend that, prior to the [sic] deciding to regulate the provision of any consumer data, the EA undertakes further consultation with distributors, retailers, flexibility traders and MEPs to determine the processes and contractual relationships that will govern the exchange of data between those participants (particularly in respect of data provided to flexibility traders and other third parties). In the absence of clear processes there is a substantial risk of data privacy issues arising."* (Intellihub submission, p. 2, para. 9(a)).
- *"In the interests of encouraging further investment in MEP technology, and in recognition of technical constraints in existing smart meter infrastructure, we strongly encourage the EA to refrain from imposing any requirements or*

standard terms on MEPs in relation to the collection and provision of power quality data." (Intellihub submission, p. 2, para. 9(b)).

4.21. Influx's submission suggested a non-prescriptive, accessible, and consistent approach:

- *"1. Data is a public good*

  a. Data underpins innovation, and shouldn't be constrained by prescriptive measures.

  b. Access should be easy - not for just current but for future participants.

  i. Lower barriers.
  ii. Lower participation cost.
  iii. Lower bureaucracy, more bureaucracy favours larger incumbents.

  2. All parts of the energy supply chain should be treated equally, including retailers distributors, and other parts of the energy supply chain.

  a. Consistent service pricing.
  b. Consistent service provision terms for all participant [sic]."

(Influx submission, p.2).

4.22. Vector Metering's submission also reflected the other MEPs' support for non-restrictive approaches to data access. While supporting standardisation where useful (eg, via an enhanced Data Template), Vector Metering's experience was that it was already delivering a significant amount of data outside the DDA framework. Instead, Vector Metering recommended flexibility in data delivery via commercial negotiations.

Others

'Others' who provided feedback on this section: *Amazon Web Services, Cortexo, Consumer Advocacy Council, Electricity Engineers Association, Energy Trusts NZ, FlexForum, Independent Electricity Generators Association, Lone Wolf Enterprises, Major Energy Users Group, Manawa Energy, Our Energy, Overlay, solarZero, and SwitchDin Industries, and Transpower*

4.23. The 'Others' submitters grouping, representing a diverse range of sector organisations, reflected a correspondingly diverse range of feedback. We have summarised some overarching comments, particularly those outside the specific questions posed in the consultation paper, below.

4.24. The FlexForum[3] was one of several submitters that commented on the importance of digitalisation to realise DER's potential. It noted that shifting to more dynamic approaches for allocating and using spare network capacity requires extensive new

[3] The FlexForum is an industry-led association of 22 diverse participants, including distributors, retailers, MEPs, and other industry organisations. It seeks to accelerate progress through practical action to ensure DER and flexibility are available to:

- support affordable and reliable operation of the electricity market and power system.
- enable accelerated electrification by households and businesses as part of the transition to a net zero emissions economy.

capability, processes, and practices, and particularly, significant investment in digitalisation across the supply chain.

4.25. The FlexForum identified 'communication and connectivity of flexibility resources' as one of five areas it considers the Authority should prioritise for immediate focus and action. It stated that communication and connectivity were foundational capabilities of an electricity system and market which maximises the value of DER and flexibility.

4.26. The FlexForum noted that electrification will put millions of DER (EVs, solar, battery storage) on our distribution networks. It considered these must be seamlessly integrated into the networks, electricity system and market in a way that gives power (and value) to the households and businesses who own the DER. It suggests that:

- *"Digitalisation must be at the heart of this integration to make that data and information available to balance, second-by-second, the electricity, and capacity required to keep the lights on, and to make sure that people and businesses have the information they need to make their electrification decisions and to participate in the electricity market."* (FlexForum submission, p. 7).
- *"The electricity sector needs to embrace digitalisation. Digitalisation means converting information into a digital and computer-readable format so all types of information in all types of formats can be processed, intermingled, stored, shared and transmitted with less fuss, bother or hassle and at lower cost."* (FlexForum submission, p. 7).

4.27. Further, the FlexForum noted that learning-by-doing is already underway through the demand flexibility common communication protocols project being delivered by industry (represented by the Electricity Engineers Association) and the Energy Efficiency and Conservation Authority (EECA) and the acquisition and use of network operational data by distributors.

4.28. The Consumer Advisory Council (CAC) and Independent Electricity Generators Association (IEGA) supported fewer restrictions to data access and a centralised data platform.

- CAC stated: "*Access to customer metering data is of primary concern as metering data enables many of the potential technology benefits for consumers, and we consider that current access provisions are inadequate. Access to metering data can help consumers benefit from pricing offers from retailers, load aggregators or network/s. While we acknowledge there are privacy issues, we recommend the Authority be more active in this area and reconsider a virtual or actual centralised metering database*." (CAC submission p. 3, para. 3.7).
- IEGA stated: "*A central registry with open access to any party is a logical solution. All the relevant data originates at the consumer's meter and is equally relevant for a distributor, flexibility buyer or supplier and retailer. It would be less expensive for end consumers if everyone, including consumers, could access this information from one platform."* (IEGA submission p.3, para. 2).

4.29. The Major Energy Users Group (MEUG) also explicitly supported an enabling, outcome-focussed approach rather than a prescriptive one, unless regulatory change is clearly needed.

4.30. Transpower expressed views consistent with other submitters acknowledging the importance of data as DER in the network grows, and that privacy issues needed due consideration:

- *"Access to data is critical for supporting operational and investment understanding in the transition to a highly renewable energy system with increasing two-way flows…The Authority needs to be clear on who owns that data, and what permissions (ie, from the consumer) are required for the data to be accessed by other parties."* (Transpower submission, p. 3).

4.31. Transpower also suggested that it should be provided with aggregated grid-level data to enhance visibility:

- *"We encourage ICP-level data aggregated to grid level be passed on to system operator and grid owner for grid operations and planning, each as a permitted purpose. This data visibility will lead to better long-term outcomes for consumers."* (Transpower submission, p. 3).

4.32. Cortexo explicitly articulated a point implied by several 'Others' submitters that the Authority should provide a whole-of-system view (wider than distribution networks) of the known and potential changes to data flows as electrification creates a more decentralised power system. Cortexo also suggested a Code change for much faster provision of consumption data by retailers:

- *"Amend the Code (clause 11.32B(1)) to reduce the timeframe to respond to requests for consumption data from 5-days to 1 minute. This change should occur by December 2023. In parallel, the Authority should set clear expectations regarding compliance with Electricity Information Exchange Protocols formats and enforce those expectations"* (Cortexo submission, p. 5).

5. Market settings for equal access

5.1. The Authority's preference (on page 48 of the issues paper) is that market settings should:

(a) ensure that both network and non-network solutions are considered for increasing the capacity of a distribution network, so the most efficient option is pursued

(b) ensure the benefits of market competition are realised by encouraging distributors to procure non-network solutions by competitive tender

(c) promote a level playing fiend for competitors in the market for non-network solutions, so that flexibility services can be offered to all buyers in the value stack.

5.2. The issues paper identified three potential problems that may affect these outcomes. These were:

(a) that some distributors may prefer network investments over non-network solutions to solve distribution network capacity constraints

(b) where non-network solutions are preferred to solve capacity constraints, some distributors may have a bias to self-supply these solutions rather than using competitive procurement

(c) distributors may use their market position in regulated services to gain an advantage in one or more potentially contestable markets, including, but not limited to, non-network solutions.

5.3. This chapter identified a range of options to address the above issues and the options that the Authority prefers. The Authority sought feedback on all the above.

Summary of submissions on the potential issue of distributors preferring network solutions

Distributors

Distributors who provided feedback on this issue: *Aurora Energy, Counties Energy, Electra, Electricity Networks Aotearoa, Horizon Networks, Northern Energy Group, Northpower, Orion New Zealand, Powerco, PowerNet, Unison, Centralines, Vector, WEL Networks, and Wellington Electricity*

5.4. Distributor submitters commonly acknowledged the need to consider non-network solutions to address network capacity issues. Common themes from submissions includes:

(a) progressing policies and practices relating to non-network solutions

(b) developing and prioritising options for non-network solutions, as an alternative to grid-based investment

(c) distributors are required to report their approach to non-network solutions in their Asset Management Plans which are provided to the Commerce Commission.

5.5. Responding to Option 1 (industry-led education and guidance) five distributors (the ENA, Electra, Powerco, WEL Networks (WEL) and Wellington Electricity) indicated that they do not support industry-led education and guidance from the Authority). These distributors stated that they already see evidence of distributors sharing information and methods for using and procuring non-network solutions. They consider the sector has sufficient capability, interest, and incentives to develop more structured education and guidance opportunities, as and when they are needed. Northpower and Orion supported further education, as part of a suite of actions, and three others neither supported nor were unsupportive of this option.

5.6. Option 2 (funded trials, with funding source currently undetermined) was clearly preferred by distributors. Eight submissions (including the ENA, NEG, Orion, Powerco, PowerNet, Vector) support Option 2, on the basis that external funding for adopting non-network solutions (either via trials or actual deployments) will help to de-risk some of this activity for distributors. Submissions indicating support noted that funding trials would lead to greater exploration and adoption by distributors of these new techniques and arrangements. Submissions also strongly indicated a preference for practical learning opportunities. One distributor was unsupportive of Option 2, stating that distributors were already exploring non-network solutions options, and two others made no comment.

5.7. Option 3 sought views on whether a requirement should be introduced for distributors to demonstrate that they have explored non-network solutions. The ENA appeared ambivalent on this option pointing out that there is evidence of distributors of all types exploring the opportunities around non-network solutions and this will become increasingly common. The ENA stated that distributors are well aware of the expectations placed upon them to use non-network solutions when it is appropriate to do so, so there is no lack of awareness. ENA stated that if such a requirement is imposed on distributors, it should be kept relatively simple to comply with, to keep the burden imposed to a minimum. The ENA noted that the Commerce Commission already requires distributors' approach to non-network solutions to be presented in their Asset Management Plans and cautioned the Authority against inadvertently duplicating regulatory monitoring that is happening elsewhere.

5.8. Five distributors (Horizon, Northpower, Orion, PowerNet, and WEL) supported Option 3, with all these submissions (except WEL) seeing this option forming part of a diversified strategy. WEL did not support Options 1 or Option 2. Several submitters also pointed out the requirement for asset management plans to report distributors' approach to non-network solutions.

Retailers

Retailers who provided feedback on this issue: *Contact Energy, Electricity Retailers' Association of New Zealand, Genesis Energy, Meridian, and Octopus Energy*

5.9. ERANZ, Contact, Genesis, and Meridian supported Option 3. These submitters also supported a high degree of transparency and regular reporting on distributors' consideration of non-network solutions. Contact also supported Option 2 but suggested that any government funding scheme should be available to both distributors and flexibility traders. Octopus Energy was the only retailer to support Option 1.

5.10. Other comments in retailers' submissions includes:

(a) the regulated nature of distributor revenue may make it difficult for distributors to invest in capacity (for non-network solutions) or to fully recover costs of these investments

(b) regulatory settings should not encourage any particular form of investment or ownership of non-network solutions or DER

(c) arrangements must ensure that there is a 'level playing field' for providing non-wire alternative services between distributors and other providers

(d) use monitoring of distributors' consideration of non-network solutions to manage capacity constraints and later undertake reviews to consider if further interventions are needed

(e) interest in the option of having directors annually sign-off that non-network solutions had been considered as part of the network asset management and investment activities

(f) one submitter (Meridian) did not support multiple trading relationships (MTRs) due to their complexity (redesigning reconciliation and settlement processes, developing cost allocation methods for common infrastructure), high costs and no real benefits for consumers – Meridian considered that consumers could achieve the same outcome by installing a second meter.

Others

'Others' who provided feedback on this issue: *Independent Electricity Generators Association, Kāinga Ora, Lone Wolf Enterprises, Manawa Energy, Overlay, solarZero, SwitchDin Industries, and Transpower*

5.11. Of the options raised in the issues paper, there was equal support from this group for Options 2 and 3 (with four submissions supporting each option).

5.12. Option 1 was only supported by solarZero. Four submissions did not express a view on this option. The strong message from 'Others' submissions was that the consideration and use of non-network solutions is emerging. Accordingly, they indicated there is a place for trial and error and the monitoring and sharing of the learnings across the sector.

5.13. There were various comments and ideas on what could be done to support using non-network solutions to address network capacity issues, beyond the comments and options in the issues paper. Other comments/options raised by 'Others' included:

(a) it is not in the nature of distributors to be open to non-network solutions

(b) the Authority has several important roles to support the developing flexibility services, including promoting and facilitating further sharing of information around flexibility services - to give the industry an accurate picture of the potential application and value of non-network alternatives - regulation should be the option of last resort

(c) a need to better understand the service expectations of customers in a highly electrified world - how should we think about quality of service when more people are likely to depend on electricity in the future?

(d) a need to learn from New Zealand and overseas experiences with non-network solutions

(e) the immediate priority is ensuring an independent retail market (for solar) is sustainable

(f) MTRs needs more consideration as the implications for participants and customers are yet to be considered meaningfully (eg, is wholesale market risk apportioned fairly between traders?).

(g) investment decisions and efficient expenditure are the responsibility of the Commerce Commission

(h) general support of the Authority's efforts to facilitate/encourage/support developing and contracting flexibility services from any source - the regulatory framework needs to provide safeguards to ensure distributors are indifferent between purchasing flexibility from any source– but there should not be a bias towards independent provision of non-network solutions or shrinking the role of electricity network monopolies

(i) information required to inform the design and need for flexibility services must be available equally to all parties

(j) a possible work programme with:

- the Authority leading an industrywide debate on the future service levels required from the electricity sector in a low carbon world
- the Authority arranging a process to promote and facilitate sharing information around flexibility services – to 'flush' out potential application of non-network solutions and to get a more accurate picture of the potential application and value of non-network services before considering regulations
- require networks to publish a non-network solutions procurement policy, clearly stating the circumstances networks will seek to externally procure non-network solutions.

(k) because non-network solutions are still new and emerging, submitters would like to see effort by the Authority and other agencies to help move the industry up the learning curve quicker, through a multi-pronged approach of:

- education/workshops etc
- funded trials - learning is expensive and helping cover costs would be beneficial
- stronger incentives on lines companies to consider non-network solutions.

(l) establishing arrangements ensuring that non-wire alternatives are carefully considered by distributors when making decisions around additional investments, and that these assessments occur on a 'level playing field' with other potential providers - one option was for all distributors' directors to sign an annual declaration that the business investigated using non-network solutions for proposals valued at over $5m.

Summary of submissions on the potential issue that distributors may favour inhouse non-network solutions

5.14. Fourteen submissions supported Option 3 (encouraging distributors to make standing offers) to address the concern that distributors would favour inhouse solutions. Some submissions supported more openness, both regarding real-time information on network congestion/constraints and sharing non-proprietary information from procurement processes.

5.15. The second most supported option was to monitor distributors use of competitive procurement (Option 4). Monitoring the amount of procurement activity and the results from this activity was also a theme. There was a strong theme in submissions that monitoring and regular reporting could lead to better information on the potential of flexibility services for both distributors and flexibility providers. These experiences could encourage developing new commercial solutions, support future learning-by-doing and inform any future policy development around flexible services and market access.

5.16. Submitters mentioned Option 2 (work on MTRs) as an example of innovation currently looking to be developed. Some submitters highlighted the time it takes to go through the Code exemption process and others discussed the merits of streamlining the process for exemption from current regulatory settings.

5.17. There was also some support in submissions not to preclude distributors from involvement in providing flexibility services, but that it was important to maintain a 'level playing field' for competition.

Distributors

Distributors who provided feedback on this issue: *Aurora Energy, Counties Energy, Electricity Networks Aotearoa, Horizon Networks, Northpower, Orion New Zealand, Powerco, PowerNet, Vector, WEL Networks, and Wellington Electricity*

5.18. Submissions from distributors (ENA, Aurora Energy, Counties Energy, Northpower, Orion New Zealand, Powerco, Vector) favoured Option 4 (monitoring distributors use of competitive procurement). There was also some support for external monitoring and reporting the results of competitive procurement regularly throughout the year. Submitters suggested these reports should be regularly published. Submitters' preference was for the costs of reporting results to be kept low, for example, by using readily available information disclosures.

5.19. The second preferred option was Option 3 (encouraging distributors to make standing offers). Option 3 was supported by ENA, Counties Energy, PowerNet, Vector, WEL, and Wellington Electricity. It was noted by some that several

distributors already offered time of use tariffs, and “these are a form of standing offer” – showing explicitly how much value a flexibility trader may gain for a consumer by shifting their load from peak to off-peak across the year (Vector estimates avoided distribution charges of about $100/kW/year from moving load to non-peak times).

5.20. Submitters considered that making offers more dynamic in the low voltage network seems desirable, but this requires more detailed analysis of costs and benefits. Standing offers would also need to be supported by appropriate agreement of terms and conditions, for example, visibility and performance expectations, and assurances around flexibility reliability.

5.21. Some submitters (including the ENA, Orion, and Vector) raised concerns that Option 5 (imposing ’arm’s-length’ rules on distributors involved in flexibility services) presupposes that competitive procurement of non-network solutions (ie, from third parties) will always be desirable or/optimal when compared to self-supplied non-network solutions. Submitters also raised that ‘in-house’ supply will not always be in consumer interests. Some submitters considered it important that consumers may be better served if there was a focus on creating a ‘level playing field’.

5.22. There were comments indicating that distributors already understand, and some have experience in tendering for non-network solutions, and how to tender for services. They therefore saw little value in Option 1 (education and guidelines on competitive procurement and coordination).

5.23. There was a general view that Option 2 regarding enabling MTRs was not a viable option to address network solutions. It was rather considered to be about providing an energy solution. There was some support for the MTR trial, but also suggestion that MTR is not relevant in the context of distributors favouring ‘in-house’ non-network solutions.

5.24. Other ideas raised in submissions from distributors included:

(a) foster an environment enabling commercial solutions to emerge, through learning-by-doing, in preference to regulation

(b) require distributors to ‘signpost’ in their asset management plans, specific areas of their network that they forecast as good candidates for non-network solutions

(c) increase transparency on investigations into using non-network solutions, including by sharing case-studies or non-proprietary data from procurement processes, or requiring distributors to publicly report why non-network solutions were not used.

Retailers

Retailers who provided feedback on this issue: *Contact Energy, Electricity Retailers' Association of New Zealand, Genesis Energy, and Meridian*

5.25. Most retailers supported Option 3 (encourage distributors to make ‘standing offers’ for DER). However, this support was often qualified, with some submissions favouring other options more strongly. Most retailers viewed Option 3 as a good place to start. This may improve transparency and facilitate market development and tailored proposals. There were some concerns that ‘standing offers’ may not be

dynamic and flexible enough (one submission noted that the Avoided Cost of Transmission payment requirement was a form of 'standing offer' that the Authority has removed).

5.26. Option 4 (monitor distributors' use of competitive procurement) was also seen as a good starting point by retailers. There was widespread support for a 'level playing field' for providing flexible services and competitive procurement. Submissions seemed to want to balance giving the market for flexible services time to develop, with monitoring evidence which could be used to support further regulatory intervention (eg, 'arm's-length' rules) if needed.

5.27. However, one submission (from Contact) stated that anything less than arms-length rules will see distributed energy markets continue to stagnate. Contact considered that forcing flexibility services into separate 'arm's-length' entities will create greater transparency, focus distributors on being a neutral platform/distributed system operator, create more competition, and give investors the confidence to invest.

Others

'Others' who provided feedback on this issue: *Ara Ake, Consumer Advocacy Council, Cortexo, FlexForum, Independent Electricity Generators Association, Kāinga Ora, Octopus Energy, Transpower, Lone Wolf Enterprises, Manawa Energy, Overlay, solarZero, and SwitchDin Industries*

5.28. Most submissions from 'Others' supported Option 2, (enabling MTRs). Two of the five submissions were from parties directly involved with this initiative. Another submission suggested that MTR should be separated from the work looking at regulating the distribution networks. While they agree that MTR is a priority and an example of learning-by-doing; they note that MTR primarily impacts the transaction of energy services, as opposed to network services. The latter are a more significant part of the flexibility value stack.

5.29. Another point made was that no options identified by the Authority were mutually exclusive. Submitters suggested that the Authority could enable MTRs to support the uptake of DER, encourage distributors to make standing offers for DER, and monitor distributors' procurement practices.

5.30. Option 3 (encourage distributors to make 'standing offers' for DER) was the next most supported option from 'Other' submitters. Additional comments on this option included that the proposal that distributors make available their 'standing offer' price information for DER to support longer term alternatives to network investment, would be a 'step in the right direction towards market development.'

5.31. Other suggested options included:

(a) expanding use of pilots and trials to support more informed, evidence-based policy-making and regulatory changes

(b) producing a framework for parties to request exemptions for learning-by-doing - the framework should set out the matters the Authority wants to consider, including desirable characteristics (eg, addresses issues identified by multiple parties, involving a range of participants and impacts on consumers), and create clear expectations around timeframes for decisions, etc

(c) introducing mechanisms to enable and facilitate co-ordination between distribution networks and DER operators, to ensure the physical limits of the network are adhered to, and that DER operators are not unnecessarily constrained from operating to optimise value - some suggested a distribution system operator role was needed

(d) prioritise ways to 'surface' to participants 'real-time' information on allocation and management of distribution of network capacity, including constraint management to highlight the constraints that non-network solutions might address

(e) design processes that allow both suppliers and buyers to determine the value and price of flexibility services - common terms of trade for the exchange of flexibility reduces transaction costs for both flexibility buyers and sellers

(f) consider the potential benefit in aggregating non-network solutions, where the size of the non-network solutions' market is a limiting factor

(g) require networks to publish a non-network solutions procurement policy, clearly articulating under which circumstances networks will seek to externally procure non-network solutions

(h) develop a roadmap of the future capability the Authority expects networks to be developing (eg, ability to manage data, improved ways of engaging with customers, and developing new planning techniques - ie, scenario planning) that are more appropriate in the current uncertain world

(i) ensure that any intellectual property associated with a proposed non-network solution put forward by an alternative flexibility supplier is appropriately protected.

Summary of opinions on whether there are circumstances in which the Authority should extend the 'arm's length' rules to EDB's providing flexibility services

5.32. There were mixed views on this matter with submissions both in support and opposed. Two retailers and two 'Others' agreed that there were circumstances where 'arm's-length' rules should be applied to providing flexibility services. There was some support for the potential concerns the Authority raised about distributors preferring network solutions or 'in-house' provision of flexibility services.

5.33. However, some submitters suggested that 'arm's-length' rules should only be applied to distributors if distributed energy resource markets were becoming distorted or inefficient by their actions. Other submitters considered that 'arm's-length' rules would create transparency and allow a more even 'playing field' for competition.

Distributors

Distributors who provided feedback on this issue*: Aurora Energy, Counties Energy, Electricity Networks Aotearoa, Horizon Networks, Orion New Zealand, Powerco, PowerNet, Vector, WEL Networks, and Wellington Electricity*

5.34. Several submissions (including from the ENA, Horizon, Orion, and PowerNet) did not support extending 'arm's-length' rules. Comments from distributors included that their primary obligations were to deliver a safe, reliable, and efficient network for the supply of electricity to their customers. Distributors considered that if these objectives were best achieved via the self-supply of non-network solutions, then that option should be available.

5.35. Several submissions commented that the Commerce Commission already has comprehensive rules related to cost allocation and related party transactions. Further, that these rules (including the cost allocation and related party transaction rules) already manage and mitigate the risks the issues paper is concerned about.

5.36. Some submitters also raised concerns that the issues paper assumes that it will be more efficient, and in consumer interests, for flexibility services to be provided by any party other than the distributor. Therefore, any self-supply of non-network solutions by distributors would be mistakenly considered undesirable.

5.37. Vector commissioned research from the Competition Economists Group which stated that distributors should be given the incentive to choose external supply whenever it has lower cost than self-supply. The research also states:

- *"… it would be a grave error if EDBs were forced to buy all flexibility services at 'arm's-length' before there is any evidence that this results in the lowest costs to consumers. Indeed, it would be an especially grave error when there is reason to believe that purchasing flexibility services at arm's-length will, at least in some circumstances, be higher cost than self-supply."* (Vector submission, p. 41).

5.38. Other submissions (by Aurora, Horizon, PowerNet, Vector, and Orion) noted that in addition to the Commerce Commission rules highlighted above, New Zealand has a comprehensive set of laws and regulations to prohibit anti-competitive practices. It also has a well-resourced and competent regulator to enforce them. These submissions noted that if flexibility traders, or any other parties, consider that distributors have behaved in a way that transgresses these laws, there are mechanisms available to them for remedy and recompense. Submitters also noted there did not appear to be a strong reason for the Authority to pre-emptively preclude distributors from self-supplying non-network solutions without evidence of this being contrary to consumers' interest.

5.39. Other points made by distributors arguing that there are currently no circumstances to extend 'arm's-length' rules to flexibility services include:

(a) this approach is not needed given Commerce Commission oversight

(b) there needs to be evidence that distributors are preferring 'in-house' solutions

(c) such rules for non-network solutions sitting in a distribution high voltage network would be like other businesses owning distributor's transformers

(d) such rules would slow uptake of new technology due to health and safety risks to the distributors from external parties being in substations (for example)

(e) in some cases, distributors self-supplying non-network solutions can be in consumer interests.

Retailers

Retailers who provided feedback on this issue: *Electricity Retailers' Association of New Zealand, Genesis, and Meridian*

5.40. ERANZ agrees with the Authority's concerns that distribution networks may prefer network solutions, when non-network solutions could be a more efficient option; and that if distributors decide to invest in DER, they may be more likely to favour 'in-house' investment rather than follow a competitive procurement process. However, ERANZ considered that regulatory settings should be careful not to promote any particular ownership arrangements of renewable energy resources.

5.41. ERANZ's preferred way forward was monitor distributor's decision making and procurement processes to ensure that non-network services are considered and procurement is fair for alternative providers. ERANZ also supported a requirement that boards need to certify annually that they have considered alternatives to network solutions and 'in-house' provision of non-network solutions for investment in network management and demand growth.

5.42. Meridian also supported monitoring and information disclosure. This was to provide evidence on whether there is the need to extend 'arm's-length' rules to ensure that distributed energy resource markets avoid distortions and remain efficient.

Others

'Others' who provided feedback on this issue: *Manawa Energy, Overlay, solarZero and SwitchDin Industries*

5.43. SwitchDin submitted that they had no objection to distributors conducting pilots or testing new technology, but an 'arms-length' basis should be taken in circumstances involving distributors and contestable markets unless there are extenuating circumstances. SwitchDin also supports policies adopted in other jurisdictions. SwitchDin supports the Council of European Energy Regulators position that distributors should not be involved in contestable services, and the Australian Energy Regulator's position to 'ring-fence' distribution businesses.

5.44. Manawa Energy supported introducing 'arm's-length' rules now so that there is no opportunity to prevent or hinder competition in downstream markets. An exemption could be included to enable testing new technology.

5.45. SolarZero noted that, except for one or two, distributors are not creating an environment to consider procuring non-network solutions. This needed to be monitored.

5.46. Overlay considered there were circumstances where the 'arm's-length' rules should be extended. The example they provided was where distributors pick up distribution system operator roles.

Summary of submissions on possible options to address the issue that distributors might use their monopoly position to secure an advantage in contestable markets

5.47. Submissions from distributors indicated a clear preference for using existing disclosure and monitoring arrangements (Option 1) to determine whether distributors are engaging in anti-competitive behaviours regarding flexibility services. Distributors suggested that imposing 'arm's-length' rules for involvement in certain downstream contestable markets (Option 2), should only be considered in response to anti-competitive behaviour. Most distributors stated that competition law was mainly the responsibility of the Commerce Commission.

5.48. Most submissions from retailers indicated that Option 2 should only be used where anti-competitive behaviour is established. A minority of retailer submissions supported 'arm's-length' rules from the outset.

5.49. Most submissions from 'Others' supported 'arm's-length' rules from the outset, but some suggested exemptions could be available to cover extenuating circumstances (eg, pilots and trials).

Distributors

Distributors who provided feedback on this issue: *Aurora Energy, Counties Energy, Electricity Networks Aotearoa, Horizon Networks, Northpower, Orion New Zealand, Powerco, PowerNet, Vector, WEL Networks, and Wellington Electricity*

5.50. Most submissions indicated a preference for Option 1, although several supported using existing disclosure and monitoring processes. Further, most submissions suggested that competition matters fall within the ambit of the Commerce Commission.

5.51. The ENA submitted that New Zealand has an existing set of competition laws that third parties can use if they consider those laws have been transgressed. The ENA considered that "*There is no compelling reason why the Authority should pre-empt any such legal processes based purely on allegations of such practices or harms*." (page 16 of the ENA submission) Other submitters noted that they were already engaging with third party providers for flexibility services.

5.52. Horizon suggested that monitoring should apply to all participants in contestable markets that seek to use their resources unfairly, where there is an opportunity for consumer harm.

5.53. Counties Energy submitted that Option 1 should only apply to DER behind the meter and not to resources in the distribution network.

5.54. Several submissions considered Option 2 should only be implemented where anti-competitive behaviours are found.

5.55. Powerco and Vector raised the need for clarity regarding the new section 32 powers (conditions for extending 'arm's-length' rules) and the boundaries of its rule making powers, the purpose of the powers, and what the Authority must consider. These distributors suggested that these matters should be subject to consultation.

Retailers

Retailers who provided feedback on this issue: *Contact, Genesis, and Meridian*

5.56. Submissions from Contact, Genesis and Meridian supported Option 1 (rely on existing disclosure and monitoring arrangements). Some submitters were slightly keener on the 'arm's-length' rules being deployed from the beginning or at the first signs of anti-competitive behaviour.

5.57. Contact supported Option 2 by default, also considering that 'arm's-length' rules should apply whenever there is scope to use monopoly assets in competitive markets. They cited, for example, the current use of ripple control in the reserves market. Contact considered that if monopoly assets could be used in competitive markets this should be enough of a concern for the Authority to apply 'arm's-length' rules.

Others

'Others' who provided feedback on this issue: *Manawa Energy, Overlay, solarZero and SwitchDin Industries*

5.58. Submissions from 'Others' were slightly more in favour of 'arm's-length' rules (Option 2) as the default setting. Two submissions (Manawa Energy and SwitchDin Industries) supported 'arm's-length' rules, with exemptions for pilots or in exceptional circumstances.

5.59. Ideas put forward also included that distributors could be required to disclose to the market the information that they will use to decide whether to invest in flexibility services or non-network solutions. Further, that it would be better for distributors to evolve over time into orchestrators of solutions, rather than be a provider of non-network solutions.

6. Capability and capacity

6.1. The ‘Capability and capacity’ chapter of the issues paper focussed on the need for sufficient human and financial resources, to realise DER’s potential. The desired outcome of any implemented options would be that the sector has sufficient capacity to both enable the significant uptake of DER and increase supplying flexibility services. The options presented were for the Authority to enable more collaboration between distributors by providing guidance, and possibly extending this to encouraging distributor joint ventures.

Summary of views on the Authority’s option of using education, including guidance, on how distributors should collaborate in future

Distributors

Distributors who provided feedback on this option*: Aurora, Counties, Energy Networks Association, Horizon Networks, Northern Energy Group, Northpower, Orion New Zealand, Powerco, PowerNet, Vector, WEL Networks, and Wellington Electricity*

6.2. No distributors supported the option of the Authority issuing guidance on how distributors could collaborate in future. The general view was that collaborative initiatives are well underway between distributors, and the Authority should direct its efforts towards progressing matters it can more directly impact.

6.3. Nine distributors and the ENA referred to existing collaborative efforts and commented that distributors were already acutely aware of the benefits of collaboration.

6.4. Some examples of collaboration already underway included the NEG, the ENA’s Smart Technology Working Group, the FlexForum, and the Orion and Wellington Electricity ResiFlex initiative.

- Aurora stated: *“With such a clear understanding on the importance of collaboration, it is unnecessary for the Authority to expend resources to create guidance on how distributors should collaborate.”* (Aurora submission, p. 9, para. 45).

6.5. Three distributors (Horizon, Powerco, Wellington Electricity) also noted that they prefer to rely on the ENA to coordinate collaboration between distributors, or that the Authority should engage with the ENA first on potential opportunities.

- Wellington Electricity stated: *“Distributors understand the opportunities to collaborate and have an association (ENA) who co-ordinates this collaboration.”* (Wellington Electricity submission, p. 21).

Retailers

Retailers who provided feedback on this option: *Contact and Meridian*

6.6. Two retailers (Contact and Meridian) generally supported collaboration between distributors but were unconvinced that Authority-produced guidance could positively impact improving collaborative efforts.

Others

'Others' who provided feedback on this option: *Manawa Energy, Overlay, SwitchDin, and solarZero*

6.7. Two 'Other' submitters (Manawa Energy and Overlay) supported this option. Overlay added that guidance could support distributors through any potential Commerce Act implications of collaboration.

- *"We support the Authority assisting distributors with any capability and capacity gaps. As an aside we were surprised that some distributors were not concerned about this issue and wonder if that is further evidence of a reluctance to engage with non-network solutions."* (Manawa Energy submission, p. 10).

6.8. SwitchDin and solarZero did not support Authority-issued guidance, stating that it was unclear whether this would be helpful. However, solarZero did suggest that the Authority could play a stronger leadership role by helping to lead workshops and to connect the industry with overseas experts.

Summary of submitters' views on whether it would be helpful for the Authority to encourage use of joint ventures between distributors

Distributors

Distributors who provided feedback on this option: *Aurora, Counties, Electricity Networks Association, Horizon Networks, Northpower, Orion New Zealand, Powerco, PowerNet, Vector, WEL Networks, and Wellington Electricity*

6.9. Two distributors (Northpower and Counties) supported the Authority doing more to encourage joint ventures:

- *"Distributor joint ventures for the purposes of purchasing flexibility services could be seen as exerting bargaining power and from that point of view we think it would be beneficial for the Authority to provide guidance to assist distributors to avoid any regulatory or competition law transgressions."* (Northpower submission, p. 15).
- *"… the integration of DERs requires distributors to make significant cost and time investments into new Distribution System Operator (DSO) platforms that will have significant economies of scale."* (Counties submission, p. 8).

6.10. Nine distributors and the ENA submitted that it would be unnecessary or unhelpful for the Authority to encourage joint ventures.

- *"ENA does not agree that that Authority's role is to encourage particular business models, such as the use of joint ventures, between distributors to increase their integration of DER and non-network solution projects."* (ENA submission, p. 18).
- *"We do not consider that the Electricity Authority should intervene in joint venture arrangements, 'arm's-length' transactions or commercial arrangements/model's frameworks at such at an early stage, given there is still significant development to occur in these areas of the sector."* (Orion submission, p. 13).

6.11. Powerco suggested that if the Authority sees opportunities for more progress in the joint venture space it should engage directly with the ENA.

Retailers

Retailers who provided feedback on this option: *Meridian and Contact*

6.12. Contact's response to Option 2 (encourage joint venture arrangements) focussed on encouraging the Authority to consider how it could support nationwide distribution service operation. Contact noted that small scale joint ventures would likely lead to too much fragmentation.

6.13. Meridian commented that it was unclear whether the Authority was well placed to facilitate any efficiencies regarding distributor joint ventures, but that if the Authority sees potential to do so at low cost, then it should proceed.

Others

'Others' who provided feedback on this option*: Manawa Energy, Overlay, and SwitchDin Industries*

6.14. Manawa Energy, Overlay, and SwitchDin supported the Authority encouraging using joint ventures (Option 2). Overlay suggested that this encouragement could be indirectly given by coordinating a regulatory 'sandpit' allowing parties to pilot joint solutions.

- Manawa Energy stated: *"We think there could be real value in joint ventures that aggregates the 'size of the prize' in terms of non-network solutions."* (Manawa Energy submission, p.10).

7. Operating agreements for flexibility services

7.1. The ‘Operating agreements’ chapter of the issues paper stated that the Authority considers that there are no large issues to address at this stage with distributor agreements for flexibility services. The paper noted that there would likely be value in the industry providing some guidance on best practice, templates and/or standardisation to reduce the costs of negotiating operating agreements. The issues paper asked industry for views on the Authority’s proposed monitoring approach, and suggestions on how the Authority can support industry-led work and monitor for issues that may arise in negotiations.

7.2. Distributors generally agreed with the Authority’s assessment that the operating agreements issue is currently a low priority. However, NEG’s view was that the issues identified were significant, expressing concerns relating to its future ability to manage network constraints and orchestrate response to emergencies. It considered that standardised default operating agreements would create industry efficiencies and provide assurances to customers about how constraints and emergencies will be managed. A degree of national consistency would be preferable for these parties.

7.3. Some distributors noted that the form of operating agreements for flexibility services may be different to what the Authority appeared to expect. Some examples provided were contracts with large customers for line services which include demand flexibility, or pricing plans for retailers that provide a flexibility service.

7.4. Some distributors (NEG, Wellington Electricity, Counties) submitted that the Authority should focus on producing a hierarchy of needs, or operating framework. This suggested framework would ensure that distributors and Transpower can call on flexibility services in emergency situations and create industry efficiencies.

- *“Flexibility traders will be able to earn revenue from a number of sources including offering it to electricity retailers during high spot price periods and bidding into the SIR/FIR markets. These markets may offer a better return than can be provided by an EDB… the Authority should regulate to ensure that a DER is available to Distributors for distribution and transmission emergencies.”* (Counties submission, p. 8).
- *“The Authority should prioritise development of an operating framework for distributors hosting DER on their network, including:*
    - *network capacity allocation,*
    - *constraints management,*
    - *emergency management,*
    - *communications and control methodologies, and*
    - *central registry.”*

  (NEG submission, pp. 13 – 14).

7.5. Several submitters commented that operating agreements will be one of many components supporting implementation. They considered the better focus currently would be on developing non-network solutions and discussing any specific regulatory barriers or risks that arise with parties.

7.6. Vector, NEG, and the FlexForum commented on allocating risk between flexibility services' buyers and sellers. The complexity of appropriate risk management was considered a reason why industry should currently lead contracting development.

- NEG stated: *"Commercial agreements should be left for market participants to develop. Issues such as risk allocation are complex and the sector should be tasked with developing arrangements for these, in the first instance."* (NEG submission, p. 14).

7.7. Overlay suggested that the Authority learn from examples where a set of defined bilateral agreements has been formed under a global industry body between users in the telecommunications sector.

7.8. Submitters gave the following suggestions for how the Authority could support industry to develop standardised agreements, or monitor industry developments:

(a) maintain ongoing conversations and workshops with participants

(b) codify a definition of flexibility services

(c) address any potential competition issues

(d) maintain dialogue with groups like the FlexForum

(e) provide a dispute resolution process

(f) develop frameworks that would help industry form a standardised approach

(g) facilitate funding for trials

(h) publicise industry agreements (as a condition of funding trials)

(i) request periodic information from distributors on service levels and timeframes in negotiating contracts

(j) publish periodic monitoring reports

(k) monitor overseas developments.

Summary of feedback on proposals to monitor progress between Transpower and distributors in developing standard offer forms for procuring non-network solutions, and monitor whether issues associated with operating agreements for flexibility services are developing

Distributors

Distributors who provided feedback on this issue: *Counties, Electricity Networks Association, Horizon Networks, Northern Energy Group. Northpower, Orion New Zealand, Powerco, PowerNet, Vector, Wellington Electricity, and WEL Networks*

7.9. Nine distributors and the ENA agreed with the proposed monitoring approach, while two distributors did not explicitly agree or disagree.

7.10. Distributors who agreed generally considered that:

(a) procurement for non-network solutions is still in an emerging phase and it will take time for standard approaches to form, or that no further action is warranted until there is evidence of an issue

(b) there will be a degree of complexity in these arrangements that means allowing market standards to emerge commercially is currently the best approach.

7.11. One distributor (WEL) commented that monitoring Transpower's development of standard offer forms for non-network solutions would be useful. However, WEL also questioned whether the range of standing offers between distributors and Transpower will be effective between distributors and flexibility suppliers.

Retailers

Retailers who provided feedback on this issue: *Meridian and Contact*

7.12. Two retailers (Meridian and Contact) supported the proposed monitoring approach. Meridian commented that this will contribute to an evidence base for further development.

Others

'Others' who provided feedback on this issue: *Major Electricity Users' Group, Manawa Energy, Overlay, solarZero, SwitchDin Industries, and Transpower*

7.13. Manawa Energy disagreed with the approach proposed and was concerned with the Authority's framing of this as a low-priority issue, '*We already know that these agreements are needed and that the incentives on network companies to develop appropriate arrangements are not strong.'* (Manawa Energy submission, p. 11).

7.14. Five 'Other' submitters (Overlay, Transpower, SwitchDin, solarZero, MEUG) agreed with the proposed monitoring approach. Transpower noted it had proposed, through the Innovation and Participation Advisory Group, its openness to working with the Authority and other parties on a standard contract.

7.15. MEUG went further, noting that the paper downplayed the importance of this, and the Authority should be actively facilitating work to agree standing offer forms for procuring non-network solutions.

Summary of feedback on the best way the Authority can monitor whether issues associated with operating agreements for flexibility services are developing

Distributors

Distributors who provided feedback on this issue: *Electricity Networks Association, Horizon Networks, Northpower, Orion New Zealand, Powerco, PowerNet, Vector, Wellington Electricity, and WEL Networks*

7.16. Vector suggested that the Authority's Market Monitoring team could have a dedicated stream analysing how the flexibility services market is developing (and that this could also extend to monitoring overseas developments).

7.17. Orion and Horizon suggested that the Authority should work closely with industry, through ongoing conversations or requesting periodic reporting from participants. Such reporting would include details such as service and timeframes to negotiate contracts.

7.18. Three distributors (Northpower, Wellington Electricity, WEL) and the ENA were confident that stakeholders would raise issues with the Authority as and when they occurred.

7.19. Two distributors (Powerco, PowerNet) commented that the better focus for the Authority would be to let the market for non-network solutions develop, by ensuring that appropriate incentives are in place for investment.

Others

'Others' who provided feedback on this issue: *Manawa Energy, SwitchDin Industries, and Transpower*

7.20. Manawa Energy commented that the Authority could be actively involved in developing templates for standard technologies or standard terms and provide a dispute resolution process for more bespoke arrangements.

7.21. Further comments included that the Authority could return to this question later (SwitchDin), or reiterated support for the Authority's conclusion to not currently mandate progress on operating agreements (Transpower).

Summary of feedback on how the Authority can support industry-led work on providing guidance on best practice and templates for operating agreements

Distributors

Distributors who provided feedback on this issue: *Electricity Networks Association, Counties, Horizon Networks, Northern Energy Group, Northpower, Orion, Powerco, PowerNet, Vector, and Wellington Electricity*

7.22. Northpower and Powerco suggested the following areas the Authority could support industry with:

(a) guidance on compliance or liability issues in contractual arrangements

(b) addressing potential competition issues associated with sharing flexibility agreements across industry and collating agreements for sharing across industry.

7.23. Three distributors (Counties, Horizon, Orion) suggested the Authority could provide support through facilitating workshops or maintaining ongoing conversations with participants. WEL commented that the Authority should maintain an open and transparent approach in its FlexForum observer role and call out any overlooked regulatory barriers.

7.24. PowerNet and the ENA suggested that the Authority should work with industry and the Commerce Commission to establish a clear and codified definition of flexibility services.

7.25. Two distributors (Wellington Electricity, Vector), the ENA, and NEG submitted that contractual and procurement practices should be developed by the sector and not involve the Authority in the first instance. Reasons for this view included the complexity of issues such as risk allocation and allowing space for commercial agreements to develop.

7.26. NEG submitted that although commercial agreements should be left for market participants to develop, the Authority should prioritise developing an operating framework for distributors hosting DER on their network. This should include network capacity allocation, constraints management, emergency management, communications and control methodologies, and a central registry.

Others

'Others' who provided feedback on this issue: *Manawa Energy, Overlay, SwitchDin and Transpower*

7.27. Overlay and Manawa Energy suggested that the Authority could be involved in industry working groups or trials, providing secretariat services, or leveraging off the existing work of the FlexForum.

7.28. Transpower noted that it would be open to providing its standard participation agreement as a starting point.

7.29. SwitchDin suggested that support could be facilitated through a grants-based programme, where a condition of funding is that the results are publicly available as a shared asset.

8. Standards relating to Distributed Energy Resources

8.1. The ‘DER standards’ chapter of the issues paper focussed on ‘Part 6: Connection of distributed generation’, of the Code. This chapter of the issues paper discussed how Part 6 has not kept pace with the volume, size, and complexity of DG applications.

8.2. The Authority proposed a limited review of Part 6 focussing on application processes, power quality standards and fees. Widening the scope of Part 6 to include DER was also proposed. The desired outcomes of any implemented options were more efficient connection and operation of DER, and more secure and resilient networks.

8.3. Feedback on ‘DER standards’ came mainly from distributors. Overall, there was:

(a) strong support for a Part 6 review, with most respondents wanting a full review of Part 6 (and where appropriate for DER, the wider Code)

(b) strong support to add DER to Part 6 and/or the Code (in some capacity), with some suggestions on how best to do this

(c) general agreement with the proposed changes to DG application processes, including needing to consider the complexity of large DG applications

(d) very strong support to review the priority of applications clause in Part 6, including considering Transpower’s connection process

(e) strong support to mandate using the inverter performance Standard (AS/NZS 4777.2) and strengthen connection and operation standards, including monitoring and compliance

(f) strong support to review Prescribed Maximum Fees and consider alternative approaches (eg, Transpower’s approach)

(g) a strong voice to combine the Part 6 and pricing principles reviews.

8.4. Submitters also suggested additional matters for the Authority to consider regarding DER standards. These are summarised at the end of this chapter.

Summary of feedback on scope of any review of Part 6 of the Code

Submitters

Submitters who provided feedback in this section include: *Aurora Energy, Consumer Advocacy Council, Contact, Counties Energy, Electricity Engineers Association, Electricity Networks Association, Horizon Networks, Independent Electricity Generators Association, Major Energy Users Group, Manawa Energy, Northern Energy Group, Orion New Zealand, Overlay, Powerco, PowerNet, solarZero, SwitchDin Industries, Transpower, Vector, WEL Networks, and Wellington Electricity.* Note: Submitters in Section 8 have not been broken down into group categories.

8.5. Overall, there was strong support for a Part 6 review, recognising that the Code has not kept pace with the number, size, and complexity of distributed generation applications.

8.6. SolarZero was the only respondent that considered a Part 6 review would provide little value, indicating that in their experience at the residential and commercial scale (kW to tens of kW) Part 6 works well. While solarZero noted there were differences

between lines companies, these differences were unlikely to be addressed by changes to the Code, as they were more related to training, education, and standardisation. SolarZero stated that Code changes were laborious for both the Authority and the industry and that there were higher priorities to focus on than a Part 6 review.

8.7. Of those supporting a review of Part 6 of the Code, there was a broad range of views on the scope and matters raised in the issues paper. These included:

(a) About two-thirds of submissions wanted a wider scope than that proposed, with several seeking a full review of part 6 (and, in some instances, the wider Code where appropriate for DER). Comments included that Part 6 was not designed for the type of large-scale generation applications we are now seeing (of similar complexity to that connecting to the grid), or the forecast volume and complexity of future DER connections.

(b) Many submitters supported amending Part 6 and/or the Code to include DER. It was the issue of most importance to submitters, recognising that DER will play a significant role in reducing and/or deferring investment in new supply and infrastructure. A few submitters questioned whether Part 6 was the best place to include DER in the Code, and one submitter did not support including non-injecting DER in the scope of a Part 6 review. Other submissions considered that DER should be registered/more visible, and work needed to be done on mechanisms to get the greatest value from DER.

(c) There was a broad range of feedback on the questions and other matters relating to processes for connecting DG. There was general support for considering the processes, thresholds and other matters relating to the connection of DG. There was very strong support to review priority of applications, with many submitters recommending the Authority consider the suitability of Transpower's approach for the distribution sector.

(d) There was strong support to mandate using the inverter performance AS/NZS 4777.2:2020 Standard. Submitters noted the standard includes the latest power quality settings and that these are important for network security and resilience, particularly as DG populations increase. There were various secondary comments including allowing using equivalent standards, setting AS/NZS 4777.2:2020 as the minimum standard, and needing to maintain standards and keep the Code current. One submitter put forward feedback in opposition of mandating the standard:

- solarZero stated: *"Until the industry can regain trust in the standards process, no standard should be incorporated into the Code."* (solarZero submission, p.4).

8.8. All submissions on this issue supported the proposed review of prescribed maximum fees. Many noted the current fees:

(a) are largely unchanged from 2007 and therefore have not kept pace with inflation

(b) are insufficient to cover the costs of processing DG applications, particularly larger, more complex DG applications

(c) may result in other network users (including vulnerable customers) cross subsidising the cost of DG applications

(d) for large-scale DG, do not align with fees charged by Transpower.

8.9. Many submissions considered the review of Part 6 and a review of DG pricing principles should be combined. Outside of the issues proposed for the review, this issue had the greatest level of support from submitters.

8.10. Additional matters raised included:

(a) Constraint management: Many distributors already, and will increasingly, face challenges on how best to manage network constraints. This includes how best to allocate resources to existing customers and customers wanting to join the network, who/what on the network should be prioritised for curtailment, and when/where network capacities should be increased. Distributors sought the Authority's help on how best to manage this.

(b) Connection and operation standards (stringency, consistency, monitoring and enforcement): Several distributors raised the importance of the connection and operation standards for network security and resilience. This was especially important as DER and flexibility services are expected to play a greater role in network security.

(c) Unauthorised connections: Several distributors wanted the Code to provide greater powers to address unauthorised connections. The ENA noted the Code lacks a prescribed method to notify and disconnect unauthorised distributed generators. The current clause in the Code and any impact of non-compliance with it, does not reflect the associated health and safety risks.

(d) Interoperability standards: A few submitters considered the Authority should consider interoperability and connectivity requirements for DER, particularly for private EV chargers, which have the greatest potential to shift peak load. In South Australia (SA) a distribution network will be required to demonstrate that the inverter is interoperable with the SA Power Networks utility server and is capable of dynamic export limitation.

(e) Standardised DG application processes: To speed up DG applications, the EEA and Orion suggested developing a framework or guidelines to assess DG connections.

(f) Renewable grid code: Vector suggested a clearer set of requirements be developed by Transpower for DG >1MW. Renewable grid codes specify the types of studies required to prove that generator(s) can connect safely without adverse effects. Grid codes can also specify the type(s) of DER that should adhere to controls and the power reduction and restoration ramps for safe operation.

(g) Cost of Connection: Contact Energy considered the primary barrier to electrification projects was cost of connecting to distribution networks. Contact sought more flexibility from distributors (eg, using non-firm/interruptible DER where fossil-fuelled backup is available). IEGA noted the connection costs charged by distributors, indicating these can vary across networks and through

the course of a single project (sometimes significantly). IEGA suggested distributors could provide a standard table of costs, like that provided by Transpower.

Appendix A List of Submitters

#	Submitter	Categorisation	Description
1	Amazon Web Services	Others	Software development company
2	Ara Ake	Others	New energy development centre, funded by and reporting to, MBIE
3	Aurora Energy	Distributor	Distributor operating in Dunedin and Central Otago
4	Consumer Advocacy Council	Others	Independent advocate for residential and small business electricity consumers, constituted under the Electricity Industry Act 2010 and funded by government.
5	Contact	Retailer	Electricity generator and retailer
6	Cortexo	Others	Software development company
7	Counties Energy	Distributor	Distributor operating in the Counties region in Auckland
8	Electricity Engineers Association (EEA)	Others	Represents corporate member organisations and individual professionals in the electricity supply industry
9	Electra	Distributor	Distributor operating in Kapiti and Horowhenua districts
10	Electricity Networks Aotearoa (ENA)	Distributor	Industry membership body representing the 29 local distributors
11	Energy Trusts NZ	Others	Industry body representing consumer-owned and community-owned energy trusts
12	Electricity Retailers' Association of NZ (ERANZ)	Retailer	Industry body representing electricity retailers
13	FlexForum	Others	Group of organisations formed to focus on availability of DER and flexibility

14	Genesis	Retailer	Electricity generator and retailer
15	Horizon Networks	Distributor	Distributor operating in the Bay of Plenty
16	Independent Electricity Generators Association (IEGA)	Others	Industry association representing around 40 regional electricity generation businesses
17	Influx	MEP	MEP
18	Intellihub	MEP	MEP
19	Kāinga Ora	Others	Crown agency providing rental housing to New Zealanders
20	Lone Wolf Enterprises	Others	Business providing consultancy services to the New Zealand energy sector
21	Manawa Energy	Others	Electricity generator
22	Mercury	Retailer	Electricity generator and retailer
23	Meridian	Retailer	Electricity generator and retailer
24	Major Energy Users Group (MEUG)	Others	Industry body representing 14 major electricity users
25	Northern Energy Group (NEG)	Distributor	Industry body representing Counties Energy, Northpower, The Lines Company, Top Energy, Waipa Networks, and Vector
26	Northpower	Distributor	Distributor operating in Whangarei and Kaipara districts
27	Octopus Energy	Retailer	Electricity retailer
28	Orion New Zealand	Distributor	Distributor operating in Christchurch and central Canterbury
29	Our Energy	Others	Energy technology company
30	Overlay	Others	Telecommunications software company
31	Powerco	Distributor	Distributor operating in the North Island

32	PowerNet	Distributor	Distributor operating three South Island networks: Electricity Invercargill, OtagoNet and The Power Company
33	solarZero	Others	Solar energy provider
34	SwitchDin Industries	Others	Energy software company
35	Transpower	Others	Owner and operator of the national grid
36	Unison and Centralines	Distributor	Distributors operating in the Hawke’s Bay, Rotorua, and Taupo
37	Vector	Distributor	Distributor operating in the Auckland region
38	Vector Metering	MEP	MEP
39	WEL Networks	Distributor	Distributor operating in the northern and central Waikato region
40	Wellington Electricity	Distributor	Distributor operating in the Wellington region