

Additional Consumer Choice of Electricity Services

Stakeholder Interviews Summary Information paper

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1 This information paper is part of the ACCES project

- 1.1 The Electricity Authority (Authority) is examining arrangements to enable additional consumer choice of new electricity services (the ACCES project).
- 1.2 New electricity services are enabled by new technology such as distributed generation, battery storage, electric vehicles and smart energy management devices. The Authority considers that facilitating additional consumer choice of electricity services will provide long-term benefits to consumers by removing barriers to competition and promoting more efficient operation of the electricity industry.
- 1.3 To test the potential for ACCES and shape our efforts to facilitate it, we have sought out and listened to the views of organisations that will be actively involved with developing consumer access to multiple electricity services.
- 1.4 This information paper summarises the feedback to the Authority provided by these organisations during a series of structured interviews held between November 2018 and January 2019.

2 We conducted targeted interviews to test the three models

Who did we interview?

- 2.1 We interviewed people from 15 organisations to gather their experiences of working with (or trying to work with) the increased variety of electricity services, and to talk through the issues and implications of the potential options. Interviewees included start-ups, consumer advocates, retailers, metering equipment providers (MEP), distributors and market operation service providers.

How did we choose the interviewees?

- 2.2 In deciding who to interview, we were mindful to invite a cross-section of the industry. While we were interested to hear from those actively involved in the development of non-traditional service offerings, it was also important to hear the views of traditional retailers and consumer groups.
- 2.3 The comprehensive nature of the interviews resulted in each running for between two and three hours. In light of this, we chose to adopt a focused approach to interviewee selection to ensure cross-sectional representation.

What did we talk about?

- 2.4 Each interview followed the same format:
 - (a) a discussion of the interviewees' experience with non-traditional electricity services
 - (b) a discussion of the pros and cons of the three potential models, and how they would work in practice.
- 2.5 Engaging this way allowed us a deeper perspective of how new electricity services are actually being rolled out in practice and let us explore potential options interactively with interviewees.

What feedback did we get?

- 2.6 Interview feedback provides support for making changes to allow additional choice for consumers but not for fundamental change to systems and processes.
- 2.7 In regard to the current market for new services, there are signs of the way forward.
- (a) Technology to provide additional services to consumers exists today. Measurement, monitoring, communication and control technology can support more granular, unbundled services if commercial and regulatory arrangements allow.
 - (b) Market performance demonstrates there is already demand for new kinds of electricity service, including services from multiple suppliers at one location. Emerging commercial business models are sufficiently robust to get outside financing, and investors are backing companies providing new kinds of services to end-users, primarily around solar photovoltaic (PV) and battery storage infrastructure. Initial uptake is with customers in higher socio-economic groups, and consumer experience has not universally lived up to expectations.
 - (c) A small but growing number of service providers are already successfully offering alternative electricity services under current arrangements, but it is not as easy as it could be. Some providers are offering services completely behind the meter. They are doing so without interacting with central market systems and processes, but they would like to be able to. Other service providers have set up as retailers in order to offer their services, but they would not have done this if there had been a simpler way to get access to meter data and exposure to distribution tariff signals.
 - (d) While more granular services are absolutely necessary, few customers will actively manage multiple services on their own – intermediaries will continue to bundle services and be the ones who seek out the efficiencies.
- 2.8 Interviewees saw a variety of barriers to innovation, which echoed the feedback from the previous Multiple Trading Relationships (MTR) and Data and Data Exchange (DDx) consultations. Barriers as seen by interviewees included:
- (a) difficulty for third parties to gain access to customer usage data, even with customer approval
 - (b) difficulty for consumers and third parties to gain access to non-kWh smart meter data, though noting that progress is being made
 - (c) meter data quality, both for measurement data and metadata in the registry
 - (d) the need to develop faster and cheaper mechanisms to access Installation Control Point (ICP)-level data
 - (e) the need for cost-reflective distribution pricing to unlock the value of new technologies to networks
 - (f) restrictions on effective metering arising from current arrangements, including the monopoly characteristics of meter equipment and contracting arrangements
 - (g) the need for more coordinated and open access to load control flexibility of retail customers and their devices
 - (h) lack of standardisation in connection arrangements for new technology across distribution businesses

- (i) the need for more effective enforcement of existing Code provisions around access to and quality of data.
- 2.9 While interviewees were supportive of change, they were also wary of too much intervention, consistently noting that:
- (a) changes should be small evolutionary steps rather than requiring big-bang, up-front change and the Authority should be careful not to lock in a solution to deal with future situations that may not eventuate
 - (b) any new arrangements should be on an opt-in basis; and consumers and participants should not be forced to change, or face additional costs to continue operating under current arrangements.
- 2.10 Interviewees gave useful feedback on the three potential models.
- (a) Interviewees saw value in aspects of all three models. They expressed a need for flexibility and reducing the friction for customers.
 - (b) Most interviewees thought the contractual model alone was not enough. This view was strongly held amongst active innovators who saw the current model as unlikely to deliver the best outcome for consumers.
 - (c) Some interviewees questioned whether an ‘agent as broker’ model would be any different to the current retailer-led model, and they were concerned commercially driven brokers would not have consumers’ best interests at heart. Interviewees liked the clearer separation of services provided by an agency model and that it would allow new service providers to focus on their speciality, rather than managing processes for the whole ICP.
 - (d) Many interviewees expressed a desire for some level of centralisation, particularly a single source of truth for sub-ICP metadata (for example through extension of the registry to record participants at meter channel level) and the ability for new service providers to reconcile sub-ICP volumes in central processes via a neutral party.
 - (e) Most interviewees did not prefer a completely centralised market operation service provider (MOSP) model in which the reconciliation manager used sub-ICP level meter data from a central meter database. They saw it as likely to be expensive, inflexible to change, and to require effort and expenditure from participants even where they would not choose to use the new functionality.
- 2.11 From the feedback we draw the following key principles for the design of a model to support additional consumer choice of electricity services. It should:
- (a) provide a single point of truth for sub-ICP metadata for all parties including customers, service providers, MOSPs and distributors
 - (b) allow new service providers to participate in central market processes without having to take on management of the entire ICP
 - (c) not require full visibility of sub-ICP meter data to the reconciliation manager
 - (d) not spread responsibility for ICP-level activities over multiple parties
 - (e) not impose unreasonable costs on customers or service providers
 - (f) enable customers to have a frictionless experience when engaging with the service providers of their choice.

2.12 More detailed interview feedback is in Appendix A.

Appendix A Feedback from targeted interviews

- A.1 As part of developing a preferred option to facilitate ACCES, we met with selected organisations to get input into the problems and help shape the proposal.
- A.2 Each interview began with discussion of the interviewee's experience with non-traditional electricity services, including:
- (a) experience offering or facilitating consumer access to new services
 - (b) nature of the new services being developed
 - (c) maturity of the market for new services
 - (d) view of the opportunities for new services
 - (e) the barriers experienced when offering or trying to offer new electricity services
 - (f) the benefits of enabling access to new electricity services.
- A.3 We then sought views on the three models for facilitating access to new services.
- A.4 We interviewed people from the following organisations:
- (a) Consumer NZ
 - (b) Cortexo
 - (c) emhTrade
 - (d) GoodMeasure
 - (e) Jade
 - (f) Karit
 - (g) Metrix
 - (h) NZX
 - (i) OsiSoft
 - (j) Saveawatt
 - (k) Simply Energy
 - (l) SolarCity
 - (m) Trustpower
 - (n) Vector AMS
 - (o) Waipa Networks.
- A.5 This appendix describes interviewee input on:
- (a) the current state of the market for new kinds of electricity services
 - (b) barriers to innovation in additional consumer choice of electricity services
 - (c) considerations for changing market arrangements to support ACCES
 - (d) the potential models.
- A.6 Relevant excerpts from interviews are presented as boxed text.
- A.7 Interviewees were very positive about the Authority's inclusion of direct interviews as part of the approach to developing a proposal.

Meeting to discuss is a much better approach than responding to a consultation document. It allows industry participants to provide input while assessment frameworks are still being developed.

It's good to see the Authority gathering information and testing hypotheses before bursting into print. Engaging via conversation allows nuanced communication, which is hard to get from print.

Having a meeting to discuss the concepts and options and give feedback is much easier and less effort than responding to a consultation paper.

The current state of the market for new electricity services

Technology to provide additional services to consumers exists today

A.8 Interviews featured discussions about measurement, monitoring, communication and control technology that exists today. Participants discussed:

- (a) measurement devices that can sit behind, in front of, in parallel with or connected to the meter
- (b) communications technology that allows real-time data to be sent simultaneously to multiple parties via multiple channels
- (c) control technology that can manage, optimise and aggregate battery, PV and electric vehicle (EV) performance, charge, discharge and site usage in real time to meet a wide variety of criteria, including customer preferences, network needs and wholesale market pricing.

Technology exists today that could solve many of the problems we have in the sector, but deployment and use is made difficult by how relationships are defined. If the Authority gets the definition of relationships right, it will create a fruitful market for technology to come in and enable new services.

Market performance shows that there is demand for new kinds of electricity services

A.9 Customers are already choosing to purchase new services, and this is driving innovation in the market. Several interviewees are actively delivering or working on new kinds of electricity service to consumers in parallel with their existing retail service, primarily based around solar PV and battery storage infrastructure.

The customer has to be the centre of the conversation. This access to multiple services is real, and we as an industry have to make it work.

People with solar panels don't like their current retail arrangements. Over time, we found that existing PV customers were changing when they used power – shifting their load so they could buy more solar. Lots of people want to support increased solar usage, community, and the environment, for the same reasons people buy solar systems in the first place.

Many commercial customers are interested in new technologies. People choosing to install PV are generally more engaged than the average energy user. There are three main groups of people who want to install PV: Environmentally conscious people who can afford to do so, people who want to “stick it to the man”, those who are forced to by

covenants on new build. Mostly, our initial conversations have not been with service providers, or people with a clear plan to install technology, but rather with customers who want to try something new but aren't quite sure how to do it.

A.10 Some consumers have had bad experiences with new service providers, but it is improving.

Experience with companies selling new energy services (e.g. solar systems) has been that the services are expensive, and the benefits have been oversold. As the cost of new technology drops and the sales projections become more realistic there will be fewer problems. We are already seeing uptake move from just the interested early adopters towards mainstream adoption. For example, many new housing developments include a solar system on every home.

A.11 These new business models are robust enough to get outside financing, but interviewees were divided on the scale of potential uptake.

Funders are interested. There is financial backing to do it. Once the smaller entrants demonstrate it is possible, then the likes of the major gentailers will enter the market.

We know that there are consumers who want to purchase new energy services, but until a platform exists to enable it, it will be very difficult to say what the level of demand will be, and what kind of products will be sparked by making it available.

It's hard to estimate the level of grassroots demand, but exact demand projections are not necessary for regulatory change – one could take an approach from principle, and say that people should be able to choose to use services in this way.

People don't know what they want, or what they can have. They know they can get solar panels on the roof, but not how to use it.

Service providers are already offering new services under current arrangements, but it is not as easy as it could be

A.12 A small but growing number of service providers are already providing alternative electricity services to customers. Most are operating solely behind the meter, but some have arrangements in place to give customers options for market services.

We can actually do it today. We have to work with a lot of parties, but it can be done. If something makes commercial sense, then the registry/reconciliation processes shouldn't be a barrier. It is possible to provide non-traditional services to networks now, without going through a retailer.

Margins are not large at present, but are sufficient to make the basic [behind the meter] solar/battery product viable right now. Most activity is currently at household level, though there is considerable potential in the commercial/industrial space

A.13 At least two interviewees are currently aggregating household level demand flexibility (including from batteries) and participating in Transpower's demand-side platform.

A.14 Some providers are offering services completely behind the meter. They are doing so without interacting with central market systems and processes, but they would like to be able to.

Accessing the reconciliation process as a non-traditional service provider is difficult. Non-traditional providers do not want to undertake full reconciliation functions

themselves, and existing reconciliation participants don't want to take on the additional effort, or not at a cost that makes it worthwhile.

The boundaries between participant categories are blurring. At present, retailers have a direct relationship with customers, and are interposed between the network and the customer. This can make it difficult to find solutions to new problems, especially where a network might fund or partially fund new technology as a non-wires solution.

- A.15 Several interviewees noted the challenges for treatment of solar export, though one noted it was possible today.

A key barrier to delivering niche services (e.g. supply power to EV) is the cost of metering and compliance. Currently we would need to add another ICP, compliant meter, new wiring, or establish an embedded network and reconciliation by difference.

They want to rent roof space on commercial premises, install solar systems, and take all the energy produced. At present, the only way to do this is to install another meter and treat this as a separate ICP. If instead it could be done 'virtually' then it would be more efficient.

A retailer could, today, partner with a third party to sell solar injection. There is nothing stopping it, except access to data.

- A.16 One retailer noted that not many parties had approached them to explore offering additional services and that service providers were generally unwilling to deal with retailers.

Some solar providers have thought about retailing but ultimately backed out as it was too hard (not core business). But ultimately PV providers don't want to be retailers because it's just too hard.

- A.17 Other service providers have or are planning to set up as retailers in order to offer their services, but they would not have done this if there had been another option available.

Setting up as a retailer was the easiest way to get access to smart meter data. If a digital signature was respected as authorisation for data access, we wouldn't have needed to set up as a retailer.

We see a need to become a retailer to enable the community peer-to-peer model, because the retailer is the one who purchases the exported energy. If there was a different way of dealing with exporting energy, we wouldn't need to become a retailer.

- A.18 Not all interviewees saw regulatory barriers as the main issue.

"The biggest barriers to the uptake of MES are lack of scale and small margins not the regulatory arrangements."

Underlying services will change, but consumers will still want something simple

- A.19 Interviewees saw a need for more granular services to support the changing energy landscape.

We are headed towards orders of magnitude more generation and load devices, each infinitely controllable, rather than the centralised model that has served us for 100 years. Allowing better consumer access to different energy services is complementary to decarbonisation, and supports a mindset change in the industry and society.

It is critical to give tech the opportunity to shake things up. To allow this it should not be controlled by existing players and can deliver benefits by making NZ a playing field for tech suppliers. Focus on protocols for identifying, pricing, exchanging services, and bring into reconciliation at ICP and sub-ICP level.

By 2030 or so, the network will be more of an 'energy community'. Lots of people will have solar, and we should be able to have households selling solar to one party, and getting the balance from elsewhere.

Assuming that the supply chain is going to use ripple control in the same way as in the past is naïve. So, although distributors will install a battery, many other market players will also want to have control. There is both financial and non-financial value. If a consumer cares solely about using clean energy, then the battery algorithm will work to that end game.

- A.20 Interviewees emphasised that consumers would be unlikely to manage these themselves, and that retailers, aggregators and bundlers would be the ones to seek and unlock the efficiencies from doing so.

Very few residential customers will have multiple service providers. Probably 80% will stay with a single retailer as they have today. Others will serially have a single retailer, but be switched by an automated platform that is constantly getting the best price

Efficiency gains from buying solar from one party and selling it to another or having different providers for day or night energy will be bundled almost immediately. Consumers will see a discount, but the actual configuration and management of the multiple service providers will be done by an intermediary.

Most consumers want [an intermediary] to take the hassle away.

Barriers to innovation in new electricity services

- A.21 Most interviewees identified barriers to innovation in new electricity services, which in large part echoed feedback from the MTR and DDx consultations.

With current barriers, NZ runs the risk that potential new service providers get frustrated, and pack up. Disruptors are currently being frustrated to a point where if they can't make a dollar they will go and do something else.

Access to customer usage data

- A.22 Several interviewees noted the difficulty for third parties to gain access to customer data.

Some retailers have complied with data requests for commercial customers, but refused to provide data for residential customers. Others authorisation forms are deemed to be only valid for a limited time.

Access to data for third parties has been difficult. Customers would provide authorisation, but it would take days to have that recognised by their retailer. The process has to get over the barrier of privacy being used as a justification to ask for multiple approvals from the end customer. Ideally, we could automate the process as other industries have, for example with an instant SMS code delivered to a mobile phone. Further, retailers still don't provide data in a standard format, even though this is required of them under the Code.

[Customer usage data] was difficult to get. One reaction from retailers is ‘we don’t want to give you that because you want to find the ICPs with the best solar potential and take our business away’. Distributors are adding ‘solar export’ lines in the tariff so that retailers have to provide the data as part of network billing. It’s a way around retailer restrictions on access to data.

- A.23 Interviewees noted that some retailer contracts explicitly restrict the circumstances in which MEP can share data, not allowing use for any other party than the retailer, or they placed other restrictions that inhibited metering change. One MEP noted increasing numbers of requests for consumer data coming to them rather than the retailer.

We have been approached by third parties wanting a data stream for customer, energy managers or brokering services etc. Our only available response is to direct the third party (broker) to the retailer. These data requests can be problematic for multiple electricity services because the retailer is ultimately the gate keeper.

The most common examples of service providers asking for data is someone wanting to sell combination of solar/battery to a C&I customer or to a much lesser extent mass-market customer. The salesperson asks for consumption data to prove their business case to the customer. Another example is the C&I customers themselves wanting to have available more routine, near to real time data (perhaps for multiple sites) to allow for better energy management.

Some retailers have signed restrictive contracts with MEPs. For example, that if a meter serving the retailer’s customer needs to be swapped, it must be swapped for meter from the same MEP. This results in additional cost for customers.

- A.24 Once service providers are actually providing a service to a customer, data access is less of an issue.

Access to retail meter data is not an issue, because we have data from behind-the-meter measurement devices.

Access to technical data

- A.25 As well as kWh energy usage information, interviewees discussed access to other smart meter data and the potential for inefficient investment if access arrangements cannot be agreed.

Today’s meters have real-time grid edge power quality data. After 15 years of smart metering, network operators are only recently finally getting access to month-old 30-minute kWh data. 30-minute kWh consumption information is only a small portion of the data available. It will be insufficient for other kinds of service.

Existing smart meter technology will last many years. Measurement requirements have changed little in recent years, and devices delivering data on energy, power and power quality. Replacement or duplication of these measurement devices would be a waste of money for NZ Inc, and should be avoided if possible.

- A.26 Some interviewees had similar problems as with consumption data.

If an individual knows what to ask for, and perseveres, they can get it. If this data was available to networks, it would allow better management and operation of the network. It would be simplest to get the data direct from the MEP, but they have to send inquiries

back to the retailer. The general retailer response is 'they're our customer'. Privacy is a defence mechanism.

In the current model, distributors engage with MEPs, but MEP focus on providing data for energy services, and it seems too difficult to organise access to other data. As a result, distributors fall back on spending additional money to put their own measurement devices in. If smart meter data can be unlocked, one key benefit will be to avoid the cost of deploying and managing parallel monitoring around the networks when a large percentage of that information already exists.

A.27 Although some organisations are further ahead than others, progress is being made.

Distributors have informally asked for additional data but, to date no requests have progressed to the level of detail where they can actually build a quote.

[We are] already on a path to provide non-kWh data from smart meters to interested parties, under reasonable commercial conditions. Some distributors are very interested and willing to pay for access. Retailers are the gatekeepers of data because of their position in the market, but that is not getting in the way of distributors getting what they need. Anyone can access the data with permission from the customer.

Data quality

A.28 Data quality was an issue for some interviewees, but the nature of problems varied. Input differed on the quality of consumption data.

Where retailers do provide granular data, it does not meet required data standards. For example, data provided has large blocks of time with missing data, or regular intervals in which the same period is missing each day.

Quality of consumption data is good. Errors happen but are expected. All parties have to validate, estimate, and gap fill – we can't expect smart meter data to be perfect.

A.29 One interviewee noted problems with registry data that increases costs and effort for new-entrant service providers.

Meter metadata quality is an issue. No one really covers this aspect, and the quality of data in the registry is appalling.

For example, the way tariff codes are used. Distributors lodge pricing codes in the registry. For some codes, it is simple to map to the line items on that tariff (the prices and what they mean). For others, you have to go to a list outside the registry of 20 tariffs, and there is no other map but the incomplete logic in a pdf document telling how to use the channels and availability periods in the registry to work out which tariff applies. In some cases, this is not enough, and a user has to make an assumption.

New entrants have to spend a lot of time coding around edge cases and exceptions which should be handled as breaches or through standardisation. Fixing this would be a good use of industry resources. If it is not fixed, then even with all the other changes, innovation will be expensive and difficult.

Data timeliness and cost

A.30 Interviewees saw a need for access to more frequent, recent and granular data than is currently easy to get.

Real time data streams have value now, but will be even more valuable in future with increased penetration of DER and advanced load control.

The party responsible for holding and distributing customer data is the retailer. However, many retailers only hold monthly data for each customer, even where AMI meter data is recorded.

Distributors want data, and currently the only way they can get it is to impose a cost on the retailer. Distributors need to bear their share of the cost.

- A.31 Access to this kind of data is currently expensive. The code allows for a free data request once per quarter, with a 5-day turnaround. This is sufficient for an initial analysis of customer usage but not for ongoing services requiring data.
- A.32 A service provider gave an example quote for access to daily data of \$25–\$30 per ICP per month, which outweighs the potential benefits of access. If this is higher than the efficient cost of providing the data, valuable services that otherwise could have been provided will not be.
- A.33 An MEP noted the only option they have for providing real-time data involves updating the meter and managing additional obligations. The effort and cost (around \$1200p.a.) involved means it is not suited to mass-market customers.

Distribution pricing

- A.34 Interviewees stressed that cost-reflective pricing for network services, with prices visible to all service providers, is needed in order to unlock the value of new technology.

To make the value chain work, to allow people to capture the value, there must be efficient pricing at all points in the chain.

Presuming the value to the distribution network does vary by place and time, it needs to be signalled. If it is not signalled, there can be no response, and the value cannot be unlocked. Currently (except for The Lines Company) this signal is only visible to the retailer, who often chooses to obscure it in the bundled service offered to consumers.

60-80% of the value from new technologies is to the distribution network. Until distribution pricing is sorted, then there is no value to unlock. This is the most pressing issue. If that and data access is sorted out, a market solution will emerge.

Doing this properly will require the networks to move to proper price-based signalling, and this being visible to someone with incentive to respond. Even where there are more complex distribution pricing signals, they are almost exclusively visible to the retailer, who often do not pass them through to the end consumer (the party who would actually respond) in favour of bundling them into the overall service provided to provide the consumer with a hedge against price fluctuations.

For individual customers, the economics [of battery storage] are generally dependent on the distributors offering some sort of Time of Use pricing.

Current distribution prices don't allow parties to realise full value of investments and technology. The lack of standardisation is a problem.

Control of meter equipment

- A.35 Several interviewees considered that metering arrangements affect their ability to innovate or that current metering services are not as efficient as they could be.

The contractual relationship between the MEP and the retailer is a key constraint on innovation. Whoever has ownership over the thing that measures the data becomes the centre of the industry. Current retailer-MEP contracts contain conditions requiring that the data is exclusive to that retailer, and cannot be provided to any other party. Enforcement of these is likely in breach of the Privacy Act, but there is an equilibrium preventing challenge of this -- especially from a start-up.

Placing the MEP contractual relationship with the customer at each ICP (with the retailer or other party as agent) would break this constraint, as would making explicit the role of data custodian. The sensor (meter) is in the customer's premises, and they should have right to determine who they trust to be in control. A Google or an Amazon is better placed to provide this service than a centralised regulator-run system is.

Current market structures mean both the MEP and the incumbent retailer have an effective veto over innovation. Control of metering functions rests with the MEP and the retailer. If a third party wants to provide a different service, and can't get the incumbents to cooperate, they are incentivised to displace the meter, but that is fundamentally inefficient. Even though customers want it, and there is opportunity to make money from it, they say no. It's not acting maliciously – it's just too much effort for them to want to be bothered.

The metering market is currently structured so that the MEPs hold a lot of power. There is close to an effective monopoly, which gives rise to monopolistic behaviour. Even if a customer wants something, the MEP can block change. While the end-customer could theoretically fire the retailer for not providing what they want, the effective monopoly means that any replacement retailer will have the same relationships with the same MEP, and is in the same position. It's a barrier to doing trials of any size.

Increasingly there is a gap between what metering could cost and does cost. MEPs have dominance in contracting, incumbency and compliance costs. MEPs are not unlocking value of existing metering and only using the kWh function. Some MEPs are not working out how to unlock and capture the additional value of their meters.

Is there an option to use the measuring capability of the consumer electronics for settlement?

- A.36 One interviewee considered that metering contracts were not restricting access to data.

Where meter data is necessary, there is nothing to stop a MEP from contracting with the additional service supplier to provide the data on commercial terms, subject to the proper authorisations from the customer.

Control of load control services

- A.37 Interviewees noted a need for change in the way load control services are managed and operated so system security is not compromised and to allow the flexibility to be used by the party who values it the most.

There are instances currently where the same load is counted two or three times. For example, where:

<p>(a) <i>A distributor uses load control to control hot water</i></p> <p>(b) <i>A customer of that distributor is part of a load aggregator who uses the same load as part of their programme</i></p> <p>(c) <i>The customer is on a feeder used for AUFLS</i></p>
<p><i>Where a single party has control over battery charge and discharge, there is no potential for the same service to be sold more than once by the customer.</i></p>
<p><i>Traditionally, the network benefits of ripple control are shared with the consumer by discounting their network charges. Consumers don't necessarily realise that their load has value, and network companies know customers will value a discount and it will be useful for the network.</i></p>
<p><i>Network operator control of load is problematic, because they operate for the benefit of the network which is not necessarily aligned with the interest of the customer. There is scope for an agent to do this more effectively.</i></p> <p><i>With load growth likely to happen in pockets (e.g. initial EV concentrations in higher socioeconomic clusters), it will be impossible to manage with a broad-based tool like ripple control.</i></p>

Lack of standardisation in connection arrangements

- A.38 Some new service providers considered that the variation of connection rules for new technology is inefficient and increases costs. One example given was a network that does not allow batteries to be charged from the grid.

<p><i>Each network has different processes, rules and timeframes for approving connection of distributed generation. This means significant duplication and inefficiency.</i></p>
<p><i>The plethora of distributors results in duplication and proliferation of different process, which multiplies interaction costs. As the job description of distributors changes, they have more opportunity to frustrate change than retailers.</i></p>
<p><i>Distributors are not resourced or necessarily capable to support rapid and radical change. They may lack technical ability or impose technical barriers to change/evolution such as connection agreements that prohibit charging of batteries from Grid. This prevents parties from using their investment to realise their full value</i></p>

Enforcement

- A.39 Some interviewees considered that more stringent monitoring and enforcement action would improve market efficiency.

<p><i>Meter metadata quality is an issue. No one really covers this aspect, and the quality of data in the registry is appalling. There is an enforcement issue – no one gets a fine for bad data. If participants were charged \$200 per error, it would be fixed very quickly. Current approach just pushes those costs onto the wider economy.</i></p>
<p><i>In the near term change the regulatory regime to create effective enforcement. This will reinforce the standards and protocols that exist allowing systems to be developed which follow code/process rather than the current ad-hoc processes.</i></p>

The Authority can effectively enforce existing Code by imposing mandatory minimum fines for all breaches (technical or otherwise). Currently, the Authority at worst hands out a slap on the wrist with a wet bus ticket.

The Authority should publish a "league table" of all breaches using EMI. This would increase pressure from CEO's etc. to ensure compliance and could turn into a KPI.

When faced with non-compliance, or manufactured bureaucracy, the only remedy for a small start-up is to go through a dispute or litigation process, and this is so costly and time consuming that it is not worth bothering.

Considerations for change

Changes should be small evolutionary steps

- A.40 Interviewees generally expressed a preference for change made up of small evolutionary steps. They were concerned about locking in any particular solution when the future remains uncertain.

Change should be iterative: evolution not revolution. Make changes in sizes as small as is practical, as this allows a faster and smaller response if the direction of travel needs to change. Where possible, reduce the effort required to change. For example where a process can be defined and amended outside the code, do it that way. Build in subsidiary instruments that don't require full code change to implement. Don't build new systems from scratch, put layers in as incremental steps, designed to get closer towards what the systems would look like if they had been built new from scratch.

Instead of amending the Code, an alternative approach would be to allow a small number of Code exemptions that remove specific barriers, and then seeing what actually happens. Then, when we enter the CBA/Code change process, we can use this actual evidence.

We are at the start of product life cycle. As a result, the industry is not sure what the full cost/benefit is over the full product lifecycle. The Authority should be careful not to make rules that do not take account of the full product lifecycle. Be wary of solving this problem now because we may end up saying measuring kWh is pointless with the emergence of low marginal cost energy (solar, wind) so why measure it. Other societal and technological changes may further undermine the case for change.

- A.41 One interviewee in particular thought the situation could change very quickly.

It is possible that the sector could very quickly change to realise a future seen by many in the industry as implausible. We should worry less about going too far too fast than about going too slowly.

New arrangements should be on an opt-in basis

- A.42 Interviewees were concerned about a change imposing costs on all participants, when only some might choose to participate in new arrangements.

What are the costs of implementation and how are these costs spread? If the costs are socialised, then it is just adding cost to everyone for the benefit of a few.

Whichever model is selected, if the new model can be implemented alongside the existing one, with ability for participants to opt in, it will be more effective and lower risk.

Dealing with consumer protection obligations

- A.43 Consumer protection obligations were not seen as a problem by most interviewees, because in the short to medium-term the customers most likely to opt in to new services are the ones least likely to fall into financial difficulty.

Exposure to customer default is limited by not selling to high-risk customers. We only sign up customers with a good credit score who own the premises their system will be installed on.

Dealing with medically dependant and financially vulnerable customers is an important consideration. However, the change process needs to carefully avoid getting tied up with this issue. The problem is important but small. For example, there are around 3k medically dependent ICPs in NZ. Disconnection and commercial default situations happen all the time, in many industries, and there is always a way to solve it.

It's the wealthy end of the market taking up these services, which raises issues of fairness around who will pay for the grid when lots of people are using it less.

Feedback on the potential models

- A.44 Interviewees saw value in aspects of all three models, noting pros and cons of each, expressing a need for flexibility and saying the Authority should not preclude the emergence of any of them.

The answer might be a mix of all three. Look at the insurance industry as an example: some people engage directly with an insurer, others engage a broker to find them the best deal, others use an open platform on the web where any service provider can put their offering.

- A.45 Regardless of the model selected, interviewees were clear that a workable model to support increased participation should aim to enable frictionless experience for customers when engaging with the service providers of their choice.

It has to be easy and transparent for consumers. Most consumers aren't particularly invested in electricity, and are not interested in spending time on switching and procuring new services. At the beginning it will only be those people who are really invested but it is likely to grow fast.

Engaging with customers has to be simple. We need to provide a frictionless experience. Electricity is a grudge purchase, so it has to be painless. This means we have to aim at an instantaneous machine to machine conversation, with transactions implemented within seconds.

Contractual model

- A.46 One interviewee noted the critical importance of incumbent retailers in the process and considered that the contractual model is all that is needed.

If a retailer can offer the all the electricity services a consumer wants as a packaged deal there is no need to unbundle the services. In almost all situations there needs to be a primary retailer, with agreements with each party. You simply cannot do multiple services without retailer being part of the equation.

- A.47 Most interviewees considered that the contractual model alone would not do enough to enable additional consumer choice of electricity services. While to some extent this

reflects the weighting towards new entrant service providers, it is telling that active innovators see the current model as unlikely to deliver the best outcome for consumers.

These barriers can be addressed under all three models, as evidenced by some people making it work now. However, current arrangements require a lot of time, effort, and money, so there needs to be either centralisation or at least further standardisation.

This model is the easiest to implement and easiest way to market for new service providers. However, it is likely to restrict the separate provision of services, and may inhibit market entry of innovator due to the retailer remaining the gate keeper. There is a role for non-industry players with extensive customer relationships such as telco entering into the marketplace with a white label back end.

Consumers should be able to make the choice to deal with suppliers separately from their main retailer.

This model gets messy for the prospective EV services provider, because they will either need to have relationships with every retailer, or require consumers to use a retailer from the list of those with whom they have agreements. Each retailer that chose to do this would need to develop systems and processes, but there is no incentive for the retailer to do this. In this model, regulation may be required to force retailers to make contracts. This would shift costs onto every retailer.

This model gives people with interests in the process too much control. The dominant incentive is to become the largest player, and frustrate growth. For example, by requiring exclusivity from service suppliers, so each service provider can only offer through one retailer, and by bundling all services together so consumers have to pay for everything even if they don't want it.

- A.48 New-entrant service providers expressed a desire for a regime where no provider has the ability to frustrate customers trying to leave and prevent them from taking up the new services on offer.

In all the models, existing retailers could say "we're not going to deal with the service providers, we're going to set up our own new offerings". This might include expanding into EV sales, as has happened in the solar installation market. The two key requirements are that consumers have choice, and implementation is efficient and effective.

Unlocking new services requires a regime where processes function correctly without need for recourse to a disputes process and consequences for non-compliance are swift and unambiguous.

Agency model

- A.49 Some interviewees questioned whether an 'agent as broker' model would be any different to the current retailer-led model.

Is the non-centralised agent model really any different to the contractual model or is the agent just a retailer by a different name. You could achieve this now by setting up as a retailer and providing the interface for third parties. If there is sufficient market drive/consumer interest, then you can expect a retailer to offer the 'agent' service and offer the range of services.

If the agent is a commercial party the agent is a retailer by another name. An alternate solution is to put the agent as a layer between the customer and the market systems. The meter co-ordinator in Australia is similar and assesses authorisations and transactions against the rules. Any agent needs to navigate the maze of regulatory systems on behalf of the customer.

- A.50 Others expressed concern about how agents and others would be remunerated, noting the potential for mismatching incentives and the importance of giving consumers control, rather than just replacing one exclusive relationship with another.

The problems with the retailer just get replicated with the same problems but with an agent instead. This could turn into a broker sort of model, ending up with consumers getting whatever benefits the broker, rather than what benefits the consumer.

Behaviour in this model is driven by who pays the agent. If the agent is paid by the service provider, they will not be neutral. If agent paid by customer, it adds another layer of cost, which is a direct barrier to consumer uptake. Control is still an issue in this model, it's just that the controlling party changes from the retailer to the agent. We are likely to see retailers setting up their own agent businesses. Access to ICP data needs to be facilitated by a neutral intermediary.

Having many agents with bespoke arrangements raises costs. If there is to be one agent, make it the Reconciliation Manager and not controlled by existing players. This can deliver benefits by making NZ a playing field for tech suppliers.

Any model will require a solution to the issue of how MEPs recover their costs. For the agency models, the agent would pay the MEP.

- A.51 Interviewees liked some aspects of the Agency models, including the clearer separation of services and the ability for sub-ICP service providers to focus on providing services, rather than managing ICP-level processes.

The agency model is strong – it puts the customer in a more powerful position, giving them control of the choice of metering providers. If the agent does a poor job, the customer can fire them, as we do with ISPs or other services. At present, the MEP contract with their retailer prevents this ‘firing’ from occurring.

The agency model also deals with the problem of having more than one party potentially accessing the same service at the same time – ensuring that if there is a single hot water control system, it is only sold to one party at a time. The agent can offer the load into multiple markets, take a cut, and pass savings through to the customer.

The agency model works, because the incentive is for the agent to satisfy the consumer. It deals with the problem of the retailer being the client of the MEP and the distributor rather than the end-user being the client.

The agency model is more standardised due to firmer requirements for standard data formats, because there is an agent in the middle saying ‘give me these data in this format’.

The difference between the contractual model and the agency model is the profit motive. In both cases, the retailer has the profit motive, but the agency model tries to step away from the profit motive being solely at the retailer: the agent is a bundler.

- A.52 Two interviewees suggested the agent could provide an aggregated bill to the customer.

Centralised MOSP model

- A.53 Interviewees expressed a desire for some centralisation, particularly a single source of truth for sub-ICP metadata for all parties (including customers, service providers, MOSPs and distributors) and the ability for new service providers to reconcile sub-ICP volumes in central processes via a neutral party.

To work, this model would need to take existing market functions which are scattered around in bits and pieces, and collate them in the centre, particularly the crucial functions of data store and reconciliation. Then everyone else can pivot around it.

Market systems and processes should support an individual trader in each channel for a smallest trading period available. Ideally it would be possible to have a different trader on every channel for every interval of the day. What this will do is unlock a new market for participants who bundle together multiple services, but without locking in exclusivity as would happen under the contractual model.

This is the most disruptive model for existing retailers, who have to change their system to talk to a new system, and compete with new start-ups who are facilitated by the changes. If each trader/retailer is associated with a unique meter channel, MOSP systems will not require major change, but process throughput will scale up. The registry provides the record of relationship between consumption and market participant. It is the legally binding single source of truth.

- A.54 A couple of interviewees expressed a desire for a centralised source of truth for meter data as well, but most interviewees were wary of a completely centralised MOSP model in which the reconciliation manager used sub-ICP level meter data from a central meter database. Interviewees considered it would likely be expensive, inflexible to change and require effort and expenditure from participants regardless of whether they choose to use the new functionality.

The way to bring about multiple participants is to give tech companies ability to settle power below an ICP. To allow this to occur it is vital that we do not give retailers the potential to say no and stop progress. Transaction costs need to be really low for [reconciliation manager reconciling below ICP at appliance level] to be effective. There is a large amount of value in the market, this will continue to grow but it is spread really thin. If the reconciliation of usage at the ICP was to be chosen it would take 3+ years to get all the different parts established.

Innovation does not require any central mechanism, and a central data warehouse is not required for real-time data. A central platform will just end up becoming a legacy constraint – once the system is built it becomes embedded, and change becomes just as hard as with any incumbent system. Instead of requiring a central database, we can have a real-time data stream, simultaneously delivered to multiple parties. Then the customer has real choice.

A platform is not necessary to allow more service providers to become participants and engage directly with MOSP systems and processes. A central meter database isn't a pre-requisite for this model to be effective standardisation and the use of protocols will also allow this. The absence of standards and protocols leads to a lack of trust. A single point of truth is needed, and the registry can play this role.

Meter data need not be stored centrally, but meter rights (metadata) may be. Potentially need to get to one trader on each channel.

A centralised data store raises cyber security issues.

- A.55 Interviewees were also wary of the complexity arising from service providers having contracts with all MEPs and distributors without a single party being responsible for ICP-level activities.

The significant issue with the platform model is that it requires many to many relationships, making it more complex and higher cost for participants.

There will inevitably be struggles with the data management required to validate each single register/customer. Detailed processes would need to be built in to deal with the fact that data from meter will never be quite right. Multiple service providers' contracts with customers would need to be managed and potentially aligned. There is a real risk consumer will get bills which they won't add up and increase the risk for confusion.

If multiple parties are to provide energy services to an individual household [without a coordinator], there is significant risk of coordination problems. If there is a meter providing power to the whole house, it makes sense that people responsible for it need to see what's happening downstream. For example, even if EV charging is managed as a separate ICP without separate metering, there is potential for a clash of drivers between the retailer for EV, and the retailer for the rest of the house.