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Electricity Authority

Via email: distribution.feedback@ea.govt.nz

Updating the Regulatory Settings for Distribution Networks – Submission

Network Tasman welcomes the opportunity to provide a submission to the Electricity Authority on the Updating the Regulatory Settings for Distribution Networks Discussion Paper.

The prospect of integrating new technologies into the existing electricity system offers significant potential for the distribution sector to deliver services to consumers at lower costs and/or higher reliability.

There are undoubtedly challenges involved in ensuring the benefits these new technologies can deliver for consumers are maximised. Network Tasman is confident that the industry can work together collaboratively to ensure a robust and evidence-based regulatory framework is developed in a timely manner.

Notwithstanding this, Network Tasman is concerned that some of the Authority's processes in developing this paper and the basis on which some of the views and conclusions are developed are insufficiently robust.

[The Discussion Paper attempts to define a problem and identify the solution at the same time](#)

The Discussion Paper identifies a range of potential issues on distribution networks, then at the same time the paper develops options for addressing these potential problems.

It is unusual for a paper to seek feedback on the potential solutions to a problem definition that is also subject to consultation. The focus on solutions before the problems have been defined risks the perception that the project is subject to a degree of predetermination.

Notwithstanding this, the Authority has truncated the traditional process for defining the problem definition and developing a solution.

[The Discussion Paper is informed by a narrow set of sources](#)

Rather than adopt the traditional consultation process of gathering evidence and industry perspectives to assist the problem definition process, the Authority states it has relied on a "substantial" programme of work to develop the issues and options outlined in the Discussion Paper.

The Authority lists just three projects as being particularly relevant:

- Spotlight on emerging contestable service
- Enabling mass participation
- Equal Access

The first two of these projects were limited in scope and the third has not been subject to any public consultation.

The Spotlight project consulted on a Terms of Reference and held a single workshop in mid-2019 before being paused. It is not clear how the Authority considers the information collected during a sole workshop will have generated sufficient information to inform the Discussion Paper.

The purpose of the Enabling Mass Participation project was on identifying inefficient regulatory barriers to competition and innovation in technology and business models that are not being considered elsewhere on the Authority's work programme.

The key recommendation of the Enabling Mass Participation project was to ask the IPAG to undertake the Equal Access project. The other key conclusion of the Enabling Mass Participation Project was that other issues identified as part of the project were already being addressed by existing Authority projects. The Equal Access project was effectively the second stage of the Enabling Mass Participation project, albeit completed by the IPA rather than the Authority.

While the Authority has undoubtedly undertaken a background of work that has informed the paper, it is generous to refer to it as comprehensive. Similarly, referring to it as a work programme gives the impression that industry, particularly distributors as the subject of these regulatory changes, has had a role in shaping this work programme.

In practice, the distribution sector has had a two opportunities to provide views on the projects listed above, one was to provide views on a terms of reference and the second was in response to a consultation paper published more than four years.

We think it's instructive to look at the initial scoping process taken in the UK when the industry regulator, Ofgem, began work on a project addressing the same concerns.

- January 2015: Ofgem published an open letter explaining the launch of a new Flexibility project. The purpose of the flexibility project was to develop Ofgem's strategy to enable and enhance the efficient provision and use of flexibility sources across the supply chain.
- September 2015: Ofgem published a position paper that set out the scope of the work triggered by the open letter referred to above and outline priority areas of focus.
- November 2016: Ofgem published a "Call for evidence" of how the government and the regulator can create the right environment for consumers to benefit from a smarter, more flexible energy system at its fullest potential.
- July 2017: Ofgem and the Department for Business, Energy & Industrial Strategy (BEIS) jointly published a plan for Smart Systems and Flexibility. The plan effectively set out the work programme Ofgem and BEIS would undertake to achieve their desired outcomes. It included actions for a range of industry participants, including the Ofgem, the UK ENA and the government.

Individual projects were initiated following the publication of the July 2017 Smart Systems and Flexibility Plan.¹

There are obvious lessons we can learn from the experience in other jurisdictions. However, each jurisdiction has unique characteristics. Lessons from jurisdictions should inform and improve, but not replace robust regulatory scrutiny of problem definitions and solutions to these problems.

The scope of the potential solutions outlined in the Discussion Paper is considerable and if introduced would result in a significant restructure of the electricity sector in New Zealand. There are risks with any

¹ An updated version of this plan was recently published in July 2021.

regulatory change – regulation is an imperfect tool. These risks are amplified with significant reforms. Network Tasman encourages the Authority to allow itself and the industry sufficient time and resources to maximise the likelihood that the work programme that develops out of the Discussion Paper is able to achieve the desired outcomes.

This is an important point. The desire for urgency should not override the fundamental process of developing considered and robust regulation. Poorly considered and specified regulation that is enacted quickly is considerably more damaging than well considered, targeted and specified regulation. Poor regulation takes time to identify and is difficult and costly to unwind, which ultimately delays the introduction of effective regulation and increases costs to consumers.

We submit that the process adopted by Ofgem represents a valuable template for the Authority to follow. As the Discussion Paper acknowledges, many of the issues raised in the paper are outside the Authority's remit. However, the issues are interrelated and must be addressed in a coordinated manner to achieve the desired outcomes. We encourage the Authority, Commerce Commission and MBIE to formally work together to develop a coordinated plan similar in scope to the Smart Systems and Flexibility Plan developed in the UK.

The remainder of this submission is structured to follow that used by the Discussion Paper.

Information on power flows and hosting capacity

The Authority states that information on power flows and hosting capacity on the low voltage network is needed to determine where a network is congested and may need to be upgraded. Access to real-time (or half hourly) data is expensive and currently not widely available.

As a member of the Smartco joint venture (smartco.co.nz), Network Tasman does not generally face the issues outlined by the Authority in this chapter. Network Tasman has access, via Smartco, to data from the Smartco meters on our network and the analytical tools developed by Smartco. Smartco is the MEP for 76% of the meters on our network.

The data provided by Smartco can be used for network management purposes only.

Smartco has developed a range of tools that provides us with excellent visibility of our LV network and allows us to manage our network more efficiently.

These tools include:

- Neutral integrity: An assessment of meter voltage events over a 3-week period where measured events suggest a high impedance or broken neutral problem.
- Tamper Events: A weekly assessment of potential Tamper Events at an ICPs metering installation with 2 years' history.
- Export Detected: Identifies ICPs that are exporting energy without network authorisation.
- Excess Export: Identifies ICPs that are exceeding their export capacity and the effect on the network voltage as a result.
- Transformer Over Voltage: Provides an assessment of the percentage of time each week a Distribution Transformer is operating above regulatory limits and the peak weekly voltage that is delivered. This tool has 2 years' history, earlier history is available on request.

- **Transformer Under Voltage:** An assessment of the percentage of time each week a Distribution Transformer is operating below regulatory limits and the minimum weekly voltage that is delivered. This tool displays a 2 years rolling history, earlier history is available on request.
- **Meter Over Voltage:** An assessment of Over Voltage Events at an ICP, aggregated by week with 1 year rolling history, earlier history is available on request.
- **Meter Under Voltage:** An assessment of Under Voltage Events at an ICP, aggregated by week with a rolling 1year rolling history, earlier history is available on request.
- **Transformer Loading:** An assessment of Distribution Transformer average 2-hour demand with the highest weekly 2-hour demand displayed with 2 years' rolling history, earlier history is available on request.
- **Asset Load Monitor:** An assessment of asset demand (GXP, Feeder, transformer) identifying over- and under-loaded assets to improve utilisation, with a 1-year rolling history, earlier history is available on request.
- **Outage Monitor:** An assessment of Loss of supply events from an ICP to aid fault restoration.

These tools are very good and a major step forward, but they aren't perfect. Some of them, such as asset loading tools, rely on the aggregated ICP data. As we don't have full penetration of Smartco meters, we don't have access to all ICP data. Non-Smartco ICP data must be estimated. As with any estimation methodology, this is an imperfect process that carries more uncertainty as the number of ICPs being aggregated decreases. This limits the degree to which Network Tasman can solely rely on some Smartco tools for monitoring asset loading at the edge of our network.

Estimations are subject to feedback loops that refine and improve the estimation methodology. External data from our SCADA system and other available data sources are used to compare the accuracy of our data estimations.

Many of the tools outlined above could be made available to other distributors if Smartco were able to access the smart meter data collected across their network. The accuracy of the tools provided to existing Smartco members would also be improved if Smartco had access to a broader set of smart meter data.

Authority questions

Have you experienced issues relating to lack of information or uneven access to information?

No. Network Tasman is currently comfortable with the access it has to information relating to power flows and hosting capacity.

What information do you need to make more informed investment and operation decisions?

Information sourced from Smartco and our internal SCADA system provides Network Tasman with sufficient information to make informed investment and operation decisions.

What do you think should be considered to help improve access to information?

Network Tasman has access to well developed and increasingly mature information and tools that provide visibility of our low voltage network.

Network Tasman is fortunate to have access to data from 76% of the ICPs on our network for network management purposes. This dataset provides us with a broad, but still incomplete, view of our LV network.

Smartco tools that rely on the load profile of all ICPs on the network are required to estimate the load for non-Smartco ICPs. For example, the asset loading tools must estimate load profiles for the remaining 24% of ICPs that we do not have data for.

The law of large numbers dictates that estimated load profiles are reasonably accurate for assets higher up our network as they have large numbers of ICPs connected to them. However, it is more challenging to accurately estimate loading for assets with few ICPs connected to them, or a relatively large number of non-Smartco ICPs connected to them.

Access to other smart meter data across our network would reduce the number of ICPs that need to be estimated and improve the accuracy of those tools that rely on ICP load estimations.

Electricity supply standards

Discussion paper questions

Have networks experienced issues from the connection or operation of DER?

Yes. Network Tasman has had issues with one solar PV installer that has repeatedly connected unauthorised PV to our network.

Network Tasman has two methods for identifying unauthorised generation that has been connected to our network:

- Smartco has developed tools that allow Network Tasman to identify unauthorised exporting of electricity on to the network.
- Monthly billing data provided by retailers can be used to identify ICPs with non-zero generation that have not been approved to inject onto our network. This process can have a lag of more than one month between generation beginning and Network Tasman detecting its presence.

In the example outlined above, the Smartco tool was initially valuable for identifying unauthorised export of generation for ICPs with a Smartco meter. However, it appears the installer (which was also a trader), switched MEP when it became aware of our ability to detect unauthorised export. Presumably to avoid further detection.

We had to subsequently use the second, less timely, method to identify unauthorised generation.

Once unauthorised export has been detected, distributors have little influence over installers to disconnect the DER from our network.

DER installers are not captured by the Code and Energy Safety Services was reticent to respond when we advised of unauthorised injection on our network as there is no clear legislation or regulation prohibiting unauthorised injection.

Ultimately, in the face of an uncooperative installer, the only potential option we identified was to disconnect supply to the entire ICP. There is some uncertainty about whether distributors have the right to disconnect service to an ICP under these circumstances. Network Tasman has not sought to conclusively determine whether this is a genuine option, as we consider it a disproportionate response to the issue - it punishes the consumer for the poor practices undertaken by a third party contractor over which the consumer has limited knowledge or control.

Although this experience has largely been limited to a single installer, the forecast growth in rooftop PV across New Zealand is likely to present more opportunities for similarly low quality PV (and other DER) installers entering the market and creating similar issues.

Do the Electrical (Safety) Regulations require review? If so, what changes do you think are needed (a) in the near term and (b) in the long terms?

Yes. As noted in the previous question, we've had issues with the unauthorised export of generation onto our network. Network Tasman strongly encourages strengthening the Electrical (Safety) Regulations to make it easier to disconnect unauthorised distributed generation.

Does Part 6 remain fit for purpose? If not, what changes do you think are needed (a) in the near term and (b) in the longer term?

Part 6 is not fit for purpose for large scale distributed generation.

Network Tasman recently processed an application for distributed generation with 5MW capacity. We were fortunate the developer adopted a collaborative approach to the application, connection process and timeframes. Network Tasman would have had difficulty meeting the statutory timeframes set out in the application process had the developer insisted they be met.

We are aware of the challenges processing applications from large distributed generation connections experienced by other distributors and the significant growth forecast in large scale distributed generation over the next 2-5 years poses a growing challenge for the distribution sector.

Network Tasman submits that the Authority should review whether the current Part 6 distributed generation connection processes remain fit for purpose, particularly with respect to large scale distributed generation as a matter of priority.

Is there a case to be made for minimum mandatory equipment standards for DER equipment, specifically inverter connected DER?

Yes. It would be helpful to formalise the adoption of AS4777 with mandatory voltage response modes enabled.

What standards should be considered to help address reliability and connectivity issues?

Network Tasman believes that serious consideration should be given to setting minimum equipment standards for installing private EV chargers, so that private EV chargers are required to have the capability of being controlled remotely.

It is clear that EV charging will place considerable strain on distribution networks and will ultimately trigger costly network upgrades. There is debate about the timing of these outcomes, but seemingly, broad consensus that EV penetration will reach a level that distribution networks will be unable to supply without network reinforcement. Flexibility services, including 'smart' EV charging have a significant role to play in maximising the degree to which these network investments can be deferred or avoided.

The Discussion Paper allocates significant resource to discussing the benefits of flexibility services. Smart EV charging is likely to dwarf the capacity of any other flexibility service.

For example, high-level calculations suggest that total EV battery capacity across the country could exceed 84GWh in 2040. This figure is based on Z Energy forecasts that there will be approximately 3.5

million battery electric vehicles in New Zealand by 2040,² coupled with the conservative assumption that these electric vehicles will have an average capacity of 24kWh (the size of a first generation Nissan Leaf).

Should this scenario eventuate, there are significant efficiency benefits that can be derived from being able to dynamically manage network load via a fleet of smart EV chargers that cannot be achieved from EV owners individually (and manually) managing their EV charging.

Of course, allowing a third party to manage their EV charging would remain at the EV owner's discretion. Doing so would ensure that it is incumbent upon the industry participants seeking to manage EV charging to offer a service that is attractive to EV owners and ensures EV owners accrue the benefits created by these capabilities.

Network Tasman submits that smart EV charging is likely to be the flexibility service that will provide the most benefit for the country and that the Authority should consider mechanisms to maximise the proportion of smart EV chargers installed in New Zealand.

Flexibility services

Market settings for equal access

In this chapter of the Discussion Paper, the Authority focuses on the market settings for equal access to distribution networks, stating that competition can be improved by removing barriers to entry and levelling the playing field. Competitive flexibility markets, the Authority states, can improve efficiency and decrease overall costs for consumers.

The Authority states the nature of the problems limiting equal access to distribution networks is two-fold (**emphasis added**):

- Distributors **may** favour network solutions when non-network solutions could be a more efficient option;
- If distributors do decide to invest in DER, they **may** be more likely to favour in house investment, or use subsidiary firms, rather than follow a competitive procurement process.

In the next paragraph, the Authority acknowledges that these problems may be the result of distributors:

“not yet having the evidence that coordinated DER delivered through a contestable framework can provide network reliability or serve as an alternative to network investment”.

It's not clear from this statement, whether the Authority is suggesting:

- there is evidence of that coordinated DER delivered through a contestable framework can provide network reliability or service as an alternative to network investment and distributors are simply unaware of it; or
- distributors don't have evidence that coordinated DER can be delivered through a contestable framework because there is no evidence of these outcomes yet.

The framing of this chapter implies the Authority considers there to be sufficient evidence that DER can be delivered through a contestable framework.

² Z Energy forecasts have been adopted as they are more conservative than those published by the Climate Change Commission. Adopting the Climate Change Commission's forecasts would increase the estimated EV battery capacity. <https://investors.z.co.nz/static-files/f45c0da8-ae24-461c-b6e8-2bbf9d8a7129>

The Authority presents no robust evidence of the problems it describes or that coordinated DER delivered through a contestable framework can provide network reliability or service as an alternative to network investment.

Aurora's Upper Clutha project is the only example the Authority presents of a distributor using a real-world flexibility service in New Zealand that has been procured via a competitive market process.

Although this project represents an encouraging and significant step forward in the use of flexibility services in New Zealand, it would be premature to view this single project as comprehensive evidence of the success of flexibility services on distribution networks. Particularly given the short period it has been operational.

A more evidenced based conclusion about the low take up of flexibility services in New Zealand is presented by the Authority's expert consultants.

The Authority commissioned Sapere to estimate the potential value of DER resources (i.e. flexibility services) in New Zealand. This report concluded that the only DER service that is economic and practical in 2021 is residential demand response, of which available capacity is limited.

With respect to solar and battery packages, Sapere specifically comments that other technologies like PV and battery packages "are being deployed despite the seeming costs being too high, but these are unlikely to be taken up in volumes significant enough to affect our conclusions" on DER that is economic and practical in 2021.

Effectively, what Sapere has concluded is that there are few commercially viable flexibility services currently available and despite solar and batteries being deployed, the commercial reality of these assets means they are unlikely options for supplying flexibility services.

It is clear solar and battery packages and other DER technologies will become economic and that there is significant potential for DER technologies to lower the cost of delivering distribution services to consumers. However, Sapere's paper provides a clear explanation for why adoption of flexibility services has been limited so far.

As with all new technologies, it is naive to assume that flexibility services will seamlessly emerge as a perfect substitute for network solution. There is an significant amount to learn about flexibility services through trials, collaboration, testing and knowledge sharing to ensure the potential of flexibility services is maximised. As the Authority notes, other jurisdictions are already deploying flexibility services. Although there will be plenty of lessons that can be learned from experiences in other jurisdictions. Network Tasman encourages the Authority to develop relationships with regulators in other jurisdictions that have a more mature flexibility market to ensure New Zealand can benefit from the lessons learned in other jurisdictions.

Network Tasman submits that the Authority should focus on maximising the opportunities presented by the current window we have before the majority of DER technologies are economic to encourage or commission trials of flexibility services, test technological capabilities and develop industry skills and knowledge, and management of flexibility services.

Facilitating these sorts of outcomes will assist the industry to become appropriately equipped to efficiently adopt flexibility services as they become commercial viable.

Profit maximising ≠ efficiency

Although a minor point, Network Tasman notes IPAG's comment that not all non-exempt distributors are profit maximisers. The Authority referenced this point when discussing the incentives on distributors to buy flexibility services. The implication of this comment is that distributors that do not operate a profit maximising business model have weaker incentives to operate efficiently.

In our view, this conclusion lacks nuance.

As a consumer-owned network, our focus is not profit maximisation. Rather our objective is to deliver a reliable service at the minimum cost for the long term benefit of our consumers/owners. We have no interest in recovering more revenue from our consumers/owners than we need to efficiently invest in and operate our network.

Over the past four regulatory periods, these objectives have delivered \$27m (in 2021 dollars) in savings to our consumers.³

Had Network Tasman been a profit maximising business, this \$27m (more than \$650 per ICP) would have been recovered from consumers and in all likelihood been distributed to shareholders in the form of dividends.

Discussion paper questions

What flexibility services are you pursuing?

Until recently, Network Tasman purchased voltage support (flexibility) services for the Golden Bay area of our network from Trustpower (via the Cobb hydro station). This service will be replaced by an in-network Static VAR compensator (Statcom) in the near future. This in-network Statcom solution has a nine year payback and it removes an operational constraint that Trustpower must work within in order to provide the voltage support service. The voltage support service was only agreed to by Trustpower on the basis that the in-network voltage support solution would be developed to replace it.

Although we have not yet used flexibility services on our network at scale, we remain aware of the options available and consider the viability of flexibility services as an alternative to capex projects as they arise.

Capability and capacity

Of all the chapters in the Discussion Paper, this chapter offers little evidence to explain the Authority's concerns. Few of the statements are backed up by evidence and some of the evidence presented is misrepresented or presented without relevant context.

The Authority has outlined possibilities, not a problem

The Authority opens this section by discussing the nature of the problem it has identified with distributors capability and capacity, stating:

"Distributors range in size as well as skills and capability. It is possible that some distributors do not have the capability and infrastructure to integrate...(coming technological changes)" (emphasis added).

The Authority goes on to state:

³ In the last four regulatory years, Network Tasman has recovered \$27m (in 2021 dollars) less revenue than was allowed under the Commission's revenue/price cap regime. This amounts to more than \$650 for each ICP on our network.

“There are 12 distributors serving a total of 370,000 consumers, that are consumer owned and are exempt from price-quality regulation. These distributors are only subject to information disclosure requirements. Although these distributors have incentives to keep local consumers happy, they may be reluctant to innovate.” (emphasis added)

The Authority offers little explanation for this view other than to say economies of scale may be an issue, but acknowledges that there is no conclusive evidence to suggest it is, and that there will be benefits from having standardised processes and building capability as flexibility services grow.

The Authority references the following four pieces of work to support its concerns:

- A study it undertook in 2019 on how distributors were adapting to technology-driven change that found most stakeholders agreed with distributors’ views that there were no imminent issues for the industry and measured adaption is an appropriate strategy;
- A report on the New Zealand electricity industry conducted by the International Energy Agency (IEA) in 2017 that raised concerns about the distribution sector’s capacity to harness efficiencies associated with economies of scale to respond to fundamental sector transformation, and organisational governance;
- The Discussion Paper briefly discusses a critique of the IEA report by Professor George Yarrow; and
- Observations by the Electricity Price Review that most large distributors have lower operating costs than smaller distributors, but noted that these differences could be due to variation in consumer density and terrain.

With respect to the first point, the Authority’s 2019 study found that in general, distributors did not sense imminent issues and intended to adapt in measured ways.

Although there is uncertainty around the timeframes implied by the term ‘imminent’, an assessment of these views two years after the fact can provide reasonable test of how accurate distributors’ views were. In the two years since the study was completed, no significant issues relating to technology-driven change have arisen.

The credibility of the IEA report has been thoroughly critiqued by Professor Yarrow. The Discussion Paper noted this and summarised Professor Yarrow’s conclusions as:

- arguing that more conclusive evidence is needed to arrive at useful conclusions or recommendations; and
- concluding there is no conclusive evidence of significant economies of scale in electricity distribution.

This summary underplays Professor Yarrow’s conclusions. Professor Yarrow is forthright in his assessment of the quality of the IEA report. His concluding remarks begin “It should be clear from the above that I do not have a high opinion of (the IEA report)”.

When discussing economies of scale in distribution businesses, Professor Yarrow states it is near certain that the minimum efficient scale for a distributor is around 4,000 ICPs.⁴

On organisational governance, Professor Yarrow states that a different mix of ownership arrangements is the kind of experimental approach that is called for in the face of uncertainty about the future⁵ and that amalgamation and/or privatisation is no panacea:

⁴ Professor George Yarrow, *The International Energy Authority’s 2017 Review of New Zealand*, 2018, pp14-15.

⁵ Professor George Yarrow, *The International Energy Authority’s 2017 Review of New Zealand*, 2018, pp 20-21.

“It can safely be concluded then that increasing the size and changing the objectives of businesses offers no panacea for corporate governance problems. Indeed, in respect of the ‘separation of ownership and control’ aspect of the more general governance problems, smaller size can be expected to give rise to lesser problems.

...

(the IEA report) fails to address these realities, simply assuming that amalgamation, privatisation, corporatisation and its other suggestions and recommendations would almost necessarily improve EDB governance. No reason is given to think it would.”⁶

With respect to the Electricity Price Review comments, it is instructive that the Electricity Price Review considered the option of recommending amalgamating distributors or requiring all distributors to be subject to price/quality regulation. Rather, having considered the considerable volume of submissions made on this issue decided against doing recommending either outcome. The Authority offers no commentary on whether it disagrees with the Electricity Price Review’s conclusions or why the sole observation about distributor operating costs is sufficiently relevant to present it without the context that led the Electricity Price Review to conclude that the current structure of the distribution sector remains fit for purpose.

Discussion paper questions

What are distributors doing to ensure their network can efficiently and effectively manage the transformation of networks?

Network Tasman has undertaken a number of projects to ensure we can efficiently and effectively manage network transformation. These include:

- EV hosting capacity study: Network Tasman commissioned a study in 2018 investigate the electric vehicle hosting capacity of a number of representative low voltage areas on our network. The study found that in the absence of coordinated EV charging (or suitable price signals that encourage off-peak charging) the capacity available on the weakest parts of our LV network may struggle to meet all EV charging need as penetration rates approach 20%. Network Tasman’s current penetration rate is 1.65%.
- Network Tasman is reviewing its residential consumer load diversity formulae that provide the basis for the design of LV network reticulation in its area. In the review, smart meter data from thousands of ICP’s is analysed to derive the actual present load diversity, then various residential EV charging load profiles are overlaid on the actual load profiles to derive the possible set of future load profiles and diversity formulae. This will inform LV network design policy decisions for the future.
- 50-year network development plan: In addition to our regulated 10-year asset management plan, Network Tasman has developed an internal 50-year network development plan. Although this plan is subject to less certainty than the AMP, it provides context about the longer term implications of load growth, changes in consumption patterns and the longer term implications of network investments that may not be evident over a 10-year horizon.

⁶ Professor George Yarrow, *The International Energy Authority’s 2017 Review of New Zealand*, 2018, p19.

- **Boiler database:** As part of a joint project across all South Island distributors, Network Tasman has commissioned DETA consulting to conduct a survey of non-electric thermal boilers on our network. The purpose of this survey, which includes phone interviews and site visits, is to provide Network Tasman with a clear picture of the likely timing and magnitude of large process heat electrification projects that will occur on our network.
- **Development of ripple control of batteries:** Network Tasman has investigated and established the use of ripple control as a means of real time control of distributed battery storage. The benefits of using ripple control for this purpose are that it is a very reliable and cost effective communications channel. As ripple control doesn't rely on the internet or on cellphone, radio or fibre coverage it is reliable even in emergency situations where other means of communication are not available. This also means it faces considerably less risk of cyber security threats compared to internet based communication methods.
- **South Island DSO working group:** Network Tasman is a member of the South Island working group that was established in July 2021 to investigate and develop a roadmap toward the establishment of DSO services within the South Island.

How are distributors currently working together to achieve better outcomes?

Network Tasman is involved in a range of areas where it is working with other distributors to achieve better outcomes. These include:

- **South Island CEO's forum:** South Island CEO's meet regularly to discuss the issues facing the distribution sector, share lessons and communicate with stakeholders (including recent attendances by the Authority, Commerce Commission and MBIE). This forum was particularly helpful during the COVID lockdowns as it allowed lessons, experiences and best practice responses to the various issues created by the lockdown to be shared amongst the group.
- **Resource sharing:** South Island distributors have a mutual aid agreement to share operational resources following extreme events. Network Tasman recently released two line crews to travel to North Canterbury to assist restoration efforts on the Mainpower network.
- **South Island DSO working group:** As noted above, Network Tasman is a member of the South Island distributors DOS working group.
- **South Island boiler database project (jointly with Transpower and EECA):** As noted above, South Island distributors have jointly engaged DETA consulting to assist in developing a database of thermal boilers and their electrification intentions.
- **Top of the South regulatory/commercial managers' forum:** The managers responsible for commercial and regulatory activities at Nelson Electricity, Network Tasman and Marlborough Electricity hold a regular forum to share lessons, processes and perspectives on the issues relevant to the regulatory and commercial operations of the distribution sector.

Efficient pricing

The Authority states that efficient distribution prices are required to ensure the long-term benefit of consumers and that growing demand needs to be met by the optimal combination of new technologies and network investment in the right places.

This is effectively the same outcome that is stated as that to be achieved by the efficient use of flexibility services.

It's not clear from the Discussion Paper whether the Authority has considered how a flexibility market would interact with a distribution network with efficient distribution prices, or if its efficient to have both operating in parallel.

Arguably, a network with efficient distribution prices has no need for a flexibility market because the distribution prices already signal the cost of using the network at any point in time and these would be sufficient for a flexibility trader to transparently identify the areas in which it can deploy flexibility services in a manner that will deliver lower costs to consumers.

It would be natural to expect that the success of one of these price signals would undermine the benefit enjoyed from the other.

Network Tasman sees flexibility markets and efficient distribution prices as being two sides of the same coin. We encourage the Authority to carefully consider (and articulate) how these two services are likely to interplay with each other, how the evolution and success of one influences the consumer benefits derived from the other and the incremental benefits that accrue to consumers as a result of these services operating in parallel.

Closing comments

Network Tasman agrees that the regulatory system must evolve to ensure that the benefits of new technologies are maximised and that consumers are the primary beneficiaries of these technologies.

We encourage the Authority to work alongside the Commerce Commission and the Ministry of Business Innovation and Employment to develop a comprehensive and integrated whole of system approach to future regulation. As new technologies become more integrated into the electricity system, the line between regulated and unregulated markets blur. The regulatory response to the coming industry change will be a key factor the electricity sector successfully integrating these technologies. It is essential that the various regulatory and policy frameworks are developed in parallel to ensure that sector regulation is consistent and complementary.

We look forward to working productively with the Authority and other industry stakeholders to achieve these outcomes.

We are happy to discuss our opinions further with the Authority should it find it useful.

Kind regards,



Daniel Vincent

Regulatory and Commercial Manager