Submission to Te Mana Hiko /the Electricity Authority

Updating the Regulatory Settings for Distribution Networks: Improving competition and supporting a low emissions economy

28 September 2021

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Executive Summary

We welcome the opportunity to provide a submission to ***Te Mana Hiko / the Electricity Authority*** **(EA) on the discussion document** ***Updating the Regulatory Settings for Distribution Networks: Improving competition and supporting a low emissions economy.***

We strongly support the government's commitment to a low emissions economy, and we recognise that electricity distributors will play a fundamental role in achieving this.

Of the six themes outlined in this consultation, we consider that ***Information Sharing*** and ***Electricity Standards*** are significant issues, because these are enablers for the development and safe deployment of flexibility services.

We stress that within our drive to create a sustainable energy infrastructure, we must not put in place a framework that results in inequity within communities. While we encourage the advancement and deployment of flexibility services, this must not be at the expense of consumers who are unable to access these new services and can least afford to pay for costs they may impose on the network.

Such inequities exist in Part 6 where distributors are required to support deployment of distributed generation on an incremental costs basis, when the distributed generator is making use of the distribution infrastructure in largely the same manner as a customer who consumes energy. This is both inequitable, because it allows commercial entities to leverage a network funded by consumers and is a short-term view because over time, we expect DER will drive network costs up as demand becomes more volatile and asset life is shortened by non-traditional loads.

We believe small distributors are capable, agile, and progressive, and are already highly engaged in leading change towards decarbonisation – importantly, we are also closely connected to our customers and community. As a small North Island distributor, we are working with other distributors, including the Northern Energy Group, to leverage the advantages of scale that we collectively bring, while remaining agile at a local level.

We support the Electricity Authority's intent on pricing reform, but we believe that this will be ineffective unless a framework is put in place that ensures costs and incentives are reflected through the supply chain, which they are not today. We also believe that the Electricity Authority should ensure there is a consumer lens applied to this reform, so that changes resonate with consumers and enable them to participate.

We are excited and engaged in facilitating New Zealand's transition to a low carbon economy. We support this review and note that the Electricity Authority working in partnership with distribution businesses, will be key to establishing the right foundations for a sustainable low carbon energy future.

We welcome further engagement with the Electricity Authority on this consultation.

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Summary of Theme Significance

Theme	Our view on the significance of each theme	Our view of the significance of options within each theme	Within each theme, TLC supports the following options.
1 Information sharing	Significant issue	Significant	Shared data through API
		Minor	Collaboration between all industry participants
		Minor	Guidance for reporting
2 Electricity standards	Significant issue	Significant	DER Registry
		Significant	Develop new standards
3 Market settings for equal access	Minor	Medium	Developing multiple trading relationships
		Medium	Digital and data-based platforms
		Minor	Funding for trials
		Minor	Procurement guidelines
		Minor	Enhanced disclosures and comparative report
4 Operating agreements	Minor	Minor	Support development of the market through a DER register and appropriate standards
5 Capacity and capability	Minor	Minor	Increase engagement with EDBs
6 Efficient pricing	Medium	Medium	Reform pricing across the supply chain

About The Lines Company

Our network

The Lines Company (TLC) network provides an electricity distribution service to over 18,000 customers with around 24,000 connection points (or ICPs) covering 13,700 km^2 in the central North Island. It is one of the largest network areas in New Zealand but has a low population density and doesn't supply a major urban centre. Consequently, much of the network is committed to providing electrical distribution services to rural and sparsely populated areas.

Relative to other distributors in New Zealand, the TLC network is also electrically complex. It has one of the most diverse customer populations, a long circuit length, multiple and varied points of supply (from both Transpower and large generators), and significant electricity generation that is embedded within the network.

TLC is 100% owned by the Waitomo Energy Services Customer Trust ("WESCT") and is also one of the nine Electricity Distributors that are subject to price and quality regulation under the Electricity Act.

Our community focus

As a community trust owned business, our focus extends beyond providing reliable supply. Our customers experience some of the greatest financial hardship in New Zealand. 60% of our customers rate 8 or higher on the social deprivation index, and a quarter of our customer base has a household income less than $35,000 per annum.

We are proud to be in a position to support our community, and we are actively doing this today.

- In 2020 we provided nearly $1m of reduced charges to residential customers at the start of the year as part of a COVID-19 relief package. This year we donated $60,000 to local foodbanks.
- In 2019 TLC established the Maru Energy Trust, which funds home insulation and other energy efficiency initiatives within the King Country and Ruapehu regions, and we remain a key sponsor in partnership with EECA.
- We are also actively investing in EV chargers on our network, in partnership with EECA. Our aim to create an "EV Highway" through King Country has become a reality, with 45 chargers now installed on the network — fast chargers in the main centres and smaller chargers at many motels. This strategic community initiative is targeted at helping businesses and tourism operators become "EV friendly" to enable greater use of electric transportation by the tourism sector in our region, and to encourage overnights stays by EV drivers bringing more money into the local economy.

There are many other ways we support the community through sponsorships, scholarships and with community projects. We see business facilitation as one of our core responsibilities.

We are conscious that our network and our customer demographics are unlikely to be front runners for market investment in flexibility services and sustainable energy alternatives, so our investment decisions include how we can support our local communities to enable their access to a sustainable and affordable energy future.

We are a member of the Northern Energy Group

TLC is a member of the Northern Energy Group (NEG), a collaboration of distributors who service customers in the upper North Island. The NEG supplies approximately 40% of New Zealand's total customer base, and its membership includes Top Energy, Northpower, Vector, Counties Energy, Waipa Networks and The Lines Company.

THEME 1: Information on power flows and hosting capacity

Significant Issue	**Access to metering data** We consider that access to metering information is critical for enabling a transition to, and reliable supply of, a low carbon economy.

Summary

TLC is one of the few EDB's in New Zealand that has access to metering data, and this has been critical in understanding customer consumption patterns to enable our transition to time of use billing.

We are now beginning a process to harness network and operational data (voltage, power factor, outage location etc) to understand how localised power flows impact our assets, our operations and our planning.

We are also working with our network MEP to explore services that can be offered to the market leveraging capabilities of the meters.

We agree with the EA and the NEG that distributors need greater visibility of the performance on their distribution assets. This will optimise consumer value by creating visibility for the use of flexibility services, and specifically for Distributors, to optimise operations, planning and tariff development.

We note that distributors are not generic - we each have different information needs to support our planning and operational decisions.

Although we note that this issue does not directly apply to TLC, given the potential value the industry can gain from increased access and information to data, we consider this issue as being **significant** for the industry as a whole.

Our views on potential options

We support the following options:

- **Collaboration between all industry participants**

  We agree with the NEG that to improve information flows across the system, there needs to be a collaborative effort between all participants to make data available to support New Zealand's transformation to a low emissions economy. We are supportive of making power flows and congestion constraints visible for industry participants, and to do this in a way that provides a standard format for the industry to access.

- **Guidance for reporting**

  We support the option presented by the EA to "publish guidance for distributors to report on export congestion and network investment needs", which will facilitate standardisation but retain information flexibility.

- **Shared data through API**

  We agree with the NEG that data is needed both in real-time to support network operations and to be available for later analysis to support pricing, asset management, and network design. We also note that the use and application of data is an evolving area. Some participants will have different needs for both the frequency, recency and breadth of data required, and this is likely to change over time.

  On that basis we consider that industry participants should access data through an API service, rather than through a centralised data repository.

What we are doing

We are in the early stages of developing a congestion heat map to enable flexibility traders to identify areas of network constraint, and we will work with MEP's, flexibility traders and other EDB's including the NEG to standardise the format of this information and its accessibility.

We are already exploring network services that can be offered to the market using the in-situ metering capabilities and collaborating with MEPs on this approach.

THEME 2: Electricity supply standards

Significant Issue	**Technology and safety standards, and equitable regulation (Part 6)** We consider that technology and safety standards and equitable regulation for flexibility services are critical enablers for successful and affordable decarbonisation.

Summary

New Zealand has a one-time opportunity to set in place flexibility infrastructure that can support (rather than exacerbate) energy congestion and cost to serve. A key element in achieving that objective is to ensure flexibility services utilise infrastructure that has a standardised remote management capability, that can be accessed by a broad range of market participants. In our view standards and equitable regulatory frameworks (in particular Part 6) are a central enabler to achieve that objective.

The effects of failing in this area are heightened for customers on the TLC network. As has been observed in Australia and Germany, flexibility services that are left solely to market forces can drive energy supply costs up rather than reducing them. Distributed Energy Resources such as EVs and Solar PV systems are unaffordable to most customers on the TLC network however these customers will become the ultimate payers (through higher line charges) of additional network infrastructure if the flexibility services are poorly or inequitably deployed.

Our role as trust owned electricity distributor is to lift the community as a whole, including through responsible and equitable deployment of new supply infrastructure. However, we have limited influence on the deployment of low carbon technology on our network today and on that basis, we consider the urgency of this issue to be **significant**.

Our views on potential options

- **DER Registry**

  We agree with the NEG that it would be useful for more data to be collected and shared about DER that exists behind the meter for operational and network planning purposes, and we support the development of a DER registry.

  However, we also note that mandating information disclosure, particularly for consumers, does not ensure compliance, but instead can create perverse outcomes. Our own experience is that consumers are generally apathetic and find electricity supply complex. Our view is that the EA needs to apply a consumer lens and develop a framework that encourages (rather than enforces) compliance on information disclosure. In other words, make it easy and beneficial to do the right thing, rather than threatening penalties for non-compliance. We do not consider that changes to regulation by itself will be successful.

- **Standards development**

  Our observation is that the electricity industry and regulatory framework in New Zealand is slow to migrate standards into regulatory framework comparative to other markets like Australia. We need to do better at this to avoid deployment of technology that is moving faster in its development than the regulatory framework can match.

  We support the development of mandatory standards for key technology (such as common protocols for control of EV chargers) to avoid technology lock out.

  We support the NEG's view that the following standards and protocols need to be implemented at an industry level to facilitate the large-scale uptake of DER:
  - Communications protocols for the provision of smart meter data to industry participants
  - Vehicle-to-grid (V2G) standards
  - Protocols for networks to communicate with and control EV chargers (or potentially directly with the EV)
  - Power quality standards to be updated to reflect congestion.

  We agree with the NEG that the EA needs to strike a balance between mandatory and voluntary standards, which is challenging, and we also encourage development of standards that provide minimum thresholds – this ensures a floor but still enables those that want to innovate more to do so.

- **Part 6**

  We support a review of Part 6 to ensure the application of distributed generation is equitable. While we support and encourage the deployment of DER and flexibility services, we consider that it is not equitable for commercial entities or high-income consumers that can afford to deploy DER technologies to do so and access network infrastructure at what is effectively zero marginal cost. Our view is that users of the network (whether importing or exporting) should both pay for access.

  There are three reasons for this view.

  - First the deployment of distributed generation on an electricity network typically generates cost, either operational or capital, to support the uncertainties and impact of voltage instability and reverse power flows. This cost may not emerge immediately but will accumulate over time. As such these costs should be borne by the owners of DER rather than other network users.

  - Secondly the TLC network may present an attractive location for large-scale DER deployment, as it has large areas of affordable land. We can foresee significant deployment of DER on our network over time, but under the current Part 6 rules, these customers (who may be commercial DER businesses) may not be required to contribute towards the development or maintenance of the network (e.g., for investment for continual improvement in reliability) that enables their business to operate. Instead, the burden of the network cost will remain on consumers while commercial DER investors get a free ride.

    Further, where a network is unconstrained, DER may not provide any network value. Costs may not change with or without utility scale DER being added. In TLC's case specifically, significant investment is occurring in asset renewal based on age and condition in areas that are not subject to constraint. In these areas DER operators will similarly receive a free ride because TLC's network investment is not related to capacity.

  - Third, we have observed specific examples on our network that create material uncertainty for DER applicants. This arises because our network has long feeders that supply very few customers (sometimes only one), which in some cases can be a large industrial energy consumer. DER applicants seeking to set up remote generation at the end of these feeders assume that they are

able to do so for zero marginal cost, since they are not impacting the capacity of the existing line, and their business case is based on that assumption. However, this assumption relies on the status quo remaining in place. If the large energy user ceases operation or relocates its business, all the cost of supply to support that feeder will now fall to the DER owner, which can mean the DER installation is no longer economic.

In summary the basis of the pricing principles under Part 6 is that the distributor should only charge the distributed generator for incremental costs of adding DER. This is inequitable because if this principle were to be applied to all users, then all new connections would be provided free of charge until a capacity constraint was reached. The implementation of Part 6 means some users of the network pay for use and others don't. It assumes the distributor benefits from deferment of network capacity (which is often not the case) and it retains a reliance on existing consumers to support a network while commercial entities can leverage their investment for near zero cost.

THEME 3: Market settings for equal access

Minor issue	**Market settings for equal access** We consider that the market is still relatively immature, and we do not consider there are material issues of equal access for DER deployment.

Summary

We support competition and effective market settings for equal access. As a consumer owned electricity distributor, we are highly incentivised to decrease operating costs for consumers, including introducing greater competition and market driven technology options for consumers.

However, we agree with the NEG that impacts on equity must be considered in any policies which incentivise flexibility services. Equal access policies should be mindful that costs to support DER and flexibility services (intended or unintended) don't flow consumers who are unable to participate and who can least afford it.

We have engaged with consumers to offer non-network solutions where these could avoid line upgrades, but our experience to date is that in general, consumers do not understand or trust alternative supply options where it means disconnection from the network. We think this is a market maturity issue that will change over time, and we consider that market education and engagement is a greater issue than market access issue at the current time.

We are actively working with our customers to investigate and support deployment of DER. For example, TLC is working with Ngāti Maniapoto to deploy DER in concentrated areas where solar production can be optimised, and where the network is used to enable access to those concentration points. The objective of this model is to both reduce cost of supply (by installing DER in bulk at points of optimal production) and increase access (for consumers who are unable to directly afford DER, may rent their homes, have houses that experience low lying fog, or have homes that are south facing).

We agree with the NEG that the market is still relatively immature and not yet fully developed, and we consider the urgency of the issues described in the discussion document as being **minor**.

Our views on potential options

- **Enhanced disclosures and comparative report**

We agree that education on flexibility services would be an effective option to pursue. We support the EA's options to review existing disclosure requirements for improvements and to develop a comparative report to provide this education and improve understanding.

- **DER Registry**

  We support the development of a DER Registry, and we would also support an initiative to discuss enhanced demand side participation, as we see demand side participation and management (especially with regard to EV's) an important component in managing future supply volatility.

- **Funding for trials**

  As a consumer owned distributor our focus is on longer term outcomes for our customers. While we support funding for trials, we do not consider this is a short-term barrier or enabler for investment in DER by TLC, as incentives to do so are already in place through our consumer ownership. However, funding for trials may be beneficial for the industry as a whole in seeding DER and experimenting with new business models. We support any initiative that may improve DER understanding or accelerate outcomes for consumers.

- **Procurement guidelines**

  We support the option of industry-developed procurement guidelines for traders. These would help to ensure all parties are treated equally and indicate distributors' approach on DER trading.

- **Enabling multiple trading relationships**

  We support trialling multiple trading relationships and encourage the EA to continue its workstream on this. However, we would encourage a consumer lens to be applied to this work. As noted above we have seen a lack of customer engagement driven by the complexity of the Electricity Market and a general apathy by most in engaging in services they do not clearly understand.

- **'Standing offer' price information for DER**
  We agree with the NEG that the market has not yet matured sufficiently to enable a 'standing offer' for DER.

- **Digital and data-based platforms**
  We view digital and data-based platforms as being fundamental to enabling dynamic DER management, and to unlocking new innovative markets and services, and we are actively investing to digitise our business operations. However, we consider that digitisation and data-based platforms are also fundamental to the operation of modern distribution networks, and DER is already being considered in our digitisation and system operation roadmap.

THEME 4: Operating agreements

Minor issue	**Operating Agreements** We consider that the market is still relatively immature, and we do not consider there are material issues in establishing operating arrangements with flexibility traders.

Summary

We do not consider that developing operating arrangements for flexibility services is a barrier or an issue that requires intervention at this time. We have not experienced a material barrier in establishing a standardised commercial framework with traders. Our view is driven by our own recent experience where TLC was able to agree a standard use of system agreement with 14 traders on its network within six

months, to support its transition to retailer billing commencing on 1 October 2021. Significant understanding, and therefore value, was realised for all parties through the discussion surrounding the development of a standardised use of system agreement.

We agree with the NEG that, with regard to flexibility services, this is a reflection of market maturity. We consider that the market needs time to explore business models before consideration is given to setting in place standard contracts for access.

However, we do support the development of guidelines based on principles approach, that allow flexibility for emergence of new business models and technology capabilities.

Our views on potential options

- **Support market development by addressing information sharing, electricity standards, and market settings**

  We agree with the NEG that given our experience of the current level of maturity of the market, we do not consider there is a need for regulatory intervention, and that the focus of industry development should be on enabling factors such as information sharing and standards.

THEME 5: Capability and capacity

Minor issue	**Capability and capacity** We do not consider that there are constraints of capability and capacity consider that present issues for consideration at this time.

Summary

We do not consider that there is an issue with regard to capability and capacity. Our view is that the market is well served by EDB's that are focused on community outcomes. TLC is a comparatively small electricity distributor but has demonstrated leadership in how it connects with its community and its agility in business change. Examples include:

- In 2018 TLC was the first electricity distributor in New Zealand to transition all customers to a time of use tariff. This included the establishment of a new billing and CRM system, and total network meter upgrade.
- Also in 2018 TLC was the recipient of EECA funding for its EV deployment programme to create "EV friendly tourism".
- In May 2021, TLC won the Outcomes award category at the New Zealand Energy Excellence award for tackling energy hardship.
- In July 2021 TLC completed a full network LiDAR vegetation an asset survey with an emerging LiDAR provider. TLC is one of the first networks in New Zealand to undertake a network wide LiDAR project and the first to work with this new entrant. In doing so TLC has facilitated greater competition in this market area.

We acknowledge that our capacity is more limited than larger EDB businesses. However, we manage this through collaboration and standardisation with other EDB's, including the Northern Energy Group.

For example, TLC collaborates extensively with other EDB's with regard to asset management. This includes:

- Sharing of design and health and safety standards
- Joint (multi-network) participation in Asset Management governance.
- Actively exploring opportunities to share learnings and form partnerships (e.g. LiDAR)

We are similarly unconstrained with regard to capability. We have established an in-house data science capability and we are rebuilding our information platform to support future focused DSO capabilities, including flexibility services. TLC has been able to successfully recruit and develop resources to ensure that the skills within the business remain relevant.

As a small distributor, we are active in the community and are driven through our consumer ownership to lift community wellbeing as a whole. Our focus on reliability and services outcomes is more granular than larger EDB's, evidenced by the fact that we have one zone substation for every 800 customers. Consequently, we are incentivised to operate at a scale and service levels that would be significantly lower priority for EDB's with larger scale.

Overall, we consider that our lower size supports greater agility, and our speed to meaningful consumer outcomes is faster than larger EDB's -not least of all because we remain close to our customers

We agree with the NEG that we do not consider there are material issues relating to capacity or capability, and we do not see a need for broader and more inclusive collaboration. On that basis we see this as a **minor** issue.

THEME 6: Efficient price signals

Medium issue	**Efficient price signals** We note that despite significant pricing reform by distributors, the market is not efficient at reflecting cost to serve today. We think the Electricity Authority should consider pricing reform across the supply chain to address this issue.

Summary

TLC has made significant change to its pricing structure within the last three years, from a purely cost reflective demand-based system to a time of use consumption-based pricing framework.

Our core driver for change was customer impact. The sharp price signals provided by demand-based charging meant that those who understood the market, knew how to play the game, and had the resources to put mitigation in place, would benefit. Those that did not, which were typically the most vulnerable groups in our community, ultimately paid a disproportionate share of costs.

During our pricing reform we engaged extensively with consumers to determine our what shape our pricing structure should take. Our key learnings were that consumers find the electricity market complex and concepts like power demand and power consumption difficult to distinguish. They value simplicity and clear messaging, while also requesting transparency (of charges). We encourage the Electricity Authority to engage extensively with consumers when considering further work on pricing reform.

We also note that the market is not efficient at reflecting cost signals from distributors today, and to date the Electricity Authority has been inconsistent in its approach to setting cost reflective pricing across the supply chain. Our observation is that although most distributors now offer cost reflective pricing in some form, few retailers mirror those price signals to consumers. Our view is that the Electricity Authority should

set a framework in place to ensure costs and incentives are reflected to consumers throughout the supply chain. In essence, distribution pricing reform by itself cannot improve market efficiency.

We would welcome further engagement with the Electricity Authority to share our experiences and learnings on pricing reform moving forward.