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Electricity Authority  
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### **Submission on Consultation Paper - Updating the Regulatory Settings for Distribution Networks**

WEL Networks (WEL) appreciates the opportunity to make a submission to the Electricity Authority (the Authority) regarding the consultation paper - **Updating the Regulatory Settings for Distribution Networks**.

WEL is a consumer-owned electricity distribution business serving over 95,000 homes and businesses throughout the Waikato and is playing an essential role in the economic and social development of our communities. Key to this growth are strong partnerships and innovation which see us explore new ways of providing critical infrastructure and services to ensure our customers receive affordable, reliable, fairly priced, and sustainable energy.

WEL agrees with the Authority that now is an ideal time to review and revise regulatory settings for distribution networks, prior to the widespread adoption of distributed energy resources (DER). We believe that although the current settings may allow for New Zealand to achieve its climate goals, updating the regulatory settings will allow for those goals to be achieved in the most efficient manner possible, and with the lowest long-term cost to consumers.

The body of our submission highlights three key issues which we believe need the most attention in order to support an affordable transition to a low emissions economy and ensure consumers benefit from the changes in technology and innovation happening now. However, we have also provided responses to the consultation questions in the appendix to this submission.

#### **Data Access and LV visibility**

Access to meaningful data not only allows for effective and efficient management of distribution networks, but it will be one of the greatest factors determining the uptake of DER and flexibility services. Due to a long-term investment in smart metering equipment, WEL is one of a limited number of distributors that has access to meaningful low-voltage (LV) data allowing us to understand how our LV network is operating. The insight this data provides has allowed us to optimise our investment in the network, ensure pricing policies do not exacerbate energy poverty, and ensure the safety of our community.

WEL is currently on a journey to further improve the value of the information we collect by shifting to 5 minute data sampling and 15 minute data collection. We believe that this rich source of network data will unlock further insights into our network and allow us to significantly improve the quality and safety of the service we provide, at a lower cost to our community. We would welcome the

opportunity to discuss with the Authority the journey we have been on, the benefits that have been achieved to date, our vision for the future, and to demonstrate these tools in action.

### **Review and revision of Part 6**

To unlock the benefits widespread DER will bring, WEL believes it is essential that Part 6 is thoroughly reviewed and revised. In its current iteration, Part 6 puts undue strain on distributors to process large and complex applications for distributed generation (DG) in a very short time, leads to customers without DG cross subsidising those who do (via inadequate maximum application fees), and its pricing principles create an artificial barrier to connection for large-scale DG when a “first-mover” is required to pay the incremental cost of their connection (which can be substantial if high-voltage or transmission upgrades are required).

WEL believes that now is an opportune time to review Part 6; utilising all that the industry has discovered while implementing it. A fit for purpose Part 6 would remove barriers to DG connection, enable the decarbonisation of New Zealand’s energy generation market, and allow for the benefits of DER to be fully realised.

### **Ability to undertake near real-time DSO functions**

While DER will be a critical component for New Zealand to achieve our decarbonisation goals, unmanaged DER has the potential to drive significant cost into distribution networks (and ultimately consumers). The impact of customer owned DER is likely to occur mainly within LV networks and have localised constraints. WEL commissioned a study which estimated that unmanaged electric vehicle (EV) charging on our network would require an additional \$700M expenditure on our network by 2040. However, it is believed that with effective management, and the competitive procurement of flexibility services, this expenditure can be significantly reduced.

Many of the constraints (especially relating to voltage) will be localised, therefore effective management will require a component of real-time decision making and network edge control. It will be critical in developing regulations in this space that there is a guiding principle to maximise the long-term benefit to consumers and to ensure that any regulations are flexible enough to adapt as technology and requirements continue to develop. On this basis, it is our belief that distributors should not be prevented from undertaking distribution system operator (DSO) functions, where it provides the greatest long-term benefit to consumers.

Additionally, WEL supports the submissions being provided by the Electricity Networks Association (ENA) and Electricity Engineers' Association (EEA).

Should you require clarification on any part of this submission, or wish to discuss WEL’s journey and experience to date, please do not hesitate to contact us.

Yours sincerely

**David Wiles**  
**REVENUE MANAGER**

**Mat O’Neill**  
**GM ASSET MANAGEMENT**

## Appendix A: Response to Consultation Questions

### *Q.1 Have you experienced issues relating to a lack of information or uneven access to information?*

WEL has access to smart meter data for over 70% of our connections because of prior investments made in this area to enable LV visibility. Datasets include UIQ (energy volume interval), ODS (outage detection), control channels and SIQ (power quality). Currently we are continuing our work on data analytic and data science to support the advanced features like phase identification, dynamic ADMD calculation, GIS data validation, broken neutral detection using a combined voltage and impedance based method, etc.

However, for the remaining 30% of connections, WEL has limited or no data beyond monthly aggregated volume data. Access to the remaining 30% would strengthen our data set and allow for more informed investment decision making and better outcomes for our community.

To date, WEL has refrained from implementing the DDA Data Template in its current form as we believe it is not fit for purpose. WEL is in a fortunate position with 70% LV visibility, however we strongly supported the adoption of the cross-industry proposed Code amendment which aimed to solve many of the issues with the Data Template, in order to allow other distributors to access similar benefits and increase our own visibility closer to 100%. Discussions with other distributors (who have implemented the Data Template) have indicated that negotiations with retailers have progressed slowly and data access costs are likely to be prohibitively high.

### *Q.2 What information do you need to make more informed investment and operation decisions?*

WEL has a long history of investment in smart metering equipment and network visibility enhancement projects. These investments now allow WEL to access a rich source of smart meter data (including energy volume, control, events, and power quality) for around 70% of the connections on our network. This data has enabled advanced network planning and operation features which would not be readily accessible by other means. Currently, the same insight and benefits cannot be achieved on the remaining connections served by only third party meters due to unavailability of data, lack of data access, and inadequate data update intervals.

To support the management of a network with significant levels of DER, information such as: DER settings, near real time voltage and loading data, DER (EV) locations, ICP phasing, LV circuit information, DER output projections, maximum and minimum load profile, DER communications standards, communications protocol, market set up, incentive and tariff options will be critical. All of this information will be necessary to support the development of network technology, operational, and commercial models.

WEL believes that, in addition to the information requirements outlined above, optimal investment and operation decisions could be made if we had timely access to the same data which our own smart metering equipment provides.

Additionally, WEL would welcome the opportunity to discuss with the Authority the journey we have been on, the benefits that have been achieved to date, our vision for the future, and to demonstrate these tools in action.

### *Q.3 What options do you think should be considered to help improve access to information?*

The industry generally accepts that there is value in the distributors having access to consumption data to improve the operation of their networks through LV network visibility, outage restoration etc. Where concerns lie are with:

- Current holders of data being required to become a data supply operations (which they are not geared up to be and sometimes for data they have not procured) through regulatory means;
- The data supplied through regulated means being used for competitive services in which they themselves are involved in;
- Lack of transparency with the consumers of who has access to data and for what purpose; and
- Costs of data procurement not being met by all those who derive value from its use.

The Default Data Template only addresses the usage concern and creates additional cost in the administration and working of the agreements.

A major factor in generating these concerns is the current de facto data flow of: meter → MEP → retailer → all other parties. A straight forward fix for this would be to remove the retailer from being the main distribution point by expanding the obligations in Part 10 of the Code to enable MEPs to supply data direct to distributors in the manner distributors require.

In this way, the retailer is removed from the chain of data supply, efficiencies such as business-to-business services, APIs and standardised data formats can be gained, participants can receive data that suits their particular needs and timing, and those developing and offering competitive services do so on an even playing field.

Considering the MEP market is dominated by two suppliers, it will be important to ensure that metering data pricing models are adjusted to ensure that sunk costs are not over-recovered with multiple data provisions, but this paves the way for further multi party services under the ACCES developments. Privacy Act principles will protect consumers to ensure data is only used for the purpose it is gathered for and distributors can demonstrate adherence to 3(b) via the participant audit process. Consumers and their agents still have the ability to receive their consumption data but efficiencies in provision of data may be created if retailers create arrangements with the MEP to supply.

#### *Q.4 Have networks experienced issues from the connection or operation of DER?*

To date there have been no significant issues with the connection of DER on our network. However, the trials which we are running on the network have begun to show where problems may arise from the connection and operation of different types, and sizes, of DER. We continue to build our understanding in this area to mitigate any future issues which may prevent or hinder DER owners from connecting to our network and operating effectively.

#### *Q.5 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 longer term?*

Yes, the actual permissible operating envelope (especially the upper band of the voltage profile) needs to be reviewed by assessing the real impact of voltage increase. If the band can be extended without causing issues to customer connections, this will greatly improve the hosting capacity and enable non-network solutions to be employed.

*Q.6 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?*

While well-intentioned, WEL believes Part 6 of the Code is no longer fit for purpose in the maturing DG environment. The size and scale of DG applications now being received by distributors, seems to be well outside the scope considered when Part 6 was written. Consequently, regulated timeframes to assess and respond to DG applications are becoming increasingly difficult to meet. It must be appreciated that for many distributors, the network design and engineering resources which assess DG applications are often the same resources handling load customer connection requests and network planning.

Adding to the regulated timeframe issue are the maximum fees Part 6 prescribes. Owing to the added complexity of DG connections (particularly larger scale DG), the maximum allowable fees fall well short of the actual costs involved in assessing their applications. As the maximum allowable fees do not reflect the actual cost of assessing and approving DG applications, they are currently being cross-subsidised from all other connections on the network.

However, the current Part 6 pricing principles are a significant barrier to achieving the Government's goal of 100% renewable generation by 2030. The pricing principles prevent the recovery of anything exceeding the incremental cost to connect DG. This creates a perverse outcome where additional DG connections continue to utilise existing export capacity in the network (at minimal or no cost) up until the export capacity of a section of the network is reached. At this point, the next DG applicant is subject to a substantial connection cost to increase the export capacity of a large part of the network or a GXP (as this is the incremental cost of connection). This principle is in contrast to WEL's current methodology for non-DG connection applications, which are economically modelled to provide for a proportional allocation for future upstream asset investment.

*Q.7 Is there a case to be made for minimum mandatory equipment standards for DER equipment, specifically inverter connected DER?*

Yes, this will be important to enable the safe and efficient connection of DER. We believe that some of the crucial features in this area are: a DER installation register, DER comms interface, protocol and capability in remote monitoring and control capability.

Also, just having a device pass the certification because it has the required feature is not enough. The actual device functions need to be enabled and the set points must be correct. There needs to be a process to enable this and verify this.

Using the example of EV charger management, current industry standard (SNZ6011) recommends using OCPP protocol for charger management, but there is a lack of details on the implementation of the standard and the minimum functionalities and interface requirements. Also, the OCPP variants across different product models mean that it is difficult to create a common platform to enable a standard communication interface.

*Q.8 What standards should be considered to help address reliability and connectivity issues?*

WEL believes that engineering standards should be considered for DER remote connection interface and demand response interface and protocols. Consideration should also be given to how this standard is verified in practice.

Up to date DER information must be readily available to all participants who reasonably require it.

As outlined earlier, an overhaul of Part 6 of the Code is going to be required to enable participants to develop the innovative solutions which will be required.

*Q.9 Is there a case to look at connection and operation standards under Part 6 with a view to mandating aspects of these standards?*

WEL does not believe so, the Code is not an ideal framework to manage these types of connection and operation standards. While it will be important to have these standards regulated and homogenised, it is likely they will need to change or be replaced as technology continues to evolve. Historically, the Code has not been well-suited for managing issues which are evolving or in a state of flux due to the slow pace of Code changes.

*Q.10 What flexibility services are you pursuing?*

Like WEL, many distributors are actively developing the technology and operational knowledge to utilise, both network-owned and customer-owned, DERs for non-network solutions. As the flexibility services market is still in its infancy, it has been impractical for WEL to procure any flexibility service as yet. However, WEL believes that distributors should be actively involved in developing a flexibility services market to ensure New Zealand can achieve its decarbonisation goals.

*Q.11 Are flexibility services being pursued through a competitive process?*

As previously highlighted, the market for flexibility services is still in its infancy, making the procurement of these services difficult. However, given the rapid growth in DER that is currently occurring, we are developing strategies and policies for the competitive procurement of flexibility services in the near future.

WEL believes that distributors will need to develop and publish clear technical and operational requirements for DER, so that a deep and competitive market for flexibility services can develop. However, we also believe that it is critical that distributors are not unnecessarily hindered from utilising the knowledge and experience they have of their own networks when acquiring non-network services to deal with issues identified in the network in near real-time.

*Q.12 What options should be considered to incentivise non-network solutions?*

As a consumer-owned distributor, WEL is exempt from a Default Price-quality Path (DPP) and is therefore not as constrained when exploring or adopting non-network solutions. For those distributors subject to a DPP, serious consideration should be given as to whether the framework has flexible enough timeframes and provides adequate incentives to investment in non-network solutions.

We have found in recent times that the current construct of the Code, largely written in a time when the industry was much more homogenous, is becoming a significant barrier to innovative solutions.

As an example we are planning a real-world trial to understand how a consumer can, by engaging separate Traders for their load and generation volumes, realise the greatest value from their DG without the need for physical re-configuration at the ICP or to enter complex financial arrangements (generally not available to mass market consumers in any case).

The current single retailer dollar swap arrangements driven by the single trader ICP settlement requirement seems to drive that value to the trader, but given the minor relative impact on the traders overall revenue stream there is little incentive to innovate in the space to the benefit of the

consumer. To address this we were looking to be able to create two ICP identifiers to associate with a single connection point so as to have different traders for the load and generation volumes.

Interaction with the Authority has shown that the complexity involved in overcoming the current regulation of having only a single ICP identifier at a point of connection, (even though there are many connections, albeit historical, where there will be more than one ICP at a POC and these are handled by participants without issue), is such that we are forced to re think our approach.

This experience highlights that without either significant redrafting of the Code, or a change in approach for assisting new innovations they are likely to be constrained to only those that fit within the confines of the Code.

*Q.13 What options would encourage competitive procurement processes for flexibility services?*

First and foremost, availability of flexibility services to procure. The market for flexibility services is still very small, so procuring them competitively can be difficult at this time. Secondly, the competitiveness of flexibility services with regard to the cost and reliability of traditional network solutions needs to be factored into procurement decisions.

*Q.14 Have you experienced difficulties with negotiating operating agreements for flexibility services?*

No, as WEL has not yet engaged, nor been engaged, in negotiating an operating agreement for flexibility services beyond ad-hoc arrangements for generation to be run during times of network maintenance.

*Q.15 Are the transaction costs of developing contracts a barrier to entering the market for flexibility services?*

WEL does not believe so. As we submitted during the Default Distribution Agreement (DDA) consultation, these transaction costs are almost always very low. Unfortunately, during the DDA consultation, the Authority accepted the assertion of a single retailer claiming transaction costs could exceed \$150,000 per agreement. Although this figure was never corroborated (to our knowledge), it is still highlighted from time to time as evidence that distributors impose unnecessary transaction costs when negotiating agreements.

*Q.16 Would an operating agreement help lower transaction costs and level negotiating positions?*

Possibly. However, in doing so, standard operating agreements are likely to unnecessarily stifle innovation in the flexibility services market. The result of standardising distributor-retailer agreements was the DDA; a very rigid and prescriptive agreement framework which poorly adapts to change or innovation.

Until such time as strong evidence supports the need for a standard operating agreement, WEL believes a better solution is for the Authority to develop and publish a framework and guidance for flexibility service agreements.

*Q.17 What kind of operating agreement would address the issues described in this chapter?*

Allowing distributors and flexibility service providers to negotiate mutually agreeable and beneficial operating agreements (using the Authority's published framework and guidance) would provide the optimal outcome for all parties and consequently consumers.

*Q.18 What are distributors doing to ensure their network can efficiently and effectively manage the transformation of networks?*

In addition to the many efforts highlighted throughout this submission, WEL has developed strategy and roadmap for network transformation. The new service model outlined as part of this strategy was designed with a strong customer focus as the guiding principle. We ensured that the network transformation strategy has enough flexibility as technology, the flexibility services, and regulations evolve.

This strategy has resulted in many trials being planned (and some already initiated) to understand how the network of the future will operate.

*Q.19 How are distributors currently working together to achieve better outcomes for consumers?*

Some of the recent examples of collaboration which WEL has been involved in are:

1. Founding member of SmartCo, a multi-distributor joint venture to procure and install smart metering equipment in order to enable better network investment and operating decisions
2. Engaging in the Wellington Electricity EV connect forum to enable distributors to develop coordinated long term EV strategies
3. Collaborating with another distributor on an agreement for a domestic EV trial so that lessons could be learned and shared between distributors
4. Sharing of data visualisation platform with another distributor for smart meter data management

*Q.20 Could more coordination between distributors improve the efficiency of distribution?*

Yes, greater coordination between distributors is likely to always result in a more efficient industry. With that said, due to a finite pool of resources within each distributor, coordination has long been a key efficiency driver for the industry to achieve the best outcomes for consumers. While this coordination may not always be overt outside of the sector, WEL's long-term involvement with the ENA and EEA, and their respective members, has resulted in many learnings that otherwise may have been replicated by each distributor individually.