

# Updating the Regulatory Settings for Distribution Networks

Improving competition and supporting a low emissions economy

To: Electricity Authority

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## 1. Introduction

Community Energy Network (CEN) is made up of 18 members throughout the country who are deeply committed to improving the health and resilience of their communities. Our members are all charitable trusts and community/social enterprises that, amongst other programmes provide a healthy housing and other energy services. Over the past 15 years CEN members have insulated more than 120,000 homes and completed over 250,000 healthy home assessments.

In 2018, CEN began implementation of a strategy that promotes and assists communities to assess, consider, install and operate community centric DERs. CEN has commenced engagement with communities in setting priorities and planning community energy initiatives that emphasise community wellbeing, resilience, energy security, employment, and community investment.

Our approach to assessment of the worth of community DER projects uses value/cost analysis rather than cost/benefit analysis. We do this because the concept of 'value' is wider than 'economic benefits' and is able to properly capture measures of community wellbeing. We encourage the Authority to take a similar approach.

CEN supports the Electricity Authority reviewing regulatory settings that will facilitate introduction of DERs. CEN also appreciates the opportunity to make submissions, which we have done through the form provided. Implementation of its community DER strategy has required CEN to learn the processes for engagement with electricity distributors and what is involved in distributor agreements for lines connection, lines charges and operation of DERs. CEN is pleased to share this experience with the Authority through the submission process.

## 2. Overarching comments

CEN has identified the following key overarching points which are very relevant to the Authority's consultation about changing regulatory settings for electricity distribution. We have provided these separately rather than repeating them across several of the Authority's questions.

### 2.1. The forthcoming shift from electricity supply grids to prosumer networks

- a) Over the next decade there will be significant changes in how electricity supply chains are conceptualised and developed. The traditional distribution system that supplies consumers from grid generators will be supplanted by a network that is accessed by multiple producers/generators as well as consumers. The traditional producer-to-consumer supply chain model will transition to become a network that connects three types of entities:
  - i. Those that are both DER producers and consumers – commercial and residential roof solar arrays.
  - ii. Independent DER producers and service providers.
  - iii. Consumers.

Some commentators are now referring to these as prosumer networks, and we like this term. This process has already begun. Future proliferation of a wider range of DER opportunities will add many more locations at which producers and traders require access to the grid.

**People powered wellbeing, together**

- b) As these shifts occur, the traditional perspectives, business models, and technical skill sets of distributors will be insufficient and will need to be updated and expanded. Further, some legacy assets may lose substantial value, and new and different network assets and structures will be required. The ways in which these new prosumer network assets will be financed needs careful attention. It is unlikely that the present 'capital contributions' model will be either appropriate or feasible.
- c) The Authority's discussion paper places considerable emphasis on the future role of controllable DERs to flatten peak loads on grid generators, and the Sapere report supports the value of applying DERs to this purpose. CEN supports this work, but we consider that it falls far short of what is needed. The thinking in the discussion paper should be turned on its head to focus on how DERs will be introduced and operated to ensure highest value outcomes when they are connected in a prosumer network environment. The Authority should take great care to avoid embedding and reinforcing monopoly positions of distributors. This would lead to suboptimal outcomes.
- d) CEN understands from other information that the Authority has recognised the changing landscape and is seeking to understand and prepare for the transition needed in market structures. This is important because the market structures and rules for the prosumer networks requires a very different mindset to the traditional supply chain thinking.
- e) The regulatory settings needed for community-oriented prosumer applications of DERs merit deeper consideration than that provided in the discussion paper. It is likely that these settings will go well beyond those needed for flexibility markets. CEN believes that the Authority must work through a period of exploration that maintains the flexibility needed to respond to rapidly changing supply chain dynamics. Whilst maintaining flexibility, the Authority will also need to ensure that the market is able to provide the level of certainty needed for investments to be made.
- f) CEN is especially concerned that the discussion paper envisages electricity distributors as potential flexibility market coordinators and even flexibility market traders. CEN considers that this concept is deeply flawed because the core business of distributors is to manage network assets and to provide services derived directly from them. If distributors are allowed to own, operate and control DERs, including trading of DER flexibility, they would have strong conflicts of interest that would deter investment by potential operators of independent DERs. Clearly, the regulatory framework for market arrangements will need to ensure that the highest value options are not precluded from entering the market. CEN's experience indicates that the role of local monopoly distribution networks should be ringfenced and the and the conditions of service by these networks be set by an independent body.
- g) The discussion paper places considerable emphasis on the future role of controllable DERs to flatten peak loads on grid generators, and the Sapere report supports the value of applying DERs to this purpose. However, CEN considers that the thinking should be reversed to focus on how grid/network operators will best support this core role of DERs.

- h) CEN considers that in most cases community energy will provide the highest value option. In this regard, the discussion paper gives insufficient attention to DERs that are installed to supply a major part of demand at community/local levels using the protocol that Sapere refers to as 'social peer-to-peer'. The Sapere report considers these community oriented DERs and attempts to value them (although this valuation is materially understated, in CEN's view).
- i) Whether it is through grid edge infrastructure changes or physical climate change impacts, many of the changes to the industry highlighted within the Discussion Paper and our comments, are likely to be highly disruptive to the sector. CEN believes that the development of pilot projects, using innovative technologies and models of delivery will provide critically important insight for the EA and the sector.

## 2.2. Efficient pricing

CEN notes that this is the subject of a forthcoming piece of work. We offer the following comments:

- a) CEN proposes a mandate that allows lines charges that are based on the concept of a local virtual micro grid defined by matching local DER supply to local demand ('social peer-to-peer'). Normal lines charges would apply to the proportion of micro grid demand that is supplied by grid generators.
- b) Because transmission connected generators do not pay any distribution charges, it follows that DERs should not face distribution charges other than any incremental costs that are incurred solely to support the DER connection and operations. To do otherwise would place barriers to efficient investment in DERs and result in constraints on the development of sustainable and resilient communities in New Zealand.

## 2.3. The need to discuss regulatory settings that prepare the sector for the impacts of climate change

- a) CEN is seriously concerned that the discussion paper makes no mention of the certainty that weather events due to climate change will impact severely on the integrity and reliability of distribution lines and the security of generation capacity. The economic impacts of climate change – global and in New Zealand – are also certain to have profound effects on demand for electricity. These are also ignored by the discussion paper.
- b) Thus, the discussion paper does not acknowledge that regulatory settings should be reviewed immediately as an aspect of anticipating the needs of the sector for both climate change adaptation strategies and planning to establish the capacity for immediate responses to severe events.
- c) Thus, the paper unfortunately ignores the largest and most critical source of changes that the sector and its markets will need to face in meeting emissions targets and in mitigating the direct impacts of climate change on communities and consumers.
- d) A practical way to rectify these omissions would be to construct soundly-researched climate change scenarios that would be used as base information for further and greatly expanded consideration of regulatory reforms in the electricity sector.

### 3. Submission Question Responses

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

It has been very difficult to obtain information from the distributor regarding information that is critical to our assessment of the financial feasibility of our proposals.

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

The information that we have needed from the distributor, and believe should be readily available, focusses on present lines capacity in relation to proposed DERs, the lines upgrades that would be required, and a policy or protocol for allocating associated capital costs.

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

The solution to the issues raised in Q1 and Q2 is likely to be a regulatory setting that mandates provision of this information.

As a separate matter regarding access to information, we disagree with the assumption made that household consumption information belongs to retailers, who may (or often do not) then share it with distributors. Information from smart behind-the-meter demand management systems is clearly the property of consumers. This information is private and commercially valuable. If retailers and distributors wish to use this information, it is reasonable for consumers to be compensated for it. Further, communities of consumers should be able to aggregate this information to provide services that assists demand management and sell these services through the market. A mandated process for this would be a significant incentive for consumers and their communities to engage in demand management

**Q.5 Do the Electrical Safety Regulations require review? If so, what changes are needed in the short term and longer term?**

CEN supports changes in the ESRs that ensure that their application is uniform across all distributors and facilitate aggregation of supply from controllable DERs when such actions are in the best interests of grid management.

Standards should be strictly limited to what is necessary and must not allow parties to enforce restrictive positions that benefit them and constrain DER development. All ESR reforms should be regarded as part of the preparation of the whole sector for the impacts of climate change.

**Q.6 Does Part 6 remain fit for purpose? If not, what changes do you think are needed in the near term and in the long term?**

CEN is very concerned that implementation of Part 6 is asymmetrical. The processes of Part 6 are managed by distributors that are free to exercise local monopoly power to deter establishment of DERs. There is clear evidence that DERs have been considered to be a threat to distribution networks primarily due to the potential for asset stranding. There is a strong tendency for distributors seeking to control the conditions under which DERs are installed and used.

Part 6 currently provides too much scope for distributors to exercise unreasonable power and control over DERs. For example, Part 6 currently allows a distributor to establish its own connection and operation standards for DERs. This power can be used by distributors to impose costs that deter DER investors.

Because of the clear and direct conflicts of interest that distributors have, the starting point of Part 6, and any other relevant parts of the Code, should be to limit the control of distributors to only those aspects of the network that are required for the safe and reliable operation.

An independent monitoring body, (possibly a panel reporting to the Authority) should be established to ensure that distributors cannot apply unreasonable terms of connection and operation for DERs.

While the DER-induced risks described in 5.18 – 5.30 are real, this analysis should be properly balanced by also stating that aggregations of controllable DERs can mitigate the grid risks that occur when there is a system contingent event, such as loss of substantial grid generation. This is especially relevant in the context of future severe weather events that will place the grid system at greater risk of physical disruption.

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

CEN agrees with this in principle, for straightforward safety reasons. The standards need to be introduced swiftly, so that prospective DER owners avoid making costly mistakes.

Distribution connection and operation standards should also be established by an independent body and applied nationally. This would avoid the situation where national DER owners and operators would have to comply with 29 variations of individual distributor standards.

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

See our responses to Q.6 and Q.7.

**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?**

CEN favours standards and processes that are mandated to be uniform across all distributors and monitored by an independent authority. However, aligned with CEN's overarching points, the standards would need to be established for a prosumer network rather than a traditional supply chain. This would require quite different thinking and mindsets.

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

CEN is currently facilitating the work by a CEN member to establish a community-based 4MW solar farm that is likely to have batteries in the future, as well as large roof-top arrays. CEN intends to implement the community energy model in several communities throughout New Zealand.

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

CEN's experience is that it is difficult to ensure a competitive process for independent DER investors when a distributor would prefer to either deter such investments or conduct DER developments in-house.

The proposals for DERs tend to be in locations that have lines capacity only for residential consumers. The competitive process is currently inhibited by uncertainty about who should

bear the costs of upgrading lines capacity sufficiently to accept supply from a DER. CEN proposes a mandate that ensures that a distributor can charge a DER owner only for the cost of building the capacity that the DER needs. Surplus capacity may be installed, but the cost of this is borne by the distributor. This provision is needed to constrain a distributor's ability to block DER installations by imposing higher costs than are necessary.

The present connection fee for medium-size DERs seems to be arbitrary and excessive. This inhibits market entry. Part 6 should limit fees to the reasonable costs that the distributor incurs. The connection fees should be publicly disclosed and, if necessary, subjected to regulatory adjustment.

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

Distributors could be required to publish Statements of Opportunities for DER. These would identify where DER installations would offset existing and future network investments and operating costs. In this way, the DER market would be informed on the best locations, from the network perspective, to locate DER installations and the associated flexibility resources and services.

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

CEN proposes that distributors be required to publish Statements of Opportunities for non-network DER. These would identify where DER installations would offset existing and future network investments and operating costs. In this way, the DER market would be informed on the best locations, from the network perspective, to locate DER installations and the associated flexibility resources and services.

As already noted, the local monopoly power of distributors inherently inhibits competitive market entry by independent DER owners. CEN therefore proposes that distributors be prohibited from owning or operating DERs and also from being flexibility traders. We further propose that the current permission for distributors to offer retailing services be removed.

These adjustments would ensure that distributors would then focus more effectively on their core business of providing an efficient and resilient network that best serves the needs of consumers and operators of DERs. This view coincides with Section 6.40 in the discussion paper. CEN agrees with the position of the Council of European Energy Regulators – reported in Section 6.44 - that distributors should act as neutral facilitators that provide information, network infrastructure, and the management of the network operating system. Neutrality requires that distributors would be free from conflicts of interest which in CEN's view would preclude distributor involvement in trading markets and DER ownership and operation.

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

CEN expects costs of completing contracts to be substantially higher than necessary.

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

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

CEN suggest introduction of suites of mandated contract templates that cover most DER agreements. These default templates would include nationally standard connection and operation arrangements. Any default template could be changed only with the agreement of both parties. This provision would ensure competitive fairness and greatly reduce transaction costs.

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

In CEN's limited experience, the answer is 'apparently very little'. There is a strong tendency to defend legacy assets and the concept of needed transformation is slow to gain headway.

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

CEN supports the logic of this, especially regarding mitigation of risks to distribution and transmission security and reliability. However, such coordination may also strengthen monopoly powers that are already a concern regarding competitive market entry for independent DERs.

CEN also proposes that consideration be given to how existing and additional network capacity is allocated. For example, if the network is constrained, how will the available capacity be allocated. This raises the further issue of how DERs will be rewarded for providing support to the network – such as maintaining supplies during network planned and unplanned outages.

#### 4. Conclusion

CEN acknowledges that several our submission points and overarching comments above represent significant changes and/or challenges to the sector. With the release of the CCC Advice report alongside the latest IPCC report, we consider that significant changes are required and that these will need to be enacted urgently. CEN accepts that these changes will include substantial risks that need to be understood and mitigated as much as possible. As well as mitigating the risks however, there are also opportunities that will need to be realised if we are going to achieve an equitable transition to a low carbon society. We thank the EA for the opportunity to engage in this discussion and look forward to working with the EA and other sector stakeholders to develop these opportunities (and mitigate the risks).