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Electricity Authority | Te Mana Hiko

By email to decentralisation@ea.govt.nz

Tēnā koutou

SUBMISSION ON 2025 GREEN PAPER 01-A: WORKING TOGETHER TO ENSURE OUR ELECTRICITY SYSTEM MEETS THE FUTURE NEEDS OF ALL NEW ZEALANDERS

Unison Networks Limited (**Unison**) is an electricity distribution business operating in Hawke's Bay, Taupō and Rotorua. Centralines Limited (**Centralines**) is a distributor operating in Central Hawke's Bay.

1. Introduction

Unison and Centralines welcome the Electricity Authority's Green Paper on a more decentralised electricity system by 2040. We support the intent to explore how emerging technologies, evolving consumer preferences, and new business models can contribute to a cleaner, more affordable, and resilient electricity future for all New Zealanders. As consumer-owned electricity distribution businesses, we are closely attuned to the needs of our communities and well-positioned to observe both the promise and the practical challenges of decentralisation. While we agree with the high-level vision outlined in the Green Paper, we believe that realising the potential benefits will require careful integration of decentralised technologies into a strong, centralised grid, rather than viewing decentralisation as a replacement for traditional models. Our submission offers insights from our operational experience and draws on international case studies to highlight the importance of balanced, evidence-based policy and investment decisions.

2. Submission questions

Question 1 - Do you agree with the description of decentralisation? If not, why not?

Unison and Centralines agree that the Authority's definition of decentralisation, "shifting from large-scale electricity generation at a small number of sites across the country, to smaller-scale renewables and other Distributed Energy Resources (DERs) located closer to consumers", captures an important element of the energy transition. However, we believe this description could be expanded to more accurately reflect the nature and implications of decentralisation.
In our view, decentralisation should not be seen as a departure from large-scale generation, but rather as the addition of new, distributed resources alongside existing centralised infrastructure. The transition to a lower-emissions future will require significant new generation capacity of all types and sizes. Centralised, utility-scale generation and a strong transmission backbone will remain essential to ensure system reliability, resilience, and security of supply.

DERs, including small-scale renewables, batteries, and flexible demand, will play an increasingly important role in improving local energy resilience and enabling greater consumer participation. However, these resources are not a substitute for the core centralised system. Instead, they must be integrated into a coordinated framework that ensures the system operates safely and efficiently as a whole.

For these reasons, Unison considers it more accurate to describe decentralisation as **an expansion of the electricity system to include smaller-scale, consumer-proximate technologies** in addition to, rather than instead of, traditional large-scale generation. The success of this transition will depend on careful coordination between local and national infrastructure and investment, with decisions guided by economic and operational merit.

Question 2 - Do you agree with the articulation of the potential outcomes and benefits from decentralisation for consumers? If not, why not?

We agree that decentralisation has the potential to deliver meaningful benefits for consumers and communities, including affordability, resilience, decarbonisation, and increased local participation. However, we believe it is important to recognise that these are potential benefits and not guaranteed outcomes. Realising them will depend on how decentralisation is implemented, the technologies that emerge, and how well regulatory settings support an equitable and efficient transition.

We see clear opportunities from decentralisation. When well executed, it can:

- Enable more resilient and sustainable local energy systems;
- Facilitate the uptake of consumer-led technologies like rooftop solar, batteries, and electric vehicles;
- Support peer-to-peer energy trading, community batteries, and Virtual Power Plants (VPPs) that empower consumers and communities to participate more actively in the energy system.

However, we acknowledge the uncertainty around the magnitude and distribution of these benefits. Not all solutions will deliver universal outcomes. Some, such as local energy markets or P2P trading, may suit particular network configurations or community contexts, but may not scale or outperform traditional models in all cases. It is important that these innovations are evaluated against clear criteria, including long-term affordability, system efficiency, and equity.

We also note that decentralisation, while promising, depends on strong supporting network infrastructure. Local resilience cannot be achieved in isolation, the security and reliability of the surrounding distribution and transmission networks remains critical to realising many of the anticipated benefits.

Finally, we agree that consumer and community participation is both a benefit and a critical enabler of decentralisation. When people are engaged and see value in new models of energy use and generation, they are more likely to support and benefit from the transition.

Question 3 - Do you agree with the articulation of the possible challenges to unlocking the benefits of decentralisation? If not, why not?

Unison and Centralines agree with the Authority's articulation of the challenges that must be addressed to fully unlock the benefits of decentralisation. These challenges are real and, if not carefully managed, could lead to unequal outcomes across consumers, regions, and communities.

A key concern for us is ensuring equity and affordability. Decentralisation risks delivering disproportionate benefits to those who already have access to capital, technology, or suitable property, while others, including renters, low-income households, and those in more remote areas, may face higher costs or reduced service levels. Without the right policy and regulatory safeguards, this could result in a form of "postcode lottery", where location and wealth become key determinants of access to cleaner, cheaper, and more resilient energy solutions.

We also recognise that while decentralised technologies can offer local resilience and cost-effective solutions in some scenarios, they are not always cheaper or more reliable than grid-scale generation and centrally coordinated solutions. The economics and system implications of community batteries, virtual power plants, or local energy markets will vary widely, and their viability should be assessed on a case-by-case basis, not assumed.

Another major barrier is access to funding and finance. The scale of investment required to decarbonise and decentralise the electricity system cannot rely solely on individual homeowners. We support exploring alternative ownership and financing models that separate capital access from community benefit, for example, third-party or community-owned DERs that allow broader participation without requiring upfront investment from individual consumers.

We also see a challenge in developing the right capability and governance structures to manage a more complex, decentralised system. Greater coordination will be required between central operators, local networks, communities, and service providers to ensure reliability, safety, and fair access to emerging markets and technologies.

Finally, trust and transparency will be essential. Consumers need confidence that decentralisation will not compromise their service quality, raise costs, or deepen inequality. That trust will be built through practical outcomes, not just policy intent.

Question 4 - Do you agree with the articulated opportunity statement for a more decentralised electricity system? If not, why not?

Unison and Centralines broadly agree that the opportunity statement outlines an appealing vision for a more decentralised electricity system by 2040, one that empowers communities, enables fair access, supports economic growth, and leverages both emerging technologies and existing infrastructure.

However, we believe it's important to recognise that this is not the only desirable pathway. A system with abundant, low-cost, grid-scale renewable generation could also deliver many of the same benefits, particularly in terms of affordability, reliability, and decarbonisation. In our view, the real opportunity lies not in choosing between centralised or decentralised models, but in achieving a **well-functioning coexistence** of the two.

A future system that effectively blends centralised and decentralised solutions will allow us to:

- Harness the efficiency and scale advantages of grid-scale generation;
- Enable consumer and community participation through distributed energy resources;
- Improve resilience and flexibility at both a local and national level;
- Minimise the total cost of the energy transition by deploying solutions where they deliver the greatest value.

We also caution against framing decentralisation as a goal in itself. While decentralised solutions can unlock important benefits, they are not inherently superior. Prioritising decentralisation without a clear understanding of the relative economics, network implications, and consumer impacts risks leading to inefficient investment and rising electricity costs. Effort and investment should be directed based on where they deliver the most net benefit, rather than promoting any one model in isolation.

In summary, we support the opportunity statement's direction but believe it should more clearly acknowledge the **complementary roles** of centralised and decentralised energy solutions in delivering the best outcomes for New Zealanders.

Question 5 - What other feedback would you like to provide to input into the discussion on, for example: a) what a more decentralised electricity system might look like, b) how this might benefit consumers, and c) what might be needed to unlock these benefits?

Unison and Centralines support the Electricity Authority's exploration of a more decentralised electricity system, and we welcome the opportunity to provide further input on what this could look like, how it might benefit consumers, and what will be required to unlock those benefits.

a) What a more decentralised electricity system might look like
A more decentralised system would likely feature:

- Widespread uptake of DERs including solar, batteries, and electric vehicles;
- Increased use of community-scale solutions such as local solar farms and shared batteries, including those led by iwi and community groups;
- Growth of Virtual Power Plants (VPPs) and Vehicle-to-Grid (V2G) technology, with EVs acting as flexible, mobile storage;
- Strong coordination between these decentralised resources and the central grid, rather than replacement of it.

It is essential to stress that decentralisation does not mean disconnection. New Zealand's electricity future will remain firmly grounded in the benefits of an **interconnected grid**, where both centralised and decentralised resources can be leveraged to deliver optimal system-wide outcomes.

b) How this might benefit consumers
Decentralisation has the potential to empower consumers and communities, enable more tailored energy solutions, and enhance resilience through local generation and storage. It can also support decarbonisation through electrification and better demand-side flexibility.

However, these benefits will only be realised if decentralisation occurs in a cost-effective, equitable, and well-integrated way. We agree that decentralisation should not be treated as an end in itself, instead solutions should be assessed on whether they provide real net benefit, particularly when compared to efficient grid-scale investment.

c) What might be needed to unlock these benefits

Several enablers will be critical:

- Distribution pricing reform that supports flexible use and fair access to network services, while enabling emerging technologies like VPPs, V2G, and behind-the-meter storage;
- Social equity mechanisms, such as green loans or third-party financing models, to ensure consumers without access to upfront capital can still participate in and benefit from the energy transition;
- A clearer articulation of the relative system costs and benefits of centralised vs decentralised approaches, so that policy and investment decisions are evidence-based;
- A strong focus on consumer voice and trust, particularly for vulnerable or energy-poor households, to ensure changes reflect diverse consumer needs;
- Continued investment in network and system capability and intelligence, to manage increasing complexity and maintain resilience across all parts of the system.

Question 6 - What are other emerging case studies we could learn from?

Unison and Centralines believe that several international jurisdictions offer valuable lessons in the design and implementation of decentralised electricity systems. These case studies provide insights into both the benefits and risks associated with decentralisation and reinforce the importance of tailoring solutions to national context while drawing on global experience.

Germany is a leading example of community and consumer empowerment through decentralisation. Its long-standing support for local ownership of renewable generation, particularly via cooperatives and municipal utilities (Stadtwerke), has fostered high levels of public participation and acceptance. This demonstrates the value of designing policy settings that encourage shared ownership, local value capture, and strong community buy-in. However, challenges around grid integration and equitable cost allocation also illustrate the importance of maintaining a robust central system alongside localised energy.

France offers a more recent example of decentralisation operating within a traditionally centralised system. The emergence of collective self-consumption models, especially in social housing and rural areas, highlights how legislative frameworks can empower diverse consumer groups, not just capital-rich households. France's experience reinforces the role of regulation in enabling equitable access and encouraging community-scale solutions.

The United Kingdom is progressing decentralisation through innovation in local flexibility markets, dynamic pricing, and smart grid technologies. Projects like the Cornwall Local Energy Market trial show how DERs can provide services to both consumers and the grid. The Office of Gas and Electricity Markets' reforms to network access and forward-looking charges

demonstrate how pricing signals and regulatory reform can encourage efficient decentralised investment while maintaining grid integrity.

Australia stands out for the scale of rooftop solar adoption and experimentation with Virtual Power Plants (VPPs) and community batteries. However, it also illustrates the importance of planning for equity — with growing concerns that decentralisation may exacerbate a "postcode lottery" in energy affordability and security. Australia's evolving regulatory response, including trials of dynamic export pricing and flexible connection agreements, offers relevant insights for New Zealand as DER penetration grows.

Taken together, these case studies support the view that decentralisation must not be an end in itself, but part of a well-integrated energy system that delivers least-cost, equitable outcomes. They highlight the importance of:

- Maintaining a strong central backbone to complement decentralised assets.
- Designing distribution pricing that enables efficient DER uptake and network support.
- Supporting inclusive access to technologies through mechanisms like green loans, community ownership, and regulatory protections.
- Ensuring long-term consumer trust through transparent governance and local benefit sharing.

We encourage the Authority to further examine these and other case studies, particularly in relation to enabling equitable participation, ensuring grid interoperability, and integrating flexibility markets, as part of its future work programme.

3. Conclusion

In closing, Unison and Centralines support the Authority's work to explore the opportunities and challenges of electricity decentralisation. We agree that a more participatory, resilient, and consumer-focused energy system is both possible and desirable. However, we emphasise that decentralisation must be pursued not as an end in itself, but as part of a coordinated, whole-of-system approach that leverages both centralised and distributed resources to deliver equitable, efficient, and low-emissions outcomes. International experience, from Germany to Australia, reinforces the value of community participation, regulatory innovation, and inclusive access, but also highlights the risks of inequity and system fragmentation if decentralisation is not well managed. We look forward to working with the Authority and other sector participants to ensure New Zealand's electricity transition delivers enduring value for all consumers and communities.

No part of this submission is confidential, we acknowledge it will be published. Please do not hesitate to contact us for further information including on operational requirements.

Nā māua noa, nā

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