TRANSPOWER

Waikoukou
22 Boulcott Street
PO Box 1021
Wellington 6140
New Zealand

**P** 64 4 495 7000
www.transpower.co.nz

Electricity Authority

By email: decentralisation@ea.govt.nz

19 June 2025

# Working together to ensure our electricity system meets the future needs of all New Zealanders

Transpower welcomes the opportunity to submit on the Electricity Authority's (the Authority's) green paper titled 'Working together to ensure our electricity system meets the future needs of all New Zealanders.'

We fully support updating policy/regulatory settings to ensure that consumers, if they choose, can invest in and benefit from distributed energy resources (DER). As intermittent resources increase as a proportion of New Zealand's energy mix, we will need more diversity of supply and storage – in type, location, and size. This will improve consumer affordability and the resilience of the electricity system. Our Whakamana i Te Mauri Hiko work showed that DER would be a significant contributor to this. However, it is not an either/or situation; we need a combination of higher DER penetration and large-scale generation to grow the economy and deliver consumers the best long-term outcomes.

We already have a 90% renewable electricity system that is relatively resilient (although improvements can and are being made). As of May 2025, there is approximately 16 GW of large-scale renewable generation in Aotearoa's grid connection pipeline, with 2 GW at the delivery stage. Economies of scale exist and while the price of DER has come down, the costs of large-scale renewable power plants have also significantly reduced in real terms. Their development will do much of the heavy lifting in the electrification process and forecasts show they must deliver alongside DER.

Making sure the market settings are right to deliver the most affordable transition is critical. These settings should remove barriers to efficient investment, which should include encouraging market-based revenue streams to DER owners where they add value in addition to self-consumption. These settings should be universal and at the household, commercial, and industrial levels, whether the DER is small, large-scale, or large-scale 'centrally' connected generation.

Market settings should enable DER and, where appropriate, place it on an equal footing with large-scale generation. The settings should not incentivise it above centralised generation; otherwise, we may get inefficient (higher cost) outcomes. We refer to 'where appropriate' as the Authority's proposals have substantial complexity, i.e., multiple markets and multiple balancing zones. This complexity is not necessarily a barrier, but complexity adds costs.

As an additional thought, we note that the Authority appears to explicitly target equity as an outcome from decentralisation. This was not a feature when the Authority designed the 2023 Transmission Pricing Methodology (TPM). We are receiving customer feedback that, particularly in the short to medium term, the TPM is exacerbating inequity.

We look forward to engaging with the Authority as it develops its thinking on how best to deliver the lowest cost, resilient, electricity system for consumers by 2040.

Yours sincerely

Joel Cook

Head of Strategy & Regulation

## Appendix – Transpower's response to questions

**Q1 - Do you agree with the description of decentralisation? If not, why not?**

We consider a better description of decentralisation to be "increasing the number of sites across the country where generation and other DER is located to enhance the diversity of electricity supply and storage".

The Authority's current definition implies that large scale generation will not be needed (or built) in the future. Large scale generation, with accompanying network infrastructure, is crucial to New Zealand's energy future and is critical for economic growth. All forecasts show it is not "either / or" it is "both" and while we know it is not the Authority's intent; we ask that this point be made clear.

**Q2 - Do you agree with the articulation of the potential outcomes and benefits from decentralisation for consumers? If not, why not?**

We broadly agree with the Authority's articulation. However, we are concerned by the Authority's implicit position that decentralisation will result in more affordable electricity and a more equitable outcome for consumers.

The evidence does not exist to prove that 'decentralisation' alone will lead to the most affordable transition for consumers. We agree that DER is an important part of the equation to achieve an affordable, resilient, and low-carbon future, but large-scale (cost-effective) renewable generation and network infrastructure are also required.

As the Authority notes, shifting from a decentralised approach to an interconnected grid with large-scale generation plants was more efficient and provided more affordable electricity. The reason for this is the economies of scale that can be achieved from large generating plants. Given the prohibitively high cost of going off-grid (which is unlikely to change by 2040),[1] the transmission and distribution network are still required for most homes or businesses (i.e., at a minimum it provides 'insurance' when the sun doesn't shine or the wind doesn't blow in that region).[2] Therefore, when the overall cost of DER is considered, it also needs to include network services' ongoing costs so that customers have an informed view of the relative costs for their investment decisions. We see material benefits of DER coming from offsetting self-consumption and reducing peak demand. The latter benefit arises when customers and consumers DER avoids investments in network upgrades.[3]

In the event of a catastrophic event (and significant weather events are increasing with climate change), resilient grid connections (alongside DER) are likely to enable more rapid restoration of electricity. When transport is mostly electrified, an extremely resilient grid connection will be vital to charge EVs. In the short-term DER, with a full battery and/or the sun shining improves resilience.

---

[1] Electric Homes - Rewiring Aotearoa - March 2024.pdf, section "We still need the grid".
[2] We note that there might be some areas/ communities at the edges of the grid/ network where it eventually might be cheaper, with a similar level reliability, to form microgrids.
[3] DER, if material enough, may defer more costly generation being dispatched in the market. These benefits could either show up via the DER owner's prices (if exposed to the wholesale price) or via demand response payments.

However, as going 'off-grid' is very expensive, households are unlikely to have systems that will supply their own energy needs.

Although the cost of DER is lowering, many consumers do not have access to the funds needed to invest, are renters (and therefore cannot install DER), or do not have homes suitable for DER. Decentralisation itself does not reduce the risks of inequity between consumers. In fact, as we have seen in other jurisdictions, those who have been able to take advantage of DER to a large extent have been cross-subsidised through tariffs by those who have not been able to afford it.[4] Some consumers already struggle with relatively low-cost investments for which there is clear-cut evidence of longer-term savings, e.g., energy-efficient light bulbs. We propose that the Authority consider how to better articulate how decentralisation reduces the risk of inequity.

**Q3 - Do you agree with the articulation of the possible challenges to unlocking the benefits of decentralisation? If not, why not?**

We agree with the Authority that we need to better understand future consumer and stakeholder needs and expectations. This includes estimating the value of lost load and the value of resilience in a highly electrified future. This will help inform us on the best pathways to achieving good consumer outcomes of affordability and resilience. We also need to understand the costs of different pathways and where the funding for investments will come from (i.e., is socialisation of costs appropriate?).

As seen in other jurisdictions, including Australia, government subsidies and/or (implicit) cross-subsidies from other consumers, has driven high adoption of distributed energy resources.[5] While market changes could open new revenue streams for DER owners, rather than relying on subsidies, more research should be done into how sustained these revenue streams will be to support the uptake of DER. This research should consider whether high DER penetration can unintentionally lead to higher costs (i.e., higher reserve costs and reactive power requirements to maintain grid stability) and reduce DER owners' revenue.

One potential revenue stream for DER owners is payments to defer or avoid adding capacity to the national grid.[6] Transmission currently accounts for approximately 8% of an average household's electricity bill. Any transmission investment to meet increasing demand will only result in a minimal incremental increase in this charge. Therefore, the transmission charge that might be avoided on a per-household basis is relatively small; correspondingly, the amount that would be economic to be paid out to defer or avoid investment would also be minimal per household. Furthermore, such payments would only be available while transmission investment is deferred or avoided.[7]

We are also interested in understanding what settings the Authority is considering changing to lead to more equitable access to the benefits of DER. As the Authority notes, and as the examples in Appendix B shows the high upfront costs and limited access to funding for DER are significant barriers.

---

[4] Total Environment Centre and Renew, *Cross about subsidies: The Equity implications of rooftop solar in Australia*, December 2018.
[5] These issues are starting to be seen in Australia.
[6] Referred to in New Zealand as non-transmission solutions (NTS), transmission alternatives, or non-traditional solutions.
[7] Our recent major capex proposal to the Commerce Commission set out the potential deferral value of NTS: 'WBoP - Attachment 9 - Approach to NTS'.

**Q4 - Do you agree with the articulated opportunity statement for a more decentralised electricity system? If not, why not?**

We are concerned that the opportunity statement reflects a position that is not yet supported by evidence. We encourage the Authority to take a more evidence-based approach, focusing on removing inefficient barriers to DER adoption and updating market settings to enable efficient competition for the provision of services.

On this basis, we suggest a more balanced opportunity statement would be as follows:

"By 2040, Aotearoa New Zealand's electricity system will have embraced an economically diverse range of regional and national renewable electricity supplies to unlock affordability, decarbonisation, and security and resilience benefits for regions and communities. The mix of local and national renewable electricity resources empowers people and communities, ensuring fair and secure access to energy that drives regional and community-led economic growth."

**Q5 - 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.**

Reiterating our main points to the questions above:

- DER adoption will increase as costs decrease.
- Barriers that are identified as preventing the adoption of DER should be removed. Barriers removed should include any that genuinely stop DER (or large-scale generation) owners from accessing revenue streams for value-add services beyond self-consumption.
- More evidence is required before we commit to the Authority's definition of a decentralised path.
- Network infrastructure will be required in the future to ensure affordable and resilient electricity supply is maintained as the economy electrifies.
- A clearer articulation of how the Authority's view of decentralisation would address inequity is required. Is the Authority considering changes to benefits-based or cost-reflective network pricing?