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To: The Electricity Authority
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Genesis Energy submission on electricity sector decentralisation green paper

Genesis Energy Limited **(Genesis)** welcomes the opportunity to comment on the Electricity Authority's **(the Authority)** *Working together to ensure our electricity system meets the future needs of all New Zealanders* 'green paper'. We agree it is timely for the Authority to dialogue with communities and industry about the future role of distributed energy resources in our power system. For New Zealand to achieve its climate goals, we need electricity to provide 60 per cent of our energy, be 95 per cent renewable, and be 100 per cent reliable. Achieving this will require a more renewable, flexible electricity system, harnessing a range of energy resources and technologies including distributed energy resources (DER). During the transition, new business and organisational models will likely emerge, including community and local energy projects, helping spur innovation. Existing industry participants, like Genesis, will also continue playing an important role driving innovation and helping scale new renewable generation. Over the next five years, generators are forecast to invest approximately $6 billion in new renewable generation capacity including wind, geothermal, solar, and grid-scale battery storage. We believe an optimised electricity system will be one that allows a variety of business and organisation models to innovate, compete, and collaborate to maximise value and deliver affordable, sustainable, secure energy to New Zealand.

To design effective policy and regulation, it will be necessary to develop clear problem definitions and clearly identify the outcomes we as a system need to achieve i.e. clearly articulate "what success looks like". It will also be necessary to understand what works well about the current system. Our electricity system performs well by international standards. New Zealand is well-positioned to decarbonise, thanks largely to our predominantly renewable electricity system that performs in the top ten internationally against the energy trilemma of affordability, sustainability, and security.[1] Our electricity system occasionally operates with 100 per cent renewable generation and, on average, produced 83 percent of electricity renewably in the most recent

[1] Business NZ, press release, 'NZ Energy sector remains top 10 amid global disruption', 17 April 2024.

quarter.[2] Pricing data collected and published by the International Energy Agency (IEA) also shows New Zealand was ranked seventh for cheapest for residential and fifth cheapest for industrial prices in 2023.[3] Hence, the Authority should not discount the importance of maintaining a robust and resilient national grid and associated generation assets, particularly as these will continue providing New Zealand with the majority of its electricity for the foreseeable future.

Question 1: Do you agree with the description of decentralisation?

We agree with the Authority's overall assessment of the key trends driving DER uptake and that DER can offer great value to the energy sector. As part of our Gen35 Strategy, we aim to achieve 150 MW of demand-side flexibility in our customer book and for Genesis customers be comprise 30 per cent of the electric vehicle market by the 2028 financial year. This reflects our commitment to electrifying our customer's lifestyles, and the fact we see significant benefit (under existing market settings) in attracting customers with demand side flexibility capability. We are already progressing towards this target. Genesis is New Zealand's largest distributed energy retailer with more than 45,000 household solar customers and around 27,000 EV customers. Genesis is now purchasing c77GWh p.a. of solar export from customers. January was a record month with 5% of Genesis's total energy supply coming from customer exports. We expect mass-market consumer adoption of solar and batteries will continue to grow rapidly driven by decreasing technology costs, improving functionality, and increasing consumer understanding and acceptance. Driving this will also be continued retail price plan innovation in response to consumer demand and our competitive retail market.

We agree consumer trust and engagement will be critical success factors for DER growth. We also acknowledge globally there are new and emerging energy ownership and service models being trialled, such as peer-to-peer schemes, community VPPs, and shared ownership for generation. We see the role for the Authority and wider government as being to remove unnecessary barriers to individuals or groups wishing to develop and trial these models within New Zealand, consistent with the Authority's statutory objectives. Genesis will continue playing its part supporting community engagement, including through our $5 million per annum Community Investment Strategy which aims to "empower the community-led transition". This will include partnering to install solar panels on schools, and piloting Kaupapa Māori energy wellbeing initiatives.

It is worth noting there may be tensions and trade-offs between the three key trends identified by the Authority. For example, more diffuse, decentralised ownership across the power system may exacerbate the complexity of coordination challenges, hinder rapid scaling of DER technologies, and make interoperability more difficult to achieve. The Authority should not discount the role incumbent industry participants will play driving innovation and DER growth. For example, we see potential models where existing players partner with local groups or customers to deliver the same outcomes,

[2] MBIE, 'New Zealand Energy Quarterly ', https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-publications-and-technical-papers/new-zealand-energy-quarterly

[3] International Energy Agency data published by the UK Department for Energy Security and Net Zero via Meridian Energy, 'The Electricity Market', https://www.meridianenergy.co.nz/power-stations/electricity-market

but with more scale and operational efficiency. That hybrid approach could offer the best of both worlds.

For these reasons, we do not think it conceptually helpful for the purposes of regulation or policymaking to conflate the benefits of DER and greater demand-side flexibility with decentralisation in ownership or any specific business model type. Competition will drive innovation and reward those business models that are most effectively able to harness the benefits of DER and create value for consumers. The Authority can help unlock the potential of DER by ensuring regulations support competition to the benefit of consumers, and ensuring stable regulations support investment, particularly by providing clarity around pricing, data, and access to controllable load.

Question 2: Do you agree with the articulation of the potential outcomes and benefits from decentralisation for consumers?

Genesis agrees there are potential system and consumer benefits from unlocking DER, as identified in Sapere's 2021 Cost-benefit analysis of DER in New Zealand for the Authority.[4] To the extent DER and demand-side flexibility can support improved power system efficiency and affordability, security and resilience, and sustainability, consistent with the Authority's statutory objectives, we agree regulations should enable it. We agree with the Authority that New Zealand should look to learn from initiatives in other jurisdictions and apply the lessons learnt here as relevant.

Question 3: Do you agree with the articulation of the possible challenges to unlocking the benefits of decentralisation?

One of the key challenges will be achieving DER at scale. There may be a tension or trade-off between system-wide efficiency (via DER at scale) and the trend towards more decentralised or 'democratised' energy planning and ownership. That is, more diffuse energy ownership and planning may not be the best model for enabling rapid scaling of DER. There's still a strong role for aggregated, partner-led models — whether through retailers or platforms — that can deliver many of the same benefits with less complexity for consumers. These models may be better placed to scale quickly while still supporting local participation and innovation. A related challenge is that a more diffuse, decentralised system may exacerbate the complexity of coordination problems across the system. For example, the Authority should continue considering potential threats to grid stability from two-way power flows which could cause risks to power quality.

One area in need of regulatory change is in relation to load management within networks, especially who has the right to control flexible devices like hot water systems or EV chargers. There's still a lot of ambiguity in how these rights are shared between traders and distributors under the current DDA setup, and this can create friction. A consistent set of rules would give traders and platform providers more confidence to invest and offer flexibility services. To enable DER growth, we would advocate for a coherent, system-wide set of rules and protocols governing flexible / controllable load

[4] Sapere_CBA.pdf

management. There is a risk different rules / protocols across different networks increases complexity and undermines efficient DER growth.

Technology interoperability and standardisation are other areas where government regulation can help remove barriers and enable efficient development of DER. There is likely some role for the Authority and wider government enabling a minimum level of interoperability. Interoperability standards for DER-enabling technologies such as APIs for EV chargers, batteries, and inverters could make it easier to integrate across different platforms. Data access also remains a material barrier to scaling DER and flexibility. Building scalable flexibility services will require providing better visibility of device-level data and ways to securely share it across system.

We agree upfront access to funding is a barrier for consumers wanting to invest in solar/batteries, and that this could create equity issues. In principle, systems and pricing models should enable consumers who wish to invest in DER to do so, while ensuring that pricing models are fair and equitable and do not involve predatory practices that could undermine development of the market.

Question 4: Do you agree with the articulated opportunity statement for a more decentralised electricity system?

At this stage, it is too soon to say whether enabling the potential benefits of DER will also require a more 'decentralised' power system. While some consumers may relish the opportunity to play a more active role in the power system either as prosumers or participants in community energy projects, we expect a significant portion of consumers will remain content with a retail model that provides a balance between simplicity, price stability, and personal control. As we have noted, the Authority should not discount the importance of maintaining a robust and resilient national grid and associated generation assets, and the centralised grid will continue providing New Zealand with much of its electricity for the foreseeable future.

However, we agree there is potential for new and innovative ownership models to emerge, and we agree an increase in the number and type of active market participants is likely to increase. There is a role for the Authority (and wider government) to ensure regulatory settings enable DER to grow where it creates system-wide benefits, consistent with the Authority's statutory objectives and functions. The Authority, along with wider government, can also support innovative technologies and/or ownership models where these have potential to unlock net-benefits for NZ Inc.

Question 5: What other feedback would you like to provide?

One final area the Authority could consider is how DER fits into emergency response and resilience planning, particularly in areas where trader-led models might be providing backup during outages. Guidance in this area could be valuable.

Yours sincerely,

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