Submission by

to the

Electricity Authority

on the

Working together to meet the needs of New Zealanders – Green Paper

25 June 2025

Working together to meet the needs of New Zealanders

– SUBMISSION BY BUSINESSNZ ENERGY COUNCIL—

Introduction

1. BusinessNZ Energy Council (BEC)[1] is pleased to have the opportunity to provide feedback on the Electricity Authorities (EA) green paper titled Working together to meet the needs of New Zealanders.

2. BEC represents a diverse array of leading energy-sector businesses, government bodies, and research organisations dedicated to creating a sustainable, equitable, and secure energy future.

3. As a brand of BusinessNZ, New Zealand's largest business advocacy organisation, we represent the World Energy Council in New Zealand, aiming to shape better outcomes for our wider energy system both locally and globally.

4. With this work the EA aims at starting the discussion and debate around decentralisation and the future of New Zealand's energy system.

5. BEC believes that this discussion is important as there are many emerging trends that indicate that New Zealand is already moving towards decentralisation and policy makers must be prepared for this.

6. There are aspects of New Zealand's energy system that need to be adjusted to meet this likely future. Issues faced by other countries with high levels of decentralisation must be learnt from.

7. This submission highlights that decentralisation offers an enormous opportunity to improve the resilience and security of New Zealand's energy system, so long as the necessary preparations are made.

Key Recommendations for the Electricity Authority and the Government

- Continue to support DER implementation as a way to increase regional energy security, system resilience and affordability.

- Consider the potential threats to the existing grid, namely two-way power flows, which could lead to reverse power flows, voltage fluctuations, and frequency instability.

- Investigate solutions to the uptake issues for rental and low-income households as these groups are most likely in need of the low electricity costs that DER offers.

[1] More about BEC in APPENDIX One

- Explore ways to prevent the unfair bearing of grid costs by non-DER users caused by households with DERs (especially solar) reducing their load on the network but still relying on the infrastructure.

General discussion

8. New Zealand's energy system sits in a challenging position. Growing electrification of transport and industry is seeing demand for electricity rise while one of the major aspects of the system's resilience, natural gas, is in decline.

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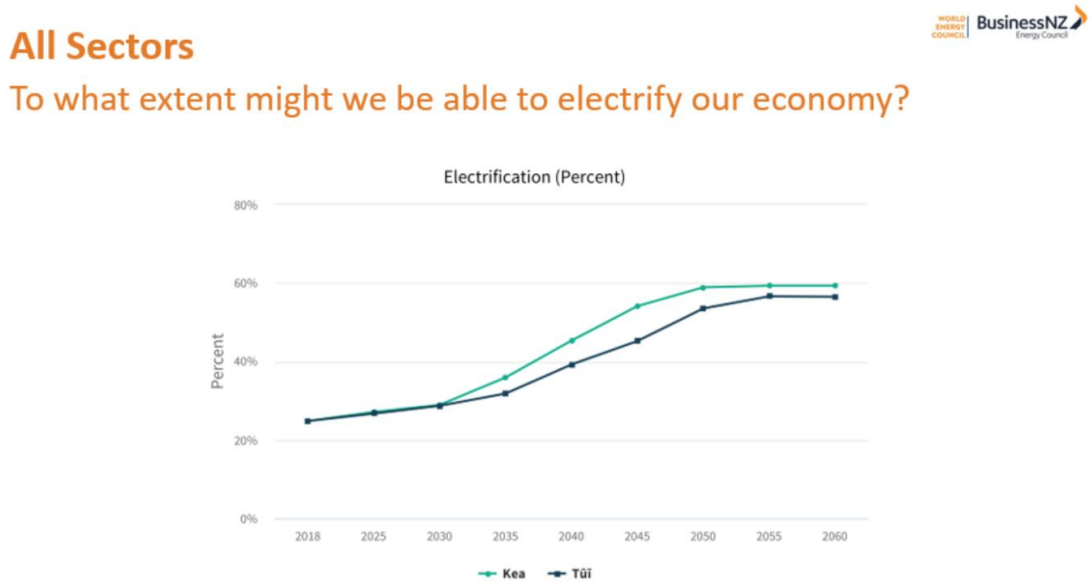


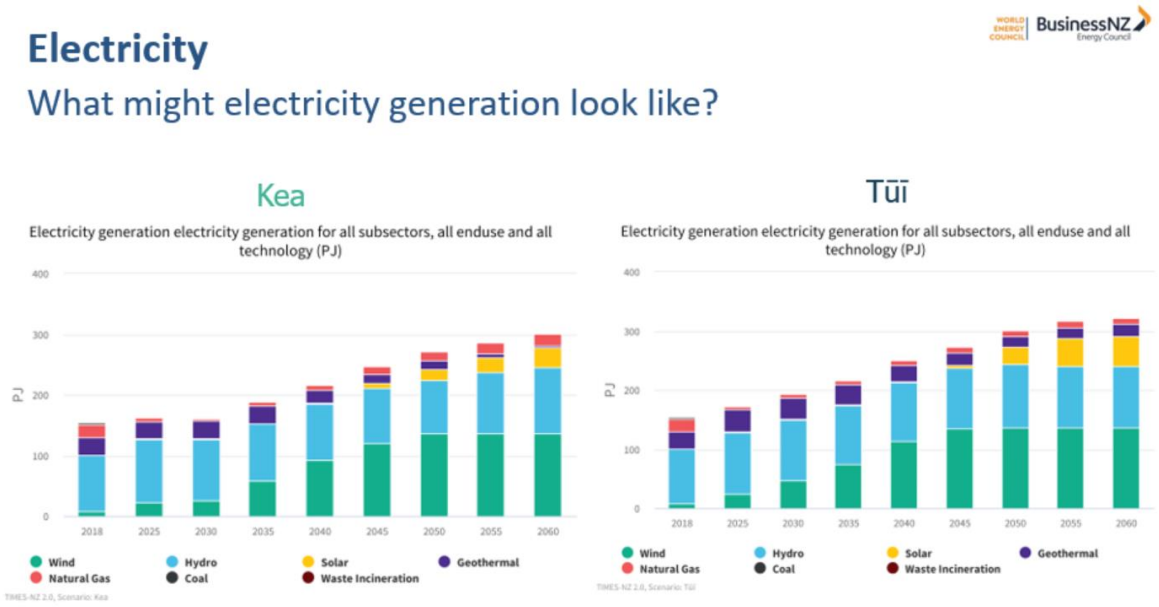
10. This graph was taken from the TIMES-NZ 2.0 model. BEC, in conjunction with EECA and over 60 partners from across the energy sector, including private and public sector entities, have developed TIMES-NZ to stimulate future energy system thinking. TIMES-NZ scenario modelling is to stimulate future energy thinking by providing an **integrated overview of New Zealand's energy sector,** showing where we are now and where we might be heading, including the trade-offs and opportunities for taking a pioneer or follower approach related to climate change actions.

11. The graph shows that in both the Tūi and Kea models electrification of New Zealand's economy of around 60% by 2060.

12. Traditionally to meet growing electricity demand New Zealand has built large scale production centers and then transferred that production across the country to where it was needed.

13. This method comes with transmission costs and line losses. With the trend identified by the EA of cost reduction for batteries and small-scale renewables there is a growing economic viability for localized production. DERs would serve to reduce lines costs for consumers and save expenditure on upgrades to the existing grid caused by demand increases.

14. The TIMES-NZ 2.0 model also indicates that wind and solar will play a much larger role in our electricity generation moving forward. Additionally, TIMES-NZ 3.0 is currently being worked on, and it is likely that this share will be even more pronounced.

15. 

16. Rooftop solar is now the cheapest source of electricity for many consumers and the payback period has dropped to around 10 years, well below the lifespan of the panels. With the growing issues of electricity affordability this could be an effective solution. However, it is important to note that solar rates often do not reflect the consistent availability of grid power, or fixed charges relating to grid and distribution costs which need to be spread across consumers.

17. DERs can enhance the competitiveness of New Zealand exporters by lowering electricity costs. Since exporters are price takers in international markets, reduced operating expenses can improve profit margins and support greater market penetration.

18. The impact of blackouts caused by lines issues would be further mitigated by localised production as there would be less reliance on grid infrastructure.

19. BEC agrees with the EA that decentralisation has the potential to unlock the three energy trilemma outcomes – affordability, security and sustainability. Decentralisation also has the potential to save the country money for transmission upgrades.

20. BEC agrees with the EA that decentralisation has the potential to enhance security of electricity supply through greater diversity in types and locations of electricity production. As well as greater resilience against natural disasters.

21. BEC acknowledges that DERs could also accelerate the electrification of the transport fleet through cheaper electricity availability. However, the upfront costs for electric vehicles compared to traditional vehicles still presents a challenge.

Challenges with large-scale uptake of Distributed Energy Resources

22. New Zealand's electricity grid was not originally designed for two-way power flows, which poses challenges as distributed energy resources (DERs) become more widespread. High levels of local generation, particularly during periods of low demand, can lead to reverse power flows, voltage fluctuations, and frequency instability, especially within distribution networks that lack the infrastructure and control systems needed to manage bidirectional energy flows. These conditions increase the risk of grid congestion and, in extreme cases, localised blackouts.

23. The issues above were seen in Australia where high penetration of rooftop solar and other DERs replaced the readiness of the grid to manage two-way power flows. If New Zealand is going down the same route, then grid flexibility, visibility and coordination are critical. Australia implemented several solutions that NZ should learn from including Virtual Power Plants (VPPs) which connect many individual DERs to control and dispatch them in response to grid signals or market prices.[2] The implementation of distributed system operators (DSOs)[3] to manage electricity flows on the low-voltage network and local energy balancing as suggested by the EA should also be looked at.

24. BEC emphasises the importance of consumer choice in selling surplus power, fostering competition, and enhancing returns. Regulations should not hinder this choice, making Multiple Trading Relationships (MTRs) crucial for future progress. Instead of mandating 'Time-varying buy-back' we recommend that the Authority ensures consumers can select their preferred buyers for surplus power, thus promoting competition and improving returns. By allowing consumers to contract with multiple electricity suppliers. MTRs foster a more competitive environment where retailers must offer better prices and services to attract and retain customers.

25. BEC sees the large proportion of household renters in New Zealand as a serious challenge in widespread implementation of DERs. There is little incentive for landlords to invest in DER when renters pay electricity bills. Additionally, low-income households, the most in need of lower electricity costs, are also the least likely to pay the upfront cost of installation. To promote equity and ensure the energy transition doesn't leave anyone behind policy makers must look at solutions to these issues.

26. There are promising signs of moves to address this issue with the financing of rooftop solar potentially possible under the Ratepayer Assistance Scheme.

27. BEC sees potential issues surrounding households with DERs (especially solar) reducing their load on the network but still relying on the infrastructure. Without reforms, this could lead to non-DER users bearing more of the fixed network costs, raising equity concerns.

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[2] Advanced VPP Grid Integration, SA Power Networks, 25/5/2021, https://arena.gov.au/assets/2021/05/advanced-vpp-grid-integration-final-report.pdf

[3] What is a Distribution System Operator?, CAMUS, 13/11/2024, https://www.camus.energy/blog/what-is-a-distribution-system-operator

28. Additionally, widespread DER adoption reduces utility sales, pressuring traditional business models. Existing generators and retailers may resist DER growth or push for higher fixed charges, slowing the energy transition.

APPENDIX ONE – BACKGROUND INFORMATION ON THE BUSINESSNZ ENERGY COUNCIL

The BusinessNZ Energy Council (BEC) is a group of leading energy-sector business, government and research organisations taking a leading role in creating a sustainable, equitable and secure energy future.

BEC is a brand of BusinessNZ and represents the World Energy Council in New Zealand. Together with its members, BEC is shaping the energy agenda for New Zealand and globally.

BusinessNZ is New Zealand's largest business advocacy body, representing:

- Regional business groups: EMA, Business Central, Canterbury Employers' Chamber of Commerce, and Business South
- Major Companies Group of New Zealand's largest businesses
- Gold Group of medium sized businesses
- Affiliated Industries Group of national industry associations
- ExportNZ representing New Zealand exporting enterprises
- ManufacturingNZ representing New Zealand manufacturing enterprises
- Sustainable Business Council of enterprises leading sustainable business practice
- BusinessNZ Energy Council of enterprises leading sustainable energy production and use
- Buy NZ Made representing producers, retailers, consumers of NZ-made goods

BusinessNZ is able to tap into the views of over 76,000 employers and businesses, ranging from the smallest to the largest and reflecting the make-up of the New Zealand economy.

In addition to advocacy and services for enterprise, BusinessNZ contributes to Government, tripartite working parties and international bodies including the International Labour Organisation (ILO), the International Organisation of Employers (IOE) and the Business and Industry Advisory Council (BIAC) to the Organisation for Economic Cooperation and Development (OECD).