

Submission by



to the

**Electricity Authority**

on the consultation document

**The future operation of New Zealand's power system**

11 April 2024

**– SUBMISSION BY THE BUSINESSNZ ENERGY COUNCIL –**  
**THE FUTURE OPERATION OF NEW ZEALAND’S POWER SYSTEM**

**Executive summary**

1. BusinessNZ Energy Council (BEC)<sup>1</sup> welcomes the opportunity to submit on the Electricity Authority’s consultation paper on the [future operation of New Zealand’s power system](#).
2. **This submission sets out comments on three relevant questions raised within the document** as they relate to improving network coordination and planning, the uptake of DER and addressing perceived conflicts of interests with industry participants with concurrent roles.
3. **We broadly agree with the Authority’s description** of New Zealand’s power system and the key drivers changing the system going forward.
4. Without sufficiently supportive settings for the new investment required, distribution and transmission could become bottlenecks to new supply, hindering electrification efforts and keeping wholesale prices high. The recent surge in grid connection enquiries underscores the need for improved coordination at all levels of the system. Enhanced planning is necessary to allocate resources efficiently and avoid inefficiencies.
5. **We support efforts to improve coordination and planning** between generators, distributors and Transpower. Coordination will be key to alleviate the impact of regulatory, capital and resource constraints as New Zealand witnesses a large step change in electricity demand. We emphasise that better coordination and planning must be centred in a market approach, stem from consumer requirements and be determined by commercial realities.
6. **We endorse the Authority’s mention of improving coordination between the electricity sector and other sectors.** The potential for sudden electrification of gas demand coupled with the possibility of a disorderly phase-out of gas pipeline business, could have a large and hard-to-predict impact on electricity demand and network planning. The electricity system may find itself grappling with more demand than expected. More coordination with the gas sector also includes collaboration with the Commerce Commission.
7. **We reiterate that better coordination and planning extends to regulatory frameworks.** Insufficient recognition of and support for investment financiability hampers distribution networks’ and Transpower’s ability to plan and invest at the right time. Waiting for infrastructure to play catch-up would increase the risk that infrastructure impedes electrification. However, ultimately, it is the consumer who pays. The risks of over or under capacity must be managed appropriately.
8. The need for improved coordination extends to arrangements between those managing DER and their host distributors. Real-time data and visibility of DER will be essential for efficient network management, planning, and coordination. **We support a model that promotes a more open commercial access model for smart meter data.** More data visibility on network constraints and capacity for DER will enhance network performance and response to faults, while improving Transpower’s load forecasting and enabling DER to play a greater role in wholesale markets.
9. EDBs lack sufficient visibility on installed DER, including the location, size, functionality, operation, and the party responsible for managing its operation. Enhanced visibility of DER will improve network operation and support greater optimisation of DER across the system. **We support the**

---

<sup>1</sup> More about BusinessNZ Energy Council can be found in appendix one.

**registration of DER data at each ICP.** This will provide insights into where flexibility is most valued on the network and the extent of available resources.

10. **We recognise there might be a *perceived conflict*** among industry participants with dual roles as network owner and operator. However, **there is no substantive evidence** of a conflict. We caution against any knee-jerk intervention based on a perception. Separating DSO functions could divert resources, duplicate processes, and increase system costs, distracting from the priority to increase electrification. Enhanced monitoring and a voluntary industry standard could provide transparency, reassurance and reduce this perception.

#### **Question 7: Improved coordination and network planning**

1. Compared to recent years, new investment in transmission and distribution infrastructure will need to increase significantly to keep up with growing electricity demand and the expanding pipeline of new generation projects. As noted in the paper, the scale of investment to 2030 could be up to \$22 billion for distribution infrastructure alone.<sup>2</sup> Investment in the national grid could total \$8.2 billion.<sup>3</sup>
2. The cost of more poles, wires, transformers, and long line infrastructure will ultimately fall upon consumers. Minimising the need for new capital spending, and with it minimising the cost to consumers, will be necessary to unlock more electrification. This will include settings that adequately incentivise demand response to help flatten demand.
3. **We agree that among the ways to reduce the need for more investment will be better coordination between distribution and transmission**, and across distribution networks between those operating DER and their hosts. This remains clear under the current environment EDBs and Transpower find themselves operating in.
4. Capital required for investment is scarce. Revenue allowances and the ability to raise capital is limited. Parties compete from a limited pool of skills, labour, and capability. The availability of equipment faces delays. Changes to relevant regulatory settings take time. Parties connecting to the grid and local networks face extended connection timeframes. EDBs and Transpower experience prohibitive timeframes for obtaining consents and land access, which can often take ten years before construction can commence. The scale of forecasted demand is uncertain and lumpy.
5. These capital, regulatory and process constraints translate to significant concerns as to whether the system can smoothly accommodate the significant increase in demand and new generation projects expected in the near term. **If these barriers are not alleviated, we are accepting an increased risk that distribution and transmission could become a bottleneck to new supply, which would likely in part keep wholesale prices higher for longer, while hindering the Government's efforts to accelerate electrification.**
6. This is of additional concern as electrification efforts remain at the heart of New Zealand's strategy to reach its climate obligations. Missed opportunities, due in part to constrained networks, would translate to added fiscal pressure for the Crown to meet its 2030 NDC obligations.
7. The current approach whereby developers are responsible for identifying the most appropriate locations for new generation is the most efficient approach and should be retained. We agree with voices echoed across the sector that better and more concerted effort to coordinate and improve planning is needed to help reduce the multitude of barriers mentioned above.

---

<sup>2</sup> Boston Consulting Group, The Future is Electric, (2022)

<sup>3</sup> Ibid,.

8. In the recent past, with flat demand growth and relatively long lead times for new grid connections, the need to better coordinate transmission and distribution was not so pertinent. As of 2024, the need has become more pronounced with grid connection enquiries totalling nearly 400. From a planning perspective, this creates several inefficiencies, making it difficult to identify and allocate resources to projects that may or may not eventuate.
9. With limited resources available to design network connections, there are risks that those resources might be allocated to projects which are highly unlikely to be developed or resources are not allocated in a timely manner to more viable projects that could be delivered. While we support the market-led structure, better long-term coordination would aide Transpower and its role to identify the most optimal allocation of its limited resources.
10. Transpower has introduced a fee which improves the readiness to connect. Transpower has been working to improve its connections management framework and is currently consulting with the sector on additional changes aimed at improving its connection procedure.
11. Better coordination is also highlighted by the backdrop of social and political realities. Historically, the construction of long line transmission infrastructure has faced sizeable opposition in New Zealand and around the world. The public often support renewables due to the benefits it brings. But seldom is generation and long line transmission infrastructure supported if it conflicts with the visual amenity of their property, community or areas surrounding them. Public acceptance is limited and therefore options available to Transpower for new infrastructure is narrow. This highlights the importance of Transpower's system planning role, which will require a concerted and coordinated approach.
12. We are aware Transpower is taking an even more active role in coordination through its Net Zero Grid Pathways Programme (NZGP) as grid enquiries continue to grow. Transpower regularly observe the evolving activities of many parties across generation and distribution, coordinating with them to achieve the most efficient utilisation of grid infrastructure.
13. The NZGP is a strategic investment programme aimed at complementing the annual work on maintaining, refurbishing, enhancing, and developing the existing electricity grid in New Zealand. The programme's goal is to develop a least regrets pathway towards building the transmission infrastructure needed in a highly electrified economy.
14. This is achieved by analysing demand and generation scenarios, assessing the system's needs and interdependencies, and identifying the most valuable investments. These investments are geared towards connecting new generation to the grid, supporting new and expanding customer demands, ensuring power is delivered where it is needed, and maintaining a secure and reliable power system.

#### *Coordination in regulatory settings*

15. Better coordination also extends to alignment across regulatory frameworks and regulatory periods, ensuring consistency with the task at hand of increasing electrification. We acknowledge that this extends beyond the Authority's purview, but is intertwined with the system's operation and matters raised in the paper on how network planning could be improved.
16. Distribution networks cannot plan and invest ahead of time effectively without settings that sufficiently promote the financeability of new investment. Current constraints of limited resources – including capital, equipment, and expertise – will be exacerbated under the current invest just-in-time approach and lack of investability. Under this approach, Transpower and EDBs have limited options but to wait until demand arrives. When demand does arrive, network resources could be stretched further.

17. This could mean higher costs on electricity bills later if infrastructure is not built. Modelling in Australia by Nexa Advisory showed delays of even one year in the required new transmission infrastructure resulted in higher bills for consumers.<sup>4</sup> The longer the delays, the higher the electricity prices borne by consumers.
18. The current incremental and steady state approach under the Commission's Part 4 regime, and the lack of flexible allowances, could lead to suboptimal and overly constrained network planning. This could be made worse by reopener processes that take too long and do not accommodate for demand uncertainty, where demand could unexpectedly spike within the regulated period.
19. Building up capability, with more equipment, people and skills will require regulatory settings that align with financeability, including sufficient flexibility for EDBs to manage cashflows within and across the regulatory periods. This would enable EDBs to better invest ahead of the curve to ensure capacity is available to meet consumers' needs.
20. However, as repeated earlier, non-network solutions will be vital in flattening the need for more infrastructure. The need to invest must also be balanced against its cost on consumers. The risk of over-investment and an inefficient overbuild of infrastructure would fall on consumers. Under an over-build scenario, this cost would add to existing cost pressures faced by consumers while also risking the possible stifling of electrification.
21. For Transpower, they too require a faster, more certain, and permissive approach to investment in transmission infrastructure, enabling more coordination between grid planning and investment in generation. Waiting for transmission and distribution infrastructure to play catch up will slow electrification and undermine New Zealand's progress to meet NDC 2030 targets.
22. Changes to Transpower's Input Methodology and investment test, for instance, could better support investment. However, again, this approach would place additional risk and possible cost on to consumers.

*More data accessibility to improve network coordination*

23. Data is vital to network management and efficient network planning. Without ample and granular information about what is occurring on their networks, EDBs' decision making is undermined, both from an investment and operational perspective. Networks need more streamlined commercial access to real-time consumption and power quality data to coordinate and better manage DER, which will continue to play an ever-increasing influential role in the power system going forward. The system is increasingly becoming more dynamic, requiring more granular data about voltage, frequency, electrical power flows and information about connected load.
24. Visibility provided by real-time data would help to identify constraints, congestion, headroom, and capacity for DER investment and real-time management. This will help boost network performance, ensuring a more efficient response to network faults. More knowledge about DER will also allow for a better assessment of system-wide cyber risks, as with the more internet addressable devices, the greater the cyber risk.
25. It is evident timely commercial access to smart meter data will facilitate flexibility, addressing network capacity constraints, while minimising the need for additional infrastructure. In turn, shrinking costs for both the system and consumers. With this enhanced visibility, EDBs could start proactively sending clear price signals on the value of flexibility to customers and the characteristics a service would have. These actions would promote more transparency and help accelerate the

---

<sup>4</sup> *Removing the Roadblocks to New Transmission to Achieve the Transition*, Nexa Advisory, (2022)

organic development of a flexibility market, with traders offering a service to EDBs without government intervention.

26. Of course, access to data must be on reasonable commercial terms. To collect this data requires investment. Therefore, acquiring this data should not be costless. If the data was available without a cost to the user, it would undermine and disincentivise ongoing investment and service evolution by metering companies.
27. We have long advocated for the democratisation of real-time data generated by smart meters, authorising its use by third party service providers and networks. A regime that improves commercial access to data would be a low cost least regrets option to improve network planning and operation, especially anticipating a world of ubiquitous DER operation. This option should be pursued and prioritised over other significant and more disruptive interventions. We note that enhanced data access would also have positive spillovers, increasing competition in existing markets with better access to existing and new players.

#### **Question 6: Current arrangements and the uptake of DER and IBR-generation**

28. We agree with the Authority's articulated view of the role DER will play in the future. It is important that power system obligations are compatible with the uptake of DER as described in the paper. Improving compatibility, as well as network operation and planning, will require improvements to DER visibility.
29. EDBs currently lack visibility on the location, size, functionality, and operation of installed DER on their networks. This is increasingly becoming a problem that needs to be resolved. The uptake of residential solar and batteries will increasingly impact the way networks operate. Additionally, the uptake of electric vehicles (EV's) could place significant pressure on network capacity if charging is synchronised in response to a market signal. Despite new EV purchases plateauing in recent months, the trajectory of EV purchases is likely to expand considerably over the medium to long-term.
30. Information on where EV chargers are located, both in commercial and residential premises, will be important for managing networks, reducing congestion, improving power quality, and ensuring networks stay within safe limits. Observing the time and location of charging would mean network operators will know the areas with high EV concentration and mitigate the impacts upon low voltage networks.
31. Understanding which party is managing which device, how they are operating them and how they will coordinate with EDBs' network limits and emergency operations will be critical to ensure the network of the future stays safe and stable, while planning for manageable growth of the networks to accommodate additional electrification.
32. Improving the visibility of DER will enhance the operation and efficiency of networks, reducing some of the need for network capex over the long term. We support the registration of data for DER installed at each ICP. This information will help show where flexibility would be most valued on the network and to what extent resources would be available. Implementation of operating protocols between aggregators and their host EDBs is a critical requirement for delivering this value to consumers.

#### **Question 8: Conflicts of interests with network planning and ownership**

33. We note that the Authority has questioned whether there is a conflict of interest for industry participants with concurrent roles as network owner and network operator. We understand that there may be a *perceived* conflict. To alleviate this perception, options to improve the transparency

of provisional information and EDB policy as it relates to the roles of network operation, ownership, and planning, might be deemed valuable.

34. The conduct of EDBs, made transparent from the disclosure of relevant information, could undergo an assessment in accordance with a voluntary industry standard delineating the proper interplay among network functions. Parties would be subject to scrutiny regarding their adherence to their policy. This standard, ideally developed by industry, could provide the sector with assurance that any perceived conflict of interest does not transpire.
35. Notwithstanding a possible industry standard, safeguards remain in place today. It was helpful for the Authority to list some of the existing controls already in place to manage these perceived conflicts. New Zealand's current arrangements surrounding competition law are solid. Participants have multiple robust pathways to challenge anti-competitive behaviour through the courts. Hefty penalties associated with anti-competitive behaviour act as an ample deterrent.
36. The precedents in place for managing conflicts between Transpower's two main role are useful examples but it is worth noting these have emerged and evolved progressively over the past three decades as and when needs have arisen.
37. Before any action is considered, the problem must be clearly defined. Evidence of a real conflict of interest must be apparent and noteworthy to justify significant intervention. Separating the DSO role from EDBs requires well-thought-out reasoning and a clear assessment of the unintended consequences, the counterfactual and the costs and benefits of a preferred intervention.
38. We caution against such knee-jerk interventions which could inhibit innovation in this early stage of evolving flexibility services. The focus is ensuring electrification at pace and at least cost. Separating DSO functions would distract from this priority, duplicating systems and processes, while increasing system costs.

