Promoting a robust electricity market



11 April 2024

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Sent via email: FSR@ea.govt.nz

Dear Andrew

Future operation of New Zealand's power system

- This is a submission from the Major Electricity Users' Group (MEUG) on the Electricity Authority's (Authority) consultation paper "*The future operation of New Zealand's power system*" published for consultation on 15 February 2024.
- 2. MEUG members have been consulted on the approach to this submission. Members may lodge separate submissions. This submission does not contain any confidential information and can be published on the Authority's website unaltered.

Summary of MEUG's comments

- 3. MEUG welcomes a sector-wide discussion on the future operation of New Zealand's electricity system, as we address the transition to net zero greenhouse gas emissions by 2050, whilst dealing with immediate issues such as a cost-of-living crisis and tight electricity supply over coming winters.
- 4. We consider that the Authority has provided a reasonable summary of the existing operational arrangements for the New Zealand power system, along with a concise overview of the regulatory arrangements. This paper is a good resource for any stakeholder seeking an overview and introduction to New Zealand's electricity system. The consultation paper also provides a good overview of the key drivers of change impacting the power system operation however, the discussion is limited primarily to the technical drivers of change.
- 5. In MEUG's view, what is missing is consideration of the broader context and environment that is impacting the electricity system – the view of the consumer, the state of competition in the wholesale electricity market, increased use of intermittent generation, the commercial realities of industry participants and stakeholders, and the degree of government intervention versus market led solutions that could drive change in the sector. Without consideration of these broader factors, it is not possible to fully capture all the key issues and options for optimising our future power system.

¹ <u>https://www.ea.govt.nz/documents/4479/The_future_operation_of_New_Zealands_power_system_.pdf</u>



- 6. For MEUG and our members, the cost of electrification of the energy system and affordability is a key issue. We are seeking:
 - a. A competitive electricity market where consumers believe they are paying a fair or justifiable price. We need to understand the market conditions that have led to a doubling in wholesale prices in the last five years and sustained high prices above the Long Run Marginal Cost (LRMC) of new renewable generation. This is impacting consumer confidence in the electricity market.²
 - b. A secure and reliable market. Concerns are arising again³ about the security of our electricity system to meet demand ahead of winter 2024 and 2025. These concerns apply to generation mix with much less exposure to intermittent generation and lower levels of electricity demand than what is expected in the late 2020's.
- 7. In the electricity sector, we have yet to reach a consensus on balancing the energy trilemma⁴ particularly with the New Zealand Energy Strategy still under development. However, MEUG consider that more emphasis is required on affordability, and better incorporating the views of consumers into decisions around future operation of the power system.
- 8. Our submission focuses on the following areas:
 - a. The varying performance of electricity distribution businesses (EDBs) when it comes to managing demand and innovation across the country's distribution networks.
 - b. The need to address the "bias to build" by EDBs. We need to look at how we can greater incentivise all EDBs to develop non-network / non-traditional solutions and first optimise the use of the current network (by flattening peak demand) before investing in more infrastructure.
 - c. The need to understand the current performance of Transpower's arrangements before looking at any changes to structural arrangements for network ownership and operation.
 - d. Understanding the potential for "prosumers" in the New Zealand market against the progress that has been made to date. MEUG strongly believes that more discussion is required on the role of demand-side participation in the market. This discussion should include:
 - i. Analysis of the gap between the cost to large electricity users of demand curtailment (affected by advanced notice, duration, cost of shutdown and restart etc.) and the value offered by the wholesale market (avoided electricity cost).
 - ii. Assessment of the potential volume of demand response to alter the need for network investment. The modelling⁵ completed for MDAG in 2021 simulated the effect of different demand response scenarios on wholesale prices and load. This would provide a starting point for considering different scenarios for peak demand profiles and the required network investment.
- 9. We expand on these points below, as well as commenting on a few technical areas of the consultation paper. MEUG would welcome the opportunity to meet with Authority staff to discuss the points raised through this submission. We would also encourage the Authority to look at how they can share the views provided by all stakeholders through this consultation

 ² See MEUG briefing to Hon Simeon Brown, November 2023, <u>http://www.meug.co.nz/node/1331</u>.
³ *Tough winter ahead for power companies as demand for electricity soars*, 1 News, 29 February 2024, <u>https://www.1news.co.nz/2024/02/29/tough-winter-ahead-for-power-companies-as-demand-for-electricity-soars/</u>
⁴ See MEUG comments in February 2024 Chair Update here: <u>http://www.meug.co.nz/node/1342</u>

⁵ Pages 48 to 56, *Price Discovery with 100% Renewable Electricity Supply Final,* Prepared for Market Development Advisory Group, 10 December 2021.



process, beyond simply a summary of submissions document. There will no doubt be a broad range of issues brought up through this consultation process, which could warrant further discussion with the sector before the Authority looks at next steps.

Varying performance across EDBs

- 10. MEUG observes that there is varying performance across the 27 EDBs operating in New Zealand, with differences noted between the regulated (non-exempt) EDBs and those that are exempt from price-quality regulation.⁶ We believe that this needs to be reviewed with urgency, prior to consideration of broader options such as more coordinated planning across regions and the concept of Distributed System Operators (DSOs).
- 11. As we have discussed with the Authority,⁷ MEUG's members collectively engage with many of the 27 EDBs across New Zealand. We have experienced a range of interactions with EDBs when discussing pricing⁸ and connections⁹, ranging from open and early communication on pricing approaches through to limited to no engagement. We have repeatedly called for improved transparency and consistency around pricing. We have met with many of the EDBs and Electricity Networks Aotearoa (ENA) to discuss our concerns, and to understand the work and improvements being made in this space.
- 12. In terms of network performance, network optimisation and investment, there is also a variation in performance, with some observable differences between exempt and non-exempt EDBs. For example:
 - a. Counties Energy is "working with South Australia's SA Power Networks to develop electric vehicle charging services. The companies say it's the first major opportunity under an agreement to collaborate on distribution system operator projects.....It builds on Pukekohe-based Counties' strategic move towards a DSO model that is more flexible, efficient and consumer-centric than a traditional lines company".¹⁰ This is an example of an innovative and data driven approach to managing a network.
 - b. In contrast, the Commission's DPP4 Issues Paper¹¹ released last year noted there had been no uptake of the innovation allowance during DPP3 by regulated EDBs. Since then, we note that only Vector was successful in drawing down the Innovation project allowance for its Project PRISMED.¹²
 - c. In a recent submission, PowerNet¹³ noted that it "provides a unique perspective, in that we manage both exempt and non-exempt EDBs.... It is explicitly clear to us that the settings for exempt EDBs are more conducive to meeting the needs of customers and the goals of decarbonising and electrifying the New Zealand economy." This is not the first time that this sentiment has been discussed.

⁶ <u>https://comcom.govt.nz/regulated-industries/electricity-lines/our-role-in-electricity-lines/consumer-owned-electricity-distribution-businesses</u>

^{&#}x27; Targeted reform of distribution pricing, MEUG submission to the Electricity Authority, 15 August 2023,

https://www.ea.govt.nz/documents/3562/Meug - Targeted Reform of Distribution Pricing - Submission Aug 2023.pdf ⁸ Both distribution charges, and more recently, the pass-through of transmission charges.

⁹ Discussions have involved new connections, as well as increases in capacity to sites.

¹⁰ https://www.energynews.co.nz/news/electric-vehicles/137917/counties-eyes-ev-charging-australian-edb

¹¹ See paragraph 4.17.2 of the Issues Paper, <u>https://comcom.govt.nz/regulated-industries/electricity-lines/electricity-lines-price-guality-paths/electricity-lines-default-price-guality-path/2025-reset-of-the-electricity-guality-path/2025-reset-of-the-electricity-guality-path/</u>

¹² <u>https://comcom.govt.nz/______data/assets/pdf__file/0023/346028/Vector-innovation-allowance-project-report-PRISMED-key-</u> findings-report-prepared-for-the-Commission-5-February-2024-.pdf

¹³ https://comcom.govt.nz/ data/assets/pdf_file/0023/347513/PowerNet-Ltd-15-March-2024.pdf



- d. The recent Cambridge Economic Policy Associates (CEPA) draft report¹⁴ commissioned by the Commerce Commission (Commission) shows that there are (slight) differences in productivity between exempt and non-exempt EDBs, with exempt EDBs showing a smaller reduction in productivity over time.
- e. The Commerce Commission gathers considerable data to monitor performance and profitability of EDBs, including spend on emerging technologies.¹⁵ This data provides insights into the variation in performance, but without further analysis, doesn't look at the underlying drivers of these variations.
- 13. MEUG believes that further work must be done in this space to understand why some EDBs are performing better and innovating, and why others may not be or at a slower place. It is also concerning if there are increasing differences in the performance of exempt versus non-exempt EDBS. As raised in prior submissions,¹⁶ MEUG supports all EDBs providing a relatively level playing field for its consumers and supporting greater electrification and demand growth across the country. We consider that both the Commission and the Electricity Authority have a role to play here, to look at what levers are available under the Part 4 regime and Electricity Industry Participation Code to drive performance.

Addressing the "bias to build"

- 14. MEUG recommends that the Authority and the Commerce Commission strongly focus on how we can better encourage EDBs and Transpower to fully optimise the use of the transmission and distribution networks and develop non-traditional solutions, before seeking to build additional infrastructure.
- 15. We consider that the current system for electricity infrastructure has a strong "bias to build" EDBs and Transpower have continuously built "poles and wires" infrastructure to meet a relatively steady growth in demand, with assets historically sized to meet a network's peak capacity. The Part 4 regulatory model for both Transpower and EDBs is largely based around the Regulated Asset Base (RAB), which influences the revenue that a regulated entity can earn and the subsequent prices that will be charged onto consumers.
- 16. However, with the significant forecast increase in demand from greater electrification, EDBs and Transpower are now forecasting increasingly large levels of capital (and operational) expenditure to build out the country's network to meet this demand. The Boston Consulting Group (BCG) report *The future is electric* estimates that to meet the country's net zero target, it will require "*an investment of \$42 billion in the 2020s, including increased spend across generation, transmission and distribution.*"¹⁷ Under the current regulatory model, the transmission and distribution costs are expected to be recovered fully from customers:
 - a. There will be an uplift in transmission charges from Transpower's base expenditure sought through RCP4, with a forecast 39.5% increase in revenue requirements.¹⁸•
 - b. There will also be an uplift in transmission charges, resulting from major capex proposals such as NZGP1.

¹⁴ CEPA-EDB-productivity-study-draft-report-March-2024.pdf (comcom.govt.nz)

¹⁵ https://comcom.govt.nz/ data/assets/pdf_file/0014/100661/Snapshot-of-EDBs-spend-on-e-tech-10-October-2018.pdf

¹⁶ http://www.meug.co.nz/node/1340 and http://www.meug.co.nz/node/1355.

¹⁷ Page 2, <u>https://web-assets.bcg.com/b3/79/19665b7f40c8ba52d5b372cf7e6c/the-future-is-electric-full-report-october-2022.pdf</u>

¹⁸ Page 18, Regulatory control period 4 proposal, Transpower, November 2023, https://static.transpower.co.nz/public/2023-

^{11/}RCP4%20Main%20Proposal%202023.pdf?VersionId=TRqSogShhDfomL4gVwFzIzzzGSfRjz30



- c. There will also be an uplift in electricity distribution charges from the upcoming Default Price-Quality Path (DPP4) reset for the 16 regulated electricity distribution businesses, with the total investment needed in 2026-2030 forecast to be 30% higher than 2021-2025.19
- MEUG strongly questions how consumers will be able to afford price increases of this scale, 17. while still looking to electrify greater parts of our economy, such as process heat and transport. We also question whether Transpower and EDBs will have the workforce to deliver such a large-scale programme of investment, noting that deliverability has been identified as a key issue for both Transpower and EDBs at the upcoming regulatory resets.²⁰
- 18. MEUG believes that more must be done to "flatten or smooth" the demand curve, rather than continuing the practice of building networks to deal with the ever-increasing peak demand on infrequent winter evenings. We note that system peaks have increased in recent years with 6 of the top 10 record demand peaks occurring in winter 2023.²¹ Flattening the demand curve over a 24-hour period can involve several options, including:
 - Greater use of time of use pricing: We have long advocated for the Authority to focus on greater incentives and possibly intervention to bring more Time of Use (ToU) tariffs to the market. Distribution pricing reform has been a focus for the Authority and EDBs for several years, yet progress is mixed. We await the Authority's update on distribution pricing reform that is expected to be released this month.²² We encourage the sector to look at approaches used in other jurisdictions, such as in Europe, where customers can pay by the type of service provided (i.e. 20A, 60A or 120A) and what learnings can be taken from the use of ToU tariffs within New Zealand to date.²³ It is also important to look at how retailers are applying any ToU tariffs passed on from distributors, so that signals to shift demand are not watered down.
 - Disparity between pricing approaches for distribution and transmission pricing. While we observe that the Authority is pressing EDBs to adopt ToU pricing, we note that the Authority has removed peak pricing from the allocation of Transmission charges. Urgent attention should be given to the development of transmission congestion pricing to drive down peak energy use, following the negative impacts on peak demand from the removal of the Regional Coincident Peak Demand (RCPD) charge under the prior TPM. We discussed this at length in our submission to the Authority on peak electricity capacity issues and refer the Authority and stakeholders to our analysis and commentary in that submission.24
 - Incentivising greater use of non-traditional / non-network solutions to meet network demand: Transpower and some EDBs are investigating and developing non-network solutions to help manage demand on their networks. For example, Powerco and Aurora's procurement of flexibility services and Transpower's tendering for flexible DER to provide grid support.²⁵ However, we feel that much broader adoption of

¹⁹ 8 Page 3, Boston Consulting Group. (October 2022). The Future is Electric - A Decarbonisation Roadmap for New Zealand's Electricity Sector. Available at: https://webassets.bcg.com/b3/79/19665b7f40c8ba52d5b372cf7e6c/the-future-is-electricfullreport-october-2022.pdf ²⁰ For example, see Energy News story here: <u>https://www.energynews.co.nz/news/electricity-regulation/151488/deliverability-</u>

key-issue-transpower-rcp4-proposal and Business Desk story here: https://businessdesk.co.nz/article/infrastructure/upgrading-

infrastructure-including-electricity-grid-may-not-be-achievable-says-comcom ²¹ Paragraph 11, Appendix A of the consultation paper peak electricity issues, <u>Consultation paper</u> potential solutions for peak electricity capacity issues.pdf

Updates to distribution pricing reform | Electricity Authority (ea.govt.nz)

²³ For example, The Lines Company's pricing approach with ToU tariffs provides insights into the benefits and pitfalls of trying to roll out changes with a community.

²⁴ http://www.meug.co.nz/node/1347

²⁵ Paragraphs 7.11 and 7.12, <u>https://www.ea.govt.nz/documents/1743/lssues-paper_-Updating-the-regulatory-settings-for-</u> distribution-networks.pdf



these types of solutions should be encouraged. Ideally, the incorporation of these types of solutions should be part of BAU planning, rather than an additional option once planning is near completed.

- A stronger focus on **ensuring that Transpower and EDBs have fully optimised the use of the existing network**, before getting approval to build new assets. This could involve greater scrutiny of network capacity measures and adapting the price quality regime to factor in these measures before approving allowances for a regulatory control period. For example, networks must be able to demonstrate that networks are at or over 75% utilisation before proceeding with certain investments in new lines.
- MEUG also has some support for the use of a "totex" approach²⁶ by the Commerce Commission, where EDBs face equal incentives for both Opex and Capex solutions for network.
- 19. MEUG recognises that work in this area is addressed, or planned to be addressed, through several of the Authority's existing workstreams identified in the consultation paper and by the Commerce Commission in its upcoming regulatory resets. However, we believe that this work warrants greater priority and urgency.

Need for insight into effectiveness of current arrangements for transmission

- 20. The consultation paper discusses the role of Transpower, as both the System Operator and asset owner, and the regulatory requirements for separation of these roles.²⁷ The Authority then seeks feedback on whether "there are significant conflicts of interest for industry participants with concurrent roles in network ownership, network operation and network planning" (question-8).
- 21. MEUG does not believe that stakeholders are able to respond to this question regarding Transpower, without the publication of much greater analysis and a discussion of historic performance. While the paper sets out the legislative requirements for separation of functions, it presents no data or commentary on how Transpower is achieving these requirements, based on its annual assurance programme or its annual self-review. Nor does the consultation paper include any commentary from the Authority or market participants on how they perceive Transpower to be performing its role. This is the type of information that would aid submitters.
- 22. We note in recent years that there have been moves by Transpower to bring the roles of the System Operator and asset owner closer together. It would be helpful to get feedback on how these changes have worked and share this information with interested stakeholders. It would also be useful to understand the different options for structuring Transpower's functions and the pros and cons of these alternatives. With Transpower's status as a State-Owned Enterprise (SOE), consideration could also be given to the regulatory settings that apply and whether a different arrangement (to EDBs) might be more beneficial to consumers in the long-term. This observation was raised during recent consultation on Transpower's RCP4 Issues Paper.²⁸
- 23. MEUG considers that without a solid understanding of the current situation, it would be premature to consider any changes to Transpower's role particularly at a time when Transpower has a significant programme of work planned for the transmission network to support and enable the energy transition.

 $^{^{\}rm 26}$ As discussed in paragraph 5.54 (b) of the consultation paper.

²⁷ Section 3.37 to 3.43 and Table 1 of the consultation paper.

²⁸ NZAS submission, 21 February 2024, <u>https://comcom.govt.nz/__data/assets/pdf_file/0023/346550/NZAS-submission-on-RCP4-Issues-paper-21-February-2024.pdf</u>



Understanding the potential for prosumers and demand side participation

- 24. The consultation paper discusses the transition of electricity consumers who have "traditionally been passive customers", towards the concept of "prosumers" who are more actively involved with the power system.²⁹
- 25. MEUG supports greater involvement of consumers in the electricity system and the potential for greater demand side participation. The role and importance of demand response as been discussed at length in numerous reports, and by stakeholders such as Transpower, MBIE and the MDAG. However, it is still not clear what level of demand response is expected to be optimal for the market and to aid the energy transition. The Authority provides a definition of what it considers to be a prosumer, but it would be helpful to understand:
 - a. Are there other definitions of prosumers that could equally be used? Can we measure this concept from existing customer data?
 - b. What percentage of New Zealand's electricity consumers are currently considered prosumers? Is this a growing proportion and/or is there a specific demographic of customers who are more able to participate in the market? It is possible that social inequity issues could arise if only better-resourced consumers are able to manage their demand (including off grid), while the remaining customer base must cover the operating cost of the network. Energy Hardship is already an issue facing many households across New Zealand.³⁰
 - What are the costs to consumers to participate in demand response how are these c. factored into policy and regulatory decisions? How do these costs compare to the proposed benefits that consumers are forecast to receive from greater involvement in the electricity system and the move to greater electrification.
- 26. Consideration of these broader factors are important when looking at the future operation of the system.

Demand-side response by large industrial and commercial customers

- 27. MEUG considers that much greater work needs to be done to remove barriers and incentivise demand response from a broader range of consumers, from industrial and commercial consumers through to individual households. To date, there has been limited progress with demand-side response - only two participants are currently partaking in the dispatchable demand regime, there is some use of ripple control and discretionary demand control on EDB networks, and there are small number of demand-side response bilateral agreements in place (two of which relate to MEUG members) where positive progress is being made.³¹ As a first step, it would be helpful to see demand response models that describe the expected participants, their roles, and the value proposition to participants.
- 28. We have long advocated for demand-side participants to be able to receive a form of payment that reflects the full benefits of the service provided and reflects the costs to the participant (i.e., lost production). This could be equivalent to the spot market electricity price for the volume participants have bid into the price stack at the final settlement price by the System Operator (i.e., the same as a generator). We believe that this would allow clearer price discovery in the electricity market.32

²⁹ Paragraph 4.22 of the consultation paper.

³⁰ For example: <u>https://www.stuff.co.nz/business/132437115/chilling-energy-hardship-data-puts-the-heat-back-on-power-</u> companies 31 See paragraphs 3.3 to 3.12 of the consultation paper on peak electricity capacity issues,

https://www.ea.govt.nz/documents/4385/Consultation paper -potential solutions for peak electricity capacity issues.pdf ³² As outlined in MEUG's cross-submission on Dispatch notification enhancement and clarifications, 13 October 2023, http://www.meug.co.nz/node/1324



- 29. Alongside fairer compensation, we have also discussed with the Authority several other options that should be explored to incentivise demand side response from large industrial and commercial customers. These include:
 - a. Greater use of time of use pricing as discussed in the section above, looking at pricing at the transmission and distribution level, alongside the final retail pricing that consumers face.
 - b. Improvements to the dispatchable demand regime, to better reflect the operational conditions of many large industrial and commercial customers. We have recommended that the Authority do an immediate piece of analysis on a trading model for demand response that offers demand response for blocks of 2 to 4 hours, to provide more demand certainty around the costs and benefits of demand response.
 - c. Greater use of bilateral demand side agreements, such as that used by NZAS with Meridian and NZ Steel with Contact Energy. These agreements can unlock large blocks of demand that can be called upon within set parameters and can greatly contribute to the balancing of supply and demand with limited impact on the rest of New Zealand's consumers.
 - d. A day ahead market to signal and greater incentivise the use of demand response, battery storage or firming generation.
- 30. Demand response is an area of focus for MEUG in the coming year and we welcome further discussions with both the Authority and industry participants.

Additional comments on operation of the power system

- 31. MEUG has the following comments on other issues discussed within the consultation paper:
 - Concept of Distribution System Operators: The Authority discusses the concept of one or more distribution system operators (DSO) as an emerging option for the New Zealand market, to help manage the day-to-day power system operations at a more local level. The paper also provides examples of how DSOs have been set up in other jurisdictions. MEUG considers that the Authority must first set out what the costs and benefits of a DSO may be for the New Zealand market, at a principled level, and how it would support the long-term interests of consumers. This information would help participants better comment on the potential of this options for the New Zealand market.
 - **Coordination of network planning**: As with DSOs, insufficient information is given on what coordinated network planning might entail and how it would benefit end consumers, over the current approach. It is also important that the concept of coordinated network planning doesn't become an avenue for centralised planning (a concept not consistent with a market-based approach).
 - Link with MDAG work: The Authority has committed to implementing the full suite of MDAG's recommendations, consistent with the staged approach put forward in the final report.³³ MEUG considers that these measures have the potential to considerably shape and evolve the wholesale electricity market, as the system transitions to greater levels of renewable electricity. It is important that any work arising from this consultation process considers the timing and impacts of the MDAG work, and the level of competition in the wholesale market.

³³ <u>https://www.ea.govt.nz/news/general-news/authority-finalises-response-to-mdag-report/</u>



Next steps

- 32. MEUG would welcome the opportunity to meet with the Authority to discuss the points raised in our submission. As noted above, we would also welcome further engagement with the Authority on the themes raised through all stakeholders' submissions before the Authority proceeds with further work.
- 33. If you have any questions regarding our submission, please contact MEUG on 027 472 7798 or via email at <u>karen@meug.co.nz</u>.

Yours sincerely

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