



11 April 2024

Electricity Authority  
By email: [FSR@ea.govt.nz](mailto:FSR@ea.govt.nz)

## **The future operation of New Zealand's power system – Consultation paper**

Meridian appreciates the opportunity to provide comment on the Electricity Authority's consultation paper on the future operation of the national power system. The paper addresses a number of important issues, and while Meridian does not have a lot to add to the discussion at this stage, we remain interested in how this work unfolds, and particularly so once any problems are positively identified and potential solutions considered for development and implementation.

We agree with the Authority's speculation on the possible needs of power system operation at paragraph 3.71. In particular, we think that more complex tools and processes, and greater visibility of low voltage networks, should be explored by the regulator and developed to drive the uptake of distributed energy resources (**DER**). Uptake of DER has not been as fast in New Zealand as many commenters had predicted,<sup>1</sup> and we suggest that a large reason for this is that operators of our low voltage networks currently lack the capability to incentivise DER as a way to defer traditional network investments.

DER (and flexibility resources in particular) appear to be critical to limiting the cost of the energy transition to consumers and presents one of the best ways of using current capacity more efficiently (and reducing volatility) with comparatively minimal underlying asset cost. Open and competitive

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<sup>1</sup> See, for example, the ENA's Three Year Update on the NTR on p 7: [1104 \(ena.org.nz\)](https://www.ena.org.nz)

markets are the natural choice for the deployment of this flexibility. We are aware of many retailers and aggregators starting to explore, trial, and deploy consumer propositions to reward flexibility. What is less clear to us at this stage is whether networks will be able to competitively procure the same flexibility resources to manage network needs and in doing so add to the value stack available to consumers. Ideally such practices would evolve organically in the market, however, this is an area that the Authority should continue to monitor.

Meridian's view is that the two factors presenting the greatest barrier in this space are:

- Difficulty accessing information on local networks necessary for interested parties to assess opportunities, network needs and limitations. This information would usefully include:
  - o Power flows through the local network;
  - o Hosting capacity and constraints on the local network; and
  - o Consumption data (though we acknowledge that there are privacy complications here, and note that this is less important than the other examples); and
- Opacity and inconsistency in EDB valuation of flexibility (if it occurs at all). The would-be investor's job of assessing an opportunity is made more difficult (and the outputs less reliable) if she lacks a clear idea of what that flexibility will be worth to the EDB buyer. We suspect that some EDBs may currently struggle to value flexibility in a manner that allows them to engage with the nascent market for distributed flexibility.

These barriers could be helpfully addressed by new information disclosure obligations and pricing guidance respectively, both of which we acknowledge are beyond the scope of this consultation.

However, there is also potential for distribution systems operators (**DSOs**) to assist in overcoming any underlying capability barriers. We acknowledge that the unique challenges and operational contexts of the 29 distribution networks mean that they may not need to engage with DER and distributed flexibility in the same way. There may be natural benefits to pooling the relevant capabilities across multiple EDBs, and in this context we think there is merit in exploring the role of DSOs (for whom distributed flexibility management would be a natural function) in the longer term. DSOs could be responsible for procurement systems to identify non-network solutions to meet known network needs. They could also manage local network conditions in real time through scheduling and dispatch of local flexibility resources. A DSO framework could enable flexible resources to be procured and dispatched more efficiently than if done individually by the 29 networks, with DSOs acting as service providers to multiple EDBs (e.g. two DSOs per island, serving respective geographical regions).

This submission is not confidential and can be released in full. I can be contacted to discuss any of the points made.

Nāku noa, nā

A handwritten signature in blue ink, appearing to read 'J. France', is positioned above a horizontal dashed line.

James France

**Legal / Regulatory Counsel**

## Appendix A: Responses to consultation questions

Questions	Comments
Q1. Do you consider section 3 to be an accurate summary of the existing arrangements for power system operation in New Zealand? Please give reasons if you do not agree.	Yes.
Q2. Do you agree that we have captured the key drivers of change in New Zealand's power system operation? Please give reasons if you do not agree.	Yes.
Q3. Do you have any feedback on our description of each key driver?	Not at this stage.
Q4. What do you consider will be most helpful to increase coordination in system operation? Please provide reasons for your answer.	We consider that aspects of distribution networks could be improved to generate better market engagement and utilisation of distributed flexibility. We have provided some brief remarks on this in the main body of this submission.
Q5. Looking at overseas jurisdictions, what developments in future system operation are relevant and useful for New Zealand? Please provide reasons for your answer.	Meridian considers that there are (and will be further) lessons available in overseas uptake of distribution system operators.
Q6. Do you consider existing power system obligations are compatible with the uptake of DER and IBR-based generation? Please provide reasons for your answer.	<p>Whilst Meridian does agree that current obligations are compatible, we do not consider that they are optimal. In this instance, we tentatively consider that they should be further optimised to incentivise the uptake of DER and IBR-based generation.</p> <p>There may be the potential for conflicts between distribution and transmission obligations, and Meridian suspects that these will be encountered increasingly, complicating the role of DER. For example, there is the possibility that SO-based reactive power dispatch instructions will, from time to time,</p>

	<p>conflict with the voltage related obligations of the distributor or other parties. We are currently working through the implications of this issue on our Ruakākā BESS project. It is possible that better coordination (or DSOs as discussed in the main body of this submission) could help to mitigate these sorts of coordination issues.</p>
<p>Q7. Do you consider we need an increased level of coordination of network planning, investment and operations across the New Zealand power system? Please provide reasons for your answer.</p>	<p>The current level of coordination is currently adequate but should be monitored to ensure that problems are addressed if and when they arise.</p> <p>We observe that, historically, the prevalence of non-IBR generation has led to an expectation that the generator shoulders the load of frequency keeping (and inertial capacity) as part of the operation of its generation plant, and the need for these capabilities is now reflected in code and connection obligations. This has worked acceptably in the past, but it arguably now puts unreasonable requirements on IBR generation, which has no market-based avenue to manage the costs of providing these capabilities. There have been discussions around the development of capability markets which might allow generators building IBR to outsource their capability obligations to better placed third parties (or meet them across their asset portfolios). We would support the Authority exploring such a market and the accompanying code amendments which might be required.</p> <p>Many of the pressures on the grid operator are not new, but will be more pronounced into</p>

	<p>the future as a result of increasing intermittent IBR sources. We suggest, for example, that the need to minimise or optimise the constraining impact that new generation has on the firming capacity of existing generation will become more important into the future.</p> <p>Related to this issue more broadly is that fact that transmission lines still have static thermal limits. There is a possibility that both transmission and distribution could get more from their existing assets with better utilisation of DER and by revisiting constraining factors like thermal limits.</p>
<p>Q8. Do you think there are significant conflicts of interests for industry participants with concurrent roles in network ownership, network operation and network planning? Please provide reasons for your answer.</p>	<p>Meridian acknowledges that there are theoretical conflicts of interest here but does not consider that issues arise in practice. We do not think separation of existing functions ought to be considered, particularly at a time when transmission and distribution players (which are expected to drive and enable much of the transition to the future energy system) will benefit from stability. The current mechanisms for managing conflict are, in our opinion, presently working sufficiently.</p>
<p>Q9. Do you have any further views on whether this is a good time for the Authority to assess future system operation in New Zealand, and whether there are other challenges or opportunities that we have not covered adequately in this paper? Please provide reasons for your answer.</p>	<p>Whilst we do not believe this is a good time for significant restructuring of system operation within the industry, we see the benefit of continued assessment of future challenges and opportunities against our present ability to meet those challenges and realise those opportunities. In general, however, we believe interventions will only be justified where clear problems exist and that this is likely to mean an incremental approach of market evolution and adjustments by the parties responsible for system operations with ongoing monitoring and oversight by the</p>

Authority to actively address confirmed issues as they arise and promptly take any necessary actions to promote the long-term benefit of consumers.

We look forward to ongoing engagement on these topics in future.