



11 April 2024

Electricity Authority

By email to: FSR@ea.govt.nz

Tēnā koutou,

Consultation on the future operation of New Zealand's power system

Thank you for the opportunity to provide feedback on the consultation paper regarding future challenges and opportunities with the operation of New Zealand's power system.

We agree with the Authority that future changes to the power system cannot be predicted with accuracy, however what is certain, as shown by evidence from overseas power systems, is that future changes will be significant.

We support the Authority's plan to get "ahead of the curve" in terms of preparing for future changes. The consultation paper kickstarts a discussion on some important topics, which will have implications for consumers and electricity industry participants across the value chain.

Our focus in this submission is on the increased use of DER, and maximising the value of DER for the benefit of consumers. The Authority rightfully notes in the consultation paper that growth in DERs will increase the complexity of coordinating the operation of the power system. This is both a challenge and an opportunity. Without appropriate market settings, increased DER will lead to grid instability. With appropriate market settings, DER can both support grid stability, and be orchestrated to deliver benefits across the electricity value chain.

We recognise that making market changes is hard and can take a long time. We commend the Authority for looking to get started on the journey.

Distribution system operations are key to unlocking the benefits of DER

The large majority of DER are being, and will be, deployed at the distribution level. The challenge is that whilst we have a system operator at the transmission level which is well established at managing markets which coordinate the operation of a broad range of resources, we are largely starting from scratch at the distribution level. Therefore, to maximise the benefits of DERs for consumers, the two most pressing questions for us in the consultation paper are:

- How best to manage distribution system operations, including DER operation
- How best to coordinate transmission and distribution system operations

New Zealand is fortunate that other jurisdictions are significantly further along this journey, and rather than needing to 'reinvent the wheel', there is much that can be learnt from others (whilst adapting to be fit for purpose for our specific power system). The 'Future System Operations – International Literature Review' provided by the Authority with the consultation paper is a valuable resource covering a range of jurisdictions. Our understanding is that the UK is the most advanced in developing transmission and distribution system markets and operations which fully unlock the potential of DER. We think it is worthwhile reviewing the UK's journey.

- 2019: the transmission grid owner was separated from the TSO, a new “FSO” entity created to incorporate the TSO and whole of system planning and operation.
- Further changes involved the creation within the FSO of Regional System Planners (RSPs), with strategic input and oversight of individual distribution business’ planning, ensuring integrated with other distribution businesses and the National Grid (transmission) plans.
- Early 2023: Ofgem proposed a single entity should develop flexibility markets and become the single DSO, distributors will procure flexibility through the DSO. An independent market facilitator will be responsible for the DSO functions, and well as alignment between transmission and distribution market arrangements.
- Late 2023: Ofgem consulted on what organisation will be responsible for the market facilitator / DSO role. It will either be the FSO (existing TSO), or Exelon.

Without going into detail, the rationale for the UK changes have included (as discussed in the International Literature Review):

- Network planning: distribution network owners could be, or perceived to be, conflicted in decision making between flexibility deployment and long-term asset upgrades. This area has been debated in Authority and Commerce Commission consultations over many years.
- Flexibility markets: distribution network owners are conflicted in managing a distribution system operator platform due to owning the underlying distribution network. This conflict (or even a perception of a conflict) could limit the growth of a flexibility market.
- Efficiency: Having a single DSO facilitating a single distribution level market platform is seen as more efficient than each distribution network running their own separate flexibility market.

We believe it’s important to address these challenges for New Zealand as soon as practicable. Whilst some EDBs are starting to consider DER contracting and marketplaces to meet growing demand, other EDBs are already making significant investment and developing entrenched positions which may or may not be aligned with the overall optimal market settings for New Zealand. As previously noted, market changes take significant time, and developing the required platforms to enable coordinated and efficient distribution system operations will likely take even longer. We need to advance this journey to deliver the benefits of DER to consumers.

Our submission includes responses below to the questions in the consultation paper.

Please contact me at brett.woods@contactenergy.co.nz if you wish to discuss further.

Ngā Mihi,



Brett Woods
Head of Regulatory and Government Relations

Contact Energy.

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?

No.

Q4. What do you consider will be most helpful to increase coordination in system operation? Please provide reasons for your answer.

Minimising the number of system operators, to support coordination and standardisation.

The UK will have one DSO, which will be independent of the EDBs (may well be the TSO, decision imminent). It is worth noting that the decision to have one DSO in the UK was made in a market where the smallest EDB is bigger than the combined 29 NZ EDBs (measured by the number of homes connected). Ireland has one DSO which is also the transmission grid operator. AEMO and ARENA in Australia have noted there may be a case for states with multiple EDBs to have a single, state based DSO.¹

NZ has the added challenge of starting this journey with 29 EDBs.

Q5. Looking at overseas jurisdictions, what developments in future system operation are relevant and useful for New Zealand? Please provide reasons for your answer.

As discussed in the main body of our submission, our understanding is that the UK is considerably further advanced than other jurisdictions, and we have provided an overview of relevant developments above.

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.

No comment.

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.

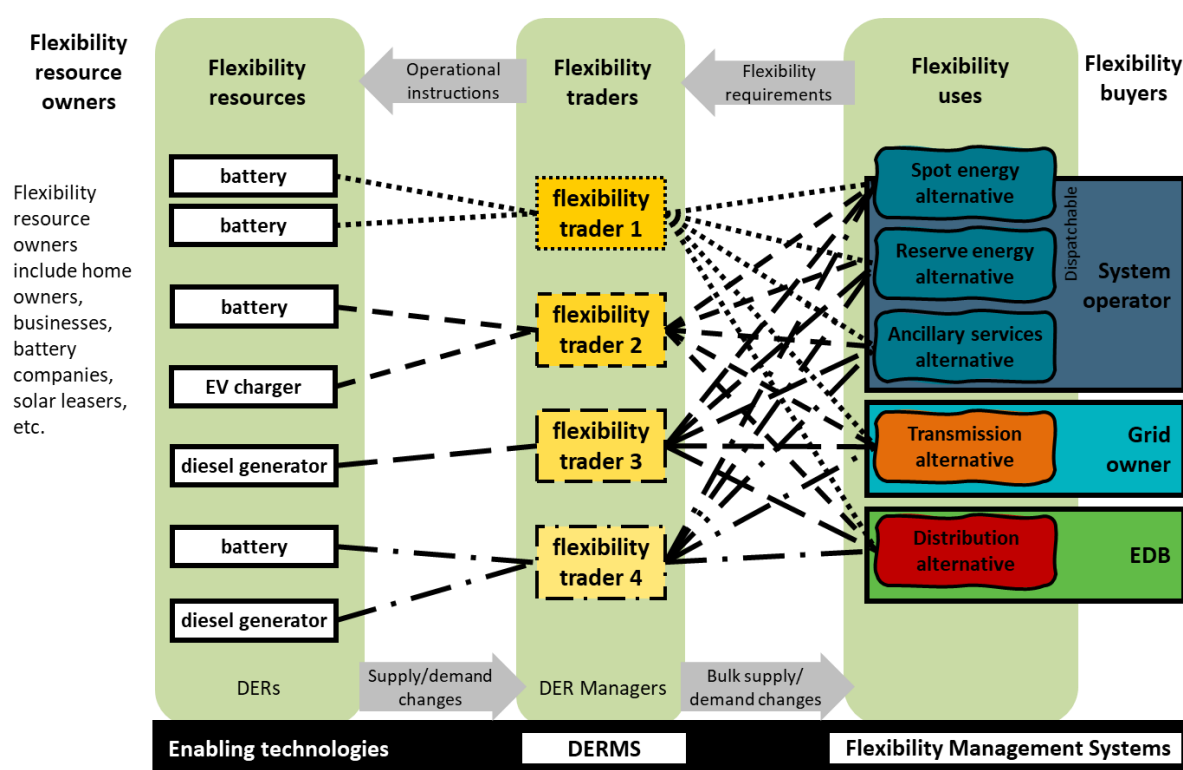
Yes. The forecast growth in demand due to electrification, and the lumpy nature of large projects like electric boiler installations, increases the need for integrated planning and investment between Transpower and EDBs. Operational coordination will also increase in

¹ <https://aemo.com.au/-/media/files/initiatives/der/2023/project-edge-final-report.pdf>, p44

importance as more DERs are deployed. A critical component of developing TSO and DSO platforms will be coordination between the TSO/DSO. In a small market like NZ it may even be more practical to have the TSO take on all DSO functions to reduce coordination complexity. A thorough review is required to assess the pros and cons of various approaches.

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.

Yes. We have covered this area extensively in past submissions to the Authority and Commerce Commission over the past 6-8 years., During this period we have seen negligible development of market-based distribution system operator platforms. What we have seen, is significant EDB investment into the development of a DERMS platform, with direct operational control of DERs. As per schematic below from IPAG², this is not creating a market. Reform is needed to guide future development.



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.

Yes, as mentioned in the main body of our submission, this is a good time for the Authority to assess future system operation in New Zealand.

² https://www.ea.govt.nz/documents/528/IPAG_review_of_Transpower_DR_programme_-_slide_pack.pdf, slide 5