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Electricity Authority
Wellington
By email: FSR@ea.govt.nz

A roadmap for the future of distribution system operation in New Zealand

Transpower, in its role as System Operator, welcomes the work Electricity Authority (the Authority) has done to produce *A roadmap for the future of distribution system operation in New Zealand*, and the opportunity to provide feedback on it.

As the transmission System Operator (TSO) we have a critical, central role in coordinating the power system. This requires us to effectively interface with all distribution system operators (DSOs) and we are concerned that the roadmap does not sufficiently recognise this at this stage.

Consistent with our previous submission we continue to prefer the hybrid model for DSO.¹ We also think there are several no-regrets initiatives that are good candidates to be progressed earlier than indicated on the roadmap. Recent phase 2 submissions on our System Operator Strategy reinforce this view, for example:

"We consider grid security and data/visibility as a fundamental priority. Without visibility of DER, flexible demand, BESS, large loads and distribution network constraints, the SO will be limited in its ability to deliver the outcomes described under the other priorities." Orion Networks

The roadmap should recognise the TSO interface with DSOs

There is an opportunity for the roadmap to better recognise that DSO functions will not operate in isolation from the transmission system. While the roadmap acknowledges the

¹ https://static.transpower.co.nz/public/uncontrolled_docs/TP_Sub_Future_System_Operation_models_20Aug2025.pdf

TSO in some places, it should include the TSO more consistently in actions that cross both DSO and TSO functions. This is important because it will provide more clarity for all participants as the Authority considers and develops its views on the different roles and responsibilities.

The same applies to actions that support standardisation and collaboration between distributors. The TSO should be included more consistently where those functions affect system operation, security, visibility or coordination. This includes work on improving distribution network visibility, cyber security, flexibility and non-traditional solutions. Clearer recognition of the central TSO needs and responsibilities early will help avoid fragmented arrangements, duplication, rework and costly inefficiencies later. It will also support a more coherent future operating model across transmission and distribution.

"there needs to be better TSO-DSO coordination: we encourage greater collaboration between the SO and EDB operations control personnel to support complimentary progress on expectations of the SO strategy and the EA DSO roadmap." Orion Networks

Some specific amendments we request are made to the roadmap are listed in Appendix 1.

Industry is making decisions now that risk inefficient outcomes later

Innovation and experimentation are valuable, but New Zealand is too small a market to efficiently support multiple, potentially incompatible, approaches to data exchange, operational visibility and coordination. Each bespoke solution increases integration costs for participants operating across multiple networks, and consumers ultimately bear those costs. All DSOs will also need to interface and coordinate with us as the transmission System Operator (TSO). We therefore consider that early choices to standardise need to be made to avoid inefficiencies later.

"Given the materiality of this uncertainty to EDB investment decisions - each year of delay requires EDBs to continue planning and investing as though flexibility cannot be relied upon..." Vector

Transpower believes industry consensus is possible and would give distributors, flexibility providers, and the System Operator, greater certainty to invest in the foundational capabilities needed for future power system operation. The Authority has an important role in developing that consensus.

"We encourage the System Operator to work with the Authority (and MBIE as relevant), and relevant industry participants including retailers and networks, to ensure data standardisation work is aligned." Genesis Energy

The roadmap should make clear that ensuring system security is a required outcome, for DSOs and for the TSO

Consumers becoming more actively engaged in their energy choices is a great outcome for the electricity market as a whole. However, for consumers to realise benefits the electricity system must remain secure. Enel X noted this in its System Operator Strategy submission:

"Increased visibility of distributed and demand-side resources will become increasingly important for secure system operation." Enel X

The current market operates with limited visibility of distributed resources and flexibility actions beyond the GXP. Improvements have been made to load and intermittent generation forecasting in recent years because of the operational and market benefits more accurate forecasting delivers. However, rapid growth in distributed solar, batteries and flexible demand, including at household and small business consumer level, is likely to reduce the accuracy of the System Operator's load forecast accuracy over time. Having GXP level visibility of these resources and their operation will enable their impacts on load forecasting to be minimised. During emergency conditions, visibility of the availability, location and expected response of controllable demand and distributed resources will become increasingly important for secure system management.

Without visibility of consumer-level resources and their activity, the System Operator will need to make more conservative operational assumptions in order to ensure the Principal Performance Obligations in the Code can be met. This may lead to over-procurement of ancillary services such as instantaneous reserves or frequency keeping.

The roadmap should make clear that shared DSO and TSO visibility of resources will increasingly be necessary to maintaining system security efficiently

Visibility for the TSO of DSO-level resources is essential to maintaining system security and efficiency, regardless of the DSO model. We also recognise that DSOs will similarly, over time, need greater visibility of TSO-level activities in order to keep distribution networks secure. While this may not be necessary or available in all areas for some time, the standardised arrangements for sharing this information should be established early so they can be adopted with confidence as the need emerges.

"valuable demand side flexibility already existed but could not be relied on when it was most needed, precisely because of the visibility and coordination gaps that modern [dynamic load control] is designed to resolve." Bluecurrent

We recommend the DSO roadmap makes clear that shared visibility is a prerequisite for effective, secure system operations at both DSO and TSO level. We anticipate this will include:

- Standardised TSO–DSO technical interfaces, including common data exchange requirements, information models, and preferred communication protocols

- Common operational data standards, including agreed definitions of information, structures, quality requirements and exchange arrangements.
- Static and dynamic data sharing, to support forecasting, system security assessments and operational decision-making.

The System Operator is developing a paper proposing the key areas of alignment needed for efficient and secure system operations. We think this as a useful step towards building the industry consensus needed for the future.

We would be happy to meet with you to discuss these issues further.

Yours sincerely

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Appendix 1: Amendments to the roadmap requested to better recognise the TSO

We request that the following amendments be made to the roadmap, to better recognise the role, responsibilities and impacts on the TSO:

- Design and delivery of one or more DSOs
 - List and allocate DSO and related TSO functions
- Driving efficiencies
 - Standardisation and collaboration between distributors and the TSO
 - Add TSO to 'Organisations involved' for:
 - Standardisation and collaboration between distributors and the TSO
 - Improving distribution network visibility
 - Cyber security
- Accelerating flexibility
 - Add TSO to 'Organisations involved' for:
 - Flexibility and non-traditional solutions