

19 Aug 2025

Electricity Authority

By email to: [fsr@ea.govt.nz](mailto: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 issues and options paper.

Contact Energy, together with our commercial and industrial energy supply and solutions business Simply Energy, has extensive experience developing flexibility solutions with residential and business customers. We recognise the importance of developing wholesale and network market settings which optimise the role flexibility can play supporting a sustainable, affordable and reliable energy market for consumers.

We commend the Authority on an insightful issues and options paper, which has drawn upon progress in other jurisdictions like the UK which are leading the development of distribution flexibility market settings. We assume the Authority is also following recent developments in Australia including the AEMO sponsored 'Distribution System Operator (DSO) models'<sup>1</sup> report, and the current government consultation on 'Redefining roles for market and power system operations'<sup>2</sup>.

Whilst consumer DER uptake has been slower in NZ, we think it is essential that the Authority proactively guide the development of DSO roles, as distributors are already making significant investment into DSO systems. As an industry we need to ensure this investment is aligned with a DSO vision and roadmap which delivers the most efficient outcomes for consumers.

Our submission includes comments on the various DSO market design options (Hybrid DSO, Total DSO and Total TSO), as well as considerations for ensuring we develop DSO functions in NZ which are both standardised, and act as 'neutral' facilitators.

### Market design

The issues and options paper does an excellent job of introducing potential DSO models. Our comments in this section are on an 'exception' basis; we're not experts in the complex area of DSO market design, and we simply aim to highlight potential areas which the Authority should consider in more detail.

Key areas which we believe require more consideration include:

- **Potential role of SCED at the distribution level.** The paper flags MDAGs recommendation to extend SCED to the distribution network, and noted the Authority '*plans to do further work to investigate and scope this recommendation in the second half of 2025/26.*' Extending SCED to the distribution

<sup>1</sup> <https://energycatalyst.au/futuregrid/>

<sup>2</sup> <https://consult.dccew.gov.au/national-cer-roadmap-redefine-roles-m3-p5>

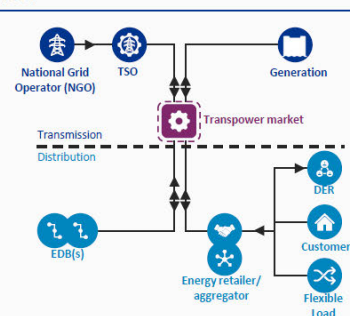
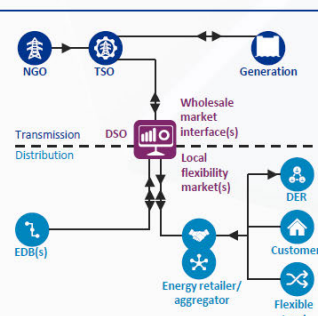
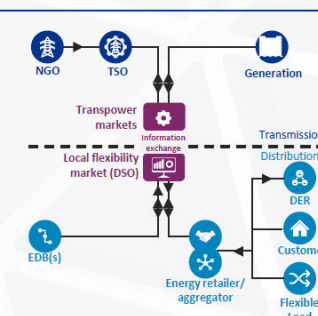
network would have significant implications for the type of DSO model most suitable for NZ and the role of DSO systems being developed by distributors. In our view the DSO and SCED extension workstreams need to be run concurrently.

- **Role of SCED vs DSO markets.** These are two fundamentally different approaches for ultimately managing congestion in real-time on the network. Extending SCED provides a price signal which is *funded by energy settlement*; DER flexibility is obtaining value for deferring/reducing wholesale supply costs. DSO markets can provide a price signal *funded by network charges*; DER flexibility is obtaining value for deferring/reducing network investment. Detailed consideration, including with distributors, is needed on the role and suitability of these two approaches.
- **Role of Transpower as Grid Owner.** The issues and options paper is heavily focused on the role of distributors, however we believe many of the considerations raised in the paper are equally relevant at a transmission level. The Transpower Demand Response (TPDR) program is no longer active, however Transpower is exploring NTS options, which we expect to play a significantly larger role in the future. How would Grid Owner NTS contracts and TPDR type offer/dispatch mechanisms interact with and be coordinated with the System Operator managing SCED at the transmission level?

To help illustrate our points above we have developed a table on the following page which shows the various DSO models under consideration. It is not intended to be an assessment of the options. The table is based on our understanding of the options, which may not be consistent with the Authority and others in the industry. We also recognise that there are many different potential iterations of the various DSO options. As discussed above, this is a complex area, and the table is intended to stimulate further thought and discussion on the role of SCED, DSO and GO markets, and the interaction between the various markets.

As a starting point we have worked with the 3 DSO models considered by the Authority in the paper, which are well documented in the slide below from the ENA Future Networks Forum.<sup>3</sup> In the table we have further split the Total DSO model into two potential options:

- DSO uses SCED extension as primary real-time tool for managing network congestion
- DSO develops separate DSO markets as primary real-time tool for managing network congestion

Model name	Total Transmission System Operation (TSO)	Total Distribution System Operation (DSO)	Hybrid Model <sup>1</sup>
Description	A centralised approach for procurement and operation of local flexibility by Transpower's TSO function, where the TSO balances all local network optimisation, system optimisation and energy market trading to deliver optimum value. Aggregators need to offer services only to the TSO.	A locally operated flexibility market, where the DSO optimises constraints within its own distribution network and provides aggregated bids to the TSO, who optimises at a market and transmission level. Aggregators need to offer services only to the DSO.	A hybrid approach, where the DSO operates local flexibility markets and optimises constraints within its own distribution network. The TSO optimises the wholesale market at transmission level. Aggregators can offer services to one or both DSO and TSO.
Simplified Diagram			

<sup>3</sup> <https://www.ena.org.nz/our-work/publications/document/1544>

	Hybrid DSO	Total DSO (no SCED extension)	Total DSO (extend SCED)	Total TSO
<b>Distribution connected DER participation in wholesale market</b>	Bid directly to TSO without aggregation by DSO	Bid to DSO who aggregates and provides wholesale market interface with TSO	Bid to DSO who runs the wholesale market at the distribution level	Bid directly to TSO who is also the DSO
<b>Role of Security Constrained Economic Dispatch (SCED)</b> <i>Market funded by energy settlement</i>	SCED stays at transmission level only  DSO should validate distribution connected DER bids sent to TSO SCED	SCED stays at transmission level only  DSO aggregates distribution level bids to send to TSO for SCED offer/dispatch	Requires SCED extension to distribution networks  DSO manages SCED for distribution nodes, coordinated with TSO managing SCED for transmission nodes.	Requires SCED extension to distribution networks  Transpower as TSO manages single integrated SCED for transmission and distribution nodes.
<b>Role of distributor ‘DSO markets’</b> <i>Market funded by network charges</i>	Distributor DSO platform is the primary operational tool for managing real-time congestion on distribution network.  As per South Island Distribution Group (SIDG) DSO models on p.39 of consultation paper, expect a mix of price, contract and market based DERs which will evolve over time.  DSOs have primary role managing real-time dispatch of DERs.		Distribution SCED is the primary operational tool for managing real-time congestion on distribution network.  DSO will still have issues unresolved by SCED, can still ‘ <i>contract directly with DER for services</i> ’ ( <i>consultation paper 7.19</i> ).  DSO markets for additional distributor needs to SCED, may be more long-term contracts to drive asset deferral and shape future operational conditions, rather than a real-time market.	
<b>Role of Grid Owner markets/contracts</b> <i>Market funded by TPM charges</i>	Even with transmission SCED, Transpower will continue to have network needs / issues which can be addressed by DER that are not addressed by SCED (eg role of NTS solutions). Could utilise past Transpower Demand Response (TPDR) program to manage constraints.			
<b>GO-TSO-DSO coordination</b>	Relies heavily on TSO/DSO co-ordination.  Elexon’s Market Facilitator role in the UK provides a leading example of how to manage interoperability and conflicts between TSO and DSO DER use.	DSO managing aggregate DER bid/dispatch into TSO provides tighter integration and less conflict between DSO/TSO roles than hybrid DSO model.  DSO still has to coordinate and manage conflicts between SCED at distribution level and “off-market” DSO markets.	Transmission and distribution SCEDs need co-ordination.  Also still need coordination between SCED and “off-market” GO and DSO markets.  SCED extension may support resolving conflicts between wholesale and DSO markets.  May be less challenging than Total TSO as one party (DSO) responsible for SCED and DSO markets at distribution level.	Transmission and distribution SCED co-optimised as one system.  Still need coordination between SCED and “off-market” GO and DSO markets.



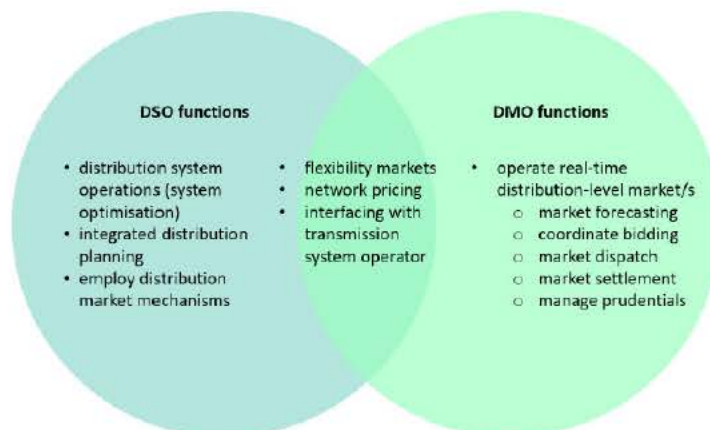
We believe consideration of the role of SCED vs DSO markets is particularly important (and equally for Transpower as Grid Owner). Further consideration of this area should include:

- How much do networks need to proactively manage constraints via GO/DSO funded 'forward' contracts/markets which incentivise DER investment over network planning timeframes of 5+ years, rather than hoping that once their networks are security constrained the real-time wholesale price will signal congestion and activate the required DER response for distribution network operations.
- We are already seeing this at the transmission level with USI and WBoP having no congestion price signal in SCED, but major works programmes being initiated by Transpower. It seems equally unlikely that a DSO would ever let a congestion price signal develop in SCED to guide/drive investment.
- What level of 'liquidity' is required for networks to 'rely' on markets to activate DER response, and does this impact the potential role of SCED at a distribution level vs transmission level.
- What is the role of 'invisible' response to market prices vs active market participation? One of the theoretical advantages of a SCED approach is the integration with the existing wholesale market vs an off-market DSO approach, however the Authority has not had any success with activating wholesale market participation to date.

One of the recommendations in the recent NEM review<sup>4</sup> was to not create distribution level wholesale energy markets, which would *'likely involve significant implementation costs and add complexity for participants engaging across multiple markets and regions, potentially having negative consequences for competition.'* We appreciate NZ already has nodal pricing vs zonal pricing in the NEM, and that extending nodal pricing may be more feasible in NZ. However, given the complexity, and the implications for the development of DSO markets and systems, we believe no decisions should be made on DSO models and roadmap actions until extending SCED is considered as part of the workstream.

#### Standardisation and neutrality

The Authority's issues and options paper has done an excellent job both introducing the required DSO functions and services, and exploring how the various DSO models could impact the allocation, delivery and coordination of those services. The diagram below from the current Australian government review into DSO models<sup>5</sup> also articulates the required functions well.



<sup>4</sup> <https://www.dcceew.gov.au/energy/markets/nem-wms-review>

<sup>5</sup> <https://consult.dcceew.gov.au/national-cer-roadmap-redefine-roles-m3-p5>

We agree with the split of DSO and DMO (Distribution Market Operator) functions, and note this is comparable to the Transpower split between GO (DSO) and SO (DMO) functions. We also agree with the approach taken in the UK where Ofgem has decided that distributors will be responsible for the DSO functions. Of the 3 core DSO functions in the diagram above:

- **Distribution System Operations:** Our understanding is the distributors who are responsible for real-time network operations and the performance of the network are best placed for this role.
- **Integrated distribution planning:** As the role of DSO markets increases, and if the distributor is the party responsible for using DSO markets to support the network, it will become even more essential for distribution planning to objectively assess network and non-network options. The consultation paper (5.16-5.18) introduces the role which Ofgem has handed to NESO (National Energy System Operator) to provide oversight and strategic direction to the distributors, to ensure a consistent and coordinated approach developing investment plans which are integrated with national system needs.
- **Employ distribution market mechanisms:** The diagram above makes an important distinction between the use of distribution market mechanisms (a core DSO / distributor function as the buyer of services) and the development and operation of the markets (a DMO function). The consultation paper (5.13-5.14) notes that there are many potential approaches / parties which could be responsible for the DMO functions. The DMO functions are the area we believe the Authority will need to focus its efforts to guide the development of efficient, neutral and standardised DSO markets in NZ, and we discuss the DMO function in more detail below.

A separate consideration is whether in a market the size of NZ, having 29 DSOs will lead to the most efficient outcomes. We note that many of the potential future challenges with having 29 DSOs (including market fragmentation and complexity for DSO market participants, duplication of investment in DSO market related systems across the industry, and Transpower coordinating with 29 DSOs) may be manageable by having a single or standardised DMO function.

### **Distribution Market Operator (DMO) functions**

The consultation paper (5.10-b) provides a helpful summary of the role of distribution markets:

*Value, incentivise, and procure energy, capacity, flexibility, and ancillary services from DER for the purpose of distribution network operation; embed simple, fair and transparent rules and processes for procuring distribution flexibility services; provide accurate, user-friendly and comprehensive market information*

As noted previously, many parties could undertake the DMO function. It does not need to be undertaken by the distributor, as highlighted below in comments in the Australian government consultation on DSO models:<sup>6</sup>

*DMO activities are a substantive function, and the capabilities and systems required are largely distinct from DSO activities and functions currently undertaken by DNSPs. If such a market were introduced an independent entity would likely be best placed to undertake DMO functions. The extent to which some or all DSO activities should be undertaken by this entity would need further consideration.*

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<sup>6</sup> <https://consult.dceew.gov.au/national-cer-roadmap-redefine-roles-m3-p5>

This is supported by comments from the ENA Future Networks Forum:<sup>7</sup>

- *Third-party platforms used for market operations as outsourced providers can offer better service, and there is no value to the DSO of the activity*
- *Ongoing reform is aimed at driving standardisation across DSO markets*

We believe there are two potential DMO platform approaches which are best suited to deliver transparent and neutral distribution flexibility markets:

- **Option 1:** All distributors use a centralised, standardised DMO platform which is built and managed by a third party. This approach avoids duplication of investment across distributors, and may best support Transpower and DSO market participants dealing with 29 distributors. This approach may be more necessary in NZ than other jurisdictions where there is a less fragmented distribution landscape.
- **Option 2:** Distributors are responsible for developing their own DMO platforms (internally or outsourced) based on common rules, standards and interfaces which are set by a neutral '*market facilitator*'. The consultation paper (6.14) notes that this is the initial path taken by Ofgem in the UK, with Elexon responsible for this role. Our understanding is that each of the 6 distributors in the UK are themselves larger than the combined size of 29 NZ distributors, and hence this option may be less economic and practical in a market like NZ with many smaller distributors.

### Distribution Market Operator (DMO) platforms

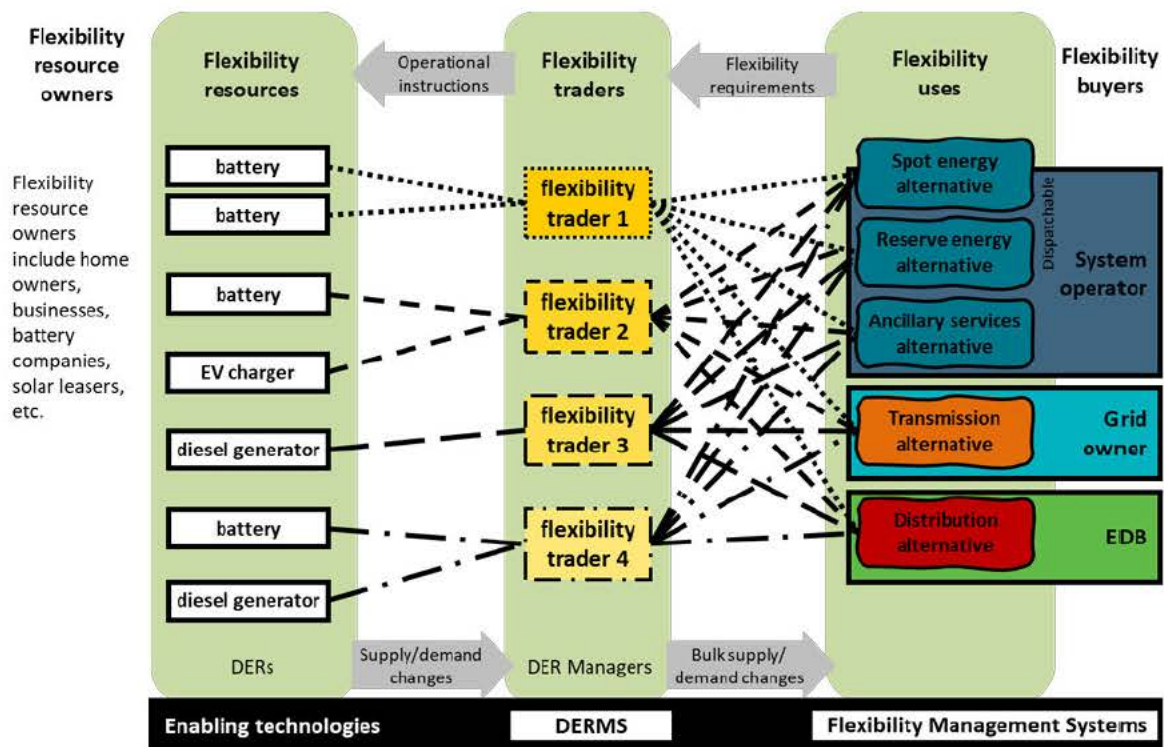
As mentioned at the start of our submission, we think it is essential that the Authority proactively guide the development of DSO roles, as distributors are already making significant investment into their own DSO/DMO platforms, and we expect distributor investment into this area will grow strongly. We believe the diagram below<sup>8</sup> from the Authority's previous Innovation and Participation Advisory Group (IPAG) is a helpful lens from which to consider the role of neutral DMO systems/platforms. In the diagram below:

- **Distributor / DSO:** Is represented by the green EDB box. It is a flexibility buyer.
- **Flexibility management system:** This is the neutral DMO platform. As discussed above, it could be a centralised platform used by all 29 distributors, or up to 29 individual standardised platforms.
- **DERMS:** Is the platform used by retailers and flexibility traders to aggregate the control of individual DERs, to facilitate participation in flexibility markets. This is a competitive marketplace. The consultation paper notes that '*distributors that take on the role of DSO could have interests that are misaligned if they are also involved in owning and managing DER*' (7.7), and also notes that in the UK, '*distributors that are involved in flexibility services must ring-fence these activities, to alleviate concerns about misalignment of interest*' (6.14). Alternative approaches to ringfencing distributor flexibility activities include either separating traditional distributor functions and DSO functions or appointing an independent DSO (iDSO). However, our understanding is that separating distributor real-time network management and DSO functions is far less practical than ringfencing any distributor flexibility activities and hence has not been preferred by regulators to date.

<sup>7</sup> <https://www.ena.org.nz/our-work/publications/document/1544>

<sup>8</sup> [https://www.ea.govt.nz/documents/527/IPAG\\_review\\_of\\_the\\_Transpower\\_demand\\_response\\_programme.pdf](https://www.ea.govt.nz/documents/527/IPAG_review_of_the_Transpower_demand_response_programme.pdf)





The diagram above, and the need to separate distributor flexibility activities in the “DERMS” area of the diagram from distributor DSO functions, highlights the importance of the Authority reviewing existing distributor activities as part of its assessment of potential DSO models. Currently some distributors are investing in (or contracting) DERMS systems which, on our understanding, are directly controlling DER devices as part of optimised network operations. This approach may be limiting the development of competitive DSO markets, and may be inconsistent with a neutral and standardised DSO/DMO approach.

The Authority (through IPAG) has previously reviewed the role of the Transpower DR program<sup>9</sup>, and more recently published draft “Guidance on distributor involvement in the flexibility services market”.<sup>10</sup> To ensure and promote a competitive landscape for flexibility services, we would like to see those guidelines finalised, which will support this workstream by providing clear operational guidance and a framework on the roles of DSO’s in managing flexibility resources and any operations in the DERMS space.

## Summary

Flexibility services can deliver significant benefits for consumers, networks, and the wider electricity system. We support the Authority proactively working to implement market settings which guide DSO related investment across all sectors of the industry, and we are happy to contribute further to the Authority’s reviews into extending SCED and DSO models.

Please contact [redacted] or [redacted] if you wish to discuss further.

<sup>9</sup> [https://www.ea.govt.nz/documents/527/IPAG\\_review\\_of\\_the\\_Transpower\\_demand\\_response\\_programme.pdf](https://www.ea.govt.nz/documents/527/IPAG_review_of_the_Transpower_demand_response_programme.pdf)

<sup>10</sup> [https://www.ea.govt.nz/documents/5009/Distributor\\_involvement\\_in\\_the\\_flexibility\\_services\\_market\\_-\\_draft\\_guidance.pdf](https://www.ea.govt.nz/documents/5009/Distributor_involvement_in_the_flexibility_services_market_-_draft_guidance.pdf)



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