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Electricity Authority | Te Mana Hiko

By email to OperationsConsult@ea.govt.nz

Tēnā koutou

SUBMISSION ON WHOLESALE MARKET ARRANGEMENTS FOR BATTERY ENERGY STORAGE SYSTEMS – ISSUES AND OPTIONS

Unison Networks Limited (**Unison**) is an electricity distribution business operating in Hawke's Bay, Taupō, and Rotorua. Centralines Limited (**Centralines**) operates in Central Hawke's Bay. As consumer-owned organisations, our focus is on delivering safe, reliable, and affordable electricity to our communities.

Introduction

Unison and Centralines appreciate the opportunity to comment on the Electricity Authority's Wholesale market arrangements for battery energy storage systems (**BESS**) issues and options paper. We support the Authority's objective of ensuring the wholesale market and system operation arrangements can efficiently integrate emerging storage technologies, while maintaining system security and ensuring a level playing field across all participants.
We also note the importance of ensuring that any changes to BESS market arrangements remain adaptable to future decisions about system operation models. It is important to maintain flexibility and avoid making choices now that could limit options for how Distribution System Operator (**DSO**) roles are defined in the future.

As consumer-owned entities, we operate in the best interests of the communities we serve. Guided by our vision, and values, we strive to deliver economic benefits to both our customers and community shareholders, while championing a sustainable energy future. We are committed to maintaining the right balance between keeping electricity affordable and making strategic investments that secure the long-term reliability and resilience of our network. In all aspects of our operations, we place strong emphasis on meeting industry compliance requirements, ensuring we uphold all relevant standards. This approach not only supports New Zealand's transition to new energy solutions but also enables our communities to access cleaner, smarter, and more flexible energy options, now and for generations to come.

1. Overview and support for the direction of the proposals

Unison and Centralines support the Authority's direction of travel. The proposed changes, particularly clearer scheduling and dispatch rules, the move toward bi-directional single-entity offers, and the introduction of explicit state-of-charge (**SoC**) constraints, represent a necessary modernisation of the wholesale market. These arrangements reduce uncertainty for investors,

help unlock BESS participation in all relevant wholesale-market services, and strengthen price signals.
We support efficient wholesale integration of BESS while ensuring arrangements remain compatible with distribution level operation models and the increasing use of contracted flexibility for local network support.
We agree that aligning market arrangements with the physical and operational characteristics of BESS will encourage greater deployment of storage on both transmission and distribution networks. The proposals strike a sound balance between enabling revenue opportunities for BESS owners and upholding system security through sensible gate-closure and operational constraints.

2. How the proposals support increased BESS deployment

2.1 Reducing investment and operational uncertainty

The proposed bi-directional single-entity offer model allows a BESS to be treated consistently in the wholesale market, resolving ambiguity around simultaneous charge/discharge bids and the associated compliance risks. Coupled with SoC-aware scheduling, investors gain confidence that the market will dispatch storage in a predictable and physically feasible manner.

This reduction in regulatory uncertainty lowers financing costs and shortens payback periods. Investors, including community-owned entities such as ours, are more likely to deploy BESS where future revenue streams are clearer and market rules are stable.

2.2 Unlocking all value streams

By improving scheduling, dispatch, and settlement arrangements, BESS will be better able to access the full suite of wholesale market services, energy arbitrage, reserves, frequency management, and fast-response capabilities. This improves utilisation and expands the set of commercially viable deployment locations, including distribution-connected sites that support local network security and capacity.

2.3 Improving price efficiency and reducing wholesale costs

More storage capacity participating in the wholesale market provides multiple benefits to consumers:

- Peak price reduction: BESS can discharge into high-price periods, reducing peak wholesale prices.
- Improved capacity adequacy: Storage mitigates scarcity pricing by injecting energy when thermal and hydro supply is tight.
- More efficient balancing: Faster frequency response reduces the need for high-cost reserves.
- Better integration of renewables: BESS smooths variable generation, reducing curtailment and lowering long-term system costs.

For consumers across Hawke’s Bay and the Central North Island, these impacts translate into lower wholesale price volatility, lower average spot prices, and ultimately lower retail bills over time.

3. Comparison with Australian and UK market developments

Unison and Centralines observe that both Australia and the UK have, in recent years, undertaken significant reforms to integrate storage technologies. These markets provide useful reference points for New Zealand:

3.1 Australia (NEM/WEM)

Australia's Integrating Energy Storage Systems (**IESS**) reforms provide a formal registration and dispatch framework for bi-directional units. The Australian Energy Market Operator (**AEMO**) has implemented:

- bid-validation tools
- SoC-aware constraints
- clear registration categories for storage and hybrid units
- transitional "hyper-care" periods
- alignment of settlement with actual BESS operating modes

This structured approach has enabled substantial battery deployment while maintaining system security. NZ's proposals are similar in intent and could benefit from Australia's experience in implementation planning, particularly around system-operator tooling and participant transition support.

3.2 United Kingdom

The UK's progress has been driven by ancillary-service procurement and product design. Early services such as Enhanced Frequency Response (**EFR**) and Firm Frequency Response (**FFR**) created bankable revenue streams that accelerated commercial investment. Grid Code amendments (e.g., GC0096) then standardised storage capability requirements across the system.

The UK's key lesson is that targeted service procurement can rapidly stimulate early investment and ensure that storage is deployed where it delivers the most value to the power system.

4. Recommendations for strengthening the EA's proposals

Unison and Centralines support the Authority's intent and proposals' focus, but suggest the following refinements based on local and international experience:

4.1 System Operator Transition and Capability Uplift

We recommend including explicit tooling for recognising distributor flagged constraints and SoC-aware coordination when a unit is contracted for network support, ensuring dispatch instructions do not override local reliability needs.

4.2 Reinforce the goal of a level playing field between grid-connected and distribution-connected BESS

We support harmonised gate-closure arrangements and recommend the framework acknowledge the current >10 MW focus while preparing for aggregate visibility of smaller embedded BESS/Distributed Energy Resources (**DER**) portfolios through telemetry standards and data sharing protocols.

4.3 Consider targeted ancillary-service procurement to accelerate early deployment (learning from the UK)

While the EA's proposals correctly focus on removing market barriers, early deployment may benefit from the introduction of clearly defined, modern fast-response products. UK-style procurement for high-value services (e.g., sub-second frequency response) could accelerate participation by BESS providers, deliver rapid operational learning and visibility on technology capabilities, and help mobilise early investment in fast-response assets, provided such procurements are designed with non-discrimination, proportionality, and measures to limit market concentration and ensure coordination with distribution network reliability needs.

4.4 Ensure visibility and coordination for distribution-connected storage

As more BESS connect to distribution networks, operational visibility and coordination will become important. We encourage the EA and System Operator (**SO**) to consider future Code work on telemetry and data standards for distribution-connected DER that may respond to wholesale dispatch instructions.

4.5 Priority of network support commitments and wholesale dispatch coordination

As distribution businesses increasingly engage firm, location specific flexibility (including contracted BESS) to manage local network constraints, we recommend the Authority codify a simple priority and coordination framework to ensure wholesale dispatch does not compromise network support commitments.

Specifically:

- Where a BESS is under a network support contract to address a local constraint, its primary purpose should be recognised in wholesale scheduling; the SO should honour a distributor provided constraint flag or "network support" status for that unit/period.
- Distributors will provide short term GXP net demand forecasts (positive/negative) to the SO, enabling secure, efficient wholesale scheduling while respecting local constraints.
- These arrangements should be designed to remain fully compatible with the Authority's 24 June 2025 "The future operation of NZ's power system" direction (with a preference for hybrid option 2) so decisions here do not inadvertently pre-empt distribution operation models.
- The proposal should align with ENA's developed Common Regulatory Position (**CRP**) workstream positions on sharing control of load (CRP6002), to avoid inadvertently codifying SO roles that would adversely impact on EDB emergency management tools.

5. Conclusion

Unison and Centralines support the Authority's proposals as a balanced and forward-looking step toward fully integrating BESS into the wholesale market. The changes will promote efficient investment, enhance competition, and help reduce system costs for consumers, particularly by lowering peak prices and improving renewable integration.

We also support simple coordination principles so that wholesale dispatch respects contracted network support commitments, aided by distributor provided short-term GXP net demand forecasts.

By adopting practical learnings from Australia and the UK, particularly around transition planning, system-operator capability, service design, and equitable treatment across connection types, the EA can further strengthen the framework and accelerate the deployment of storage in New Zealand.
We ask the Authority to ensure this work aligns with its “The future operation of NZ’s power system” consultation and the ENA’s CRP workstream to avoid inadvertently codifying SO roles that would constrain distribution operation models or EDB emergency management tools.

We welcome ongoing engagement with the Authority as this work progresses.

Nā māua noa, nā

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