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Electricity Authority Te Mana Hiko
By email to fsr@ea.govt.nz

Tēnā koutou

SUBMISSION ON BATTERY ENERGY STORAGE SYSTEMS

Unison Networks Limited (Unison) is an electricity distribution company serving Hawke's Bay, Taupō, and Rotorua. Centralines Limited (Centralines) operates as a distributor in Central Hawke's Bay. We welcome the opportunity to provide feedback on the Regulatory Roadmap for Battery Energy Storage Systems (BESS). As stakeholders in the energy sector, we acknowledge the significant contribution BESS will make toward achieving a low-carbon future. Battery energy storage systems have the capacity to strengthen energy security, enable the integration of renewable energy sources, and promote grid stability. However, the effective implementation of BESS in New Zealand will depend on the development of a robust and balanced regulatory framework.

This submission outlines our key points of support, concern, and recommendations for improvement regarding the proposed regulatory roadmap.

1. Key Points of Support

1.1 Alignment with Clean Energy Goals:
The roadmap is consistent with New Zealand's clean energy objectives and its focus on reducing greenhouse gas emissions. Battery Energy Storage Systems are relevant to achieving the government's targets for renewable energy and a net-zero carbon future by 2050.

1.2 Promoting Innovation and Competition:
The roadmap seeks to boost competition in BESS technology by encouraging innovation and lowering entry barriers, allowing both local and international developers to support sector growth.

1.3 Support for Grid Stability and Flexibility:
The roadmap correctly underscores the pivotal role of BESS in enhancing grid flexibility. Successful integration of storage solutions facilitates better management of demand variability, reduces reliance on fossil fuels, and provides reliable backup power during outages.

2. Concerns and Areas for Improvement

2.1 Regulatory Uncertainty and Policy Coordination:

While the roadmap addresses the need for regulatory clarity, we are concerned about the lack of detailed guidance on how local, regional, and national policies will align. Regulatory uncertainty can delay investment in BESS projects. We recommend that the government outlines a clear timeline for harmonising various policy initiatives and sets specific milestones for regulatory reform. Additionally, it is crucial to establish clear transmission charging mechanisms that reflect the direction and flow of energy, ensuring that costs are equitably distributed among all stakeholders.

2.2 Standardisation and Safety Requirements:

The draft roadmap mentions safety considerations but lacks comprehensive detail on specific standards that will be enforced. It is important that New Zealand adopts internationally recognised safety standards for BESS installations, particularly as the technology evolves. Clear and transparent safety guidelines will help mitigate risks and encourage industry confidence. Furthermore, standardisation in transmission charging practices will ensure consistency and fairness across the distribution network.

2.3 Integration with Other Systems:

A key concern is the integration of BESS with existing energy infrastructure, particularly the role of storage in balancing variable renewable energy sources like wind and solar. We recommend a more detailed analysis of how BESS can interface with demand-side management, smart grids, and electric vehicle charging systems. It is also essential to consider the direction of energy flow and the impact of transmission charges on the overall efficiency and cost-effectiveness of these integrations.

2.4 Modernisation Requirements:

While BESS will play a critical role in enhancing grid resilience, it is essential that the roadmap also underscores the need for concurrent investment in modernising New Zealand's electricity grid. Upgrading infrastructure will be vital to support the large-scale deployment of battery storage systems and to facilitate their seamless integration into the grid. Additionally, there may be significant implications for transmission charging frameworks, which should be evaluated and adjusted to reflect the evolving energy landscape and changes in energy flow.

2.5 Data Access and Low Voltage (LV) Network Visibility:

We recognise the Authority's continued efforts to enhance access to half-hourly data and improve visibility of the LV network, and we endorse the inclusion of these initiatives in the regulatory roadmap. Such measures are vital for facilitating the efficient and scalable deployment of Battery Energy Storage Systems (BESS), particularly across residential and commercial sectors.

At present, BESS deployment faces challenges due to insufficient access to granular, real-time consumption and export data and limited insight into local network conditions, such as voltage variations and capacity constraints. This lack of transparency introduces uncertainty for investors, aggregators, and consumers, restricting the ability of BESS systems to respond effectively to market signals or network demands.

Enhanced LV visibility is increasingly important as more consumers install behind-the-meter BESS alongside rooftop solar systems. Without reliable data and clear signals from the LV network, BESS owners and operators are unable to make informed decisions regarding charging, discharging, or participation in services such as flexibility markets and Virtual Power Plants (VPPs).

3. Recommendations for Consideration

3.1 Hybrid Plants and Idle-State Regulation

We suggest clarifying how hybrid generation plus BESS plants are treated under the Code, especially in "idle" scenarios where one part is inactive, but the battery can still respond to market signals. Current frameworks may not fully address the unique operations of hybrids, particularly around forecasting, dispatch, and visibility during partial activity. We recommend referencing Australia's IRP framework, which uses a single registration for hybrid assets, requires ongoing forecasting and bidding even when idle, and ensures consistent integration of all components.

3.2 Behind-the-Meter (BTM) Storage Integration

Greater emphasis on BTM BESS visibility, control standards, and coordination mechanisms may help address potential curtailment or congestion issues. In Australia, regulatory challenges have arisen regarding export constraints and collaboration with network operators in this area.

3.3 Locational Signals and Congestion Risk Management

The Authority may wish to evaluate dynamic or locational pricing mechanisms (such as flexible nodal pricing and congestion forecasting tools) as possible methods to support BESS development. In other regions, storage that is not optimally sited has resulted in congestion hotspots and less efficient grid utilisation. New Zealand could experience comparable challenges if connection signals do not direct investment appropriately.

3.4 Distribution-Level Flexibility Market Development

The Authority could consider fast-track trials or regulatory sandboxes for local flexibility markets, potentially in collaboration with Our Energy, Powerco, Vector, and the Unison LocalFlex project. The current roadmap references the local flexibility market but provides limited detail and may benefit from additional clarification.

3.5 Community Batteries

The Authority should clarify the role of community-scale BESS in the roadmap, as they offer access to energy storage for households unable to install their own systems due to cost or other barriers.

Trials in Australia show community batteries effectively store excess solar energy, reduce network congestion, and manage peak demand, benefiting consumers and the electricity system when coordinated with retailers or networks.

With decentralisation as a focus, community batteries support the transition toward a more distributed, efficient, and resilient electricity network, bridging the gap between large grid storage and individual household BESS.

3.6 Develop a BESS Certification Programme:

To ensure safety and quality, we recommend that the government create a certification programme for BESS manufacturers and installers. This programme could help standardise performance criteria, warranty conditions, and safety protocols, enhancing confidence in the market. Furthermore, it is essential to implement transparent transmission charging frameworks that accurately account for energy flow and direction, thereby promoting an equitable allocation of costs among all stakeholders.

3.7 Incorporate Stakeholder Consultation Mechanisms:

Regular consultation with industry stakeholders ranging from BESS manufacturers to the grid operator and end users is vital to ensure the regulatory framework remains responsive to the sector's evolving needs. We recommend that ongoing consultation processes are built into the roadmap, ensuring that emerging issues are addressed proactively.

3.8 Explore Virtual Power Plant (VPP) Frameworks:

As BESS technology enables new opportunities for demand response and aggregation, we suggest that the roadmap explore the regulatory framework around VPPs. VPPs could enhance grid efficiency by pooling small-scale BESS systems to provide ancillary services and contribute to grid stability. It is important to consider the direction of energy flow and the impact of transmission charges on the overall efficiency and cost-effectiveness of these integrations.

3.9 Long-Term Vision for Recycling and Disposal

As battery storage technology matures, it is vital to consider the long-term environmental impact of decommissioning and recycling battery systems. We recommend the roadmap address sustainable battery disposal and recycling, so BESS benefits are not undermined by waste issues.

3.10 Aligning BESS ownership with the Public Interest

Allowing EDBs to own and operate BESS is consistent with the public interest from both consumer and broader system viewpoints. BESS represents an advanced, non-traditional network solution that supports the transition to modernised distribution networks. When managed by EDBs, BESS assets can be strategically integrated into the core regulated business, maintaining distinct cost

and revenue streams without the necessity for full ring-fencing. This framework facilitates targeted storage utilisation to optimise grid performance, enhance reliability, defer capital-intensive network upgrades, and support renewable energy integration.

As regulated entities, EDBs are positioned to prioritise long-term consumer outcomes and overall system efficiency above short-term commercial objectives. EDB mandates include comprehensive cybersecurity risk management, which is increasingly vital given the convergence of operational technology (OT) and information technology (IT) within energy networks. EDBs are subject to regulatory oversight and compliance obligations that ensure the secure and resilient operation of critical infrastructure standards that may not apply equally to unregulated third-party operators.

Permitting EDBs to participate in BESS ownership supports effective economic regulation while fostering innovation in storage deployment and does not preclude participation by competitive market providers. EDB-led solutions can coexist with market-driven investments, especially where BESS functions as a network asset rather than a trading resource. Such flexibility enables EDBs to manage network segments dynamically, strengthen resilience, and promote the equitable distribution of value generated through BESS operations via regulated pricing mechanisms.

4. Conclusion

We commend the Electricity Authority for its proactive development of a regulatory roadmap for BESS, a critical enabler of New Zealand's energy transition and decarbonisation objectives. The roadmap appropriately highlights the transformative potential of BESS in strengthening grid resilience, integrating variable renewables, and empowering consumer participation

To fully unlock these benefits, we recommend the Authority consider strengthening the roadmap in the following areas

4.1 Regulatory clarity and coordination: A coherent, nationally aligned regulatory framework coordinated regulatory agencies is essential to reduce investment uncertainty, streamline consenting, and accelerate the rollout of BESS. Greater clarity around roles, responsibilities, and allowable ownership models will support investor and stakeholder confidence.

4.2 Safety and standardisation: Establishing a robust BESS safety framework, including adoption of international best-practice standards and a certification regime, will ensure safe deployment across varied applications. Clear guidance will help build industry capability and consistency, especially as storage technologies continue to evolve.

4.3 Data access and LV network visibility: Access to high-resolution, location-specific network data is essential for optimising BESS performance and facilitating participation in emerging flexibility and demand response markets. Improved LV visibility will enable both EDBs and third parties to better target and integrate storage solutions.

4.4 Integration and modernisation: BESS should be viewed as part of a broader modernisation of distribution networks. Its effective integration with smart grid technologies, EV infrastructure, and distributed energy resources requires concurrent investment in grid upgrades, appropriate cost-allocation mechanisms, and fair transmission pricing to avoid cross-subsidisation and promote efficient outcomes.

4.5 Equity and innovation: To ensure the benefits of storage are equitably distributed, BESS should be permitted as a regulated asset that can be owned and operated by EDBs. As regulated entities, EDBs are obligated to act in the long-term interests of consumers and are uniquely positioned to deploy BESS in a system-wide, coordinated manner. This supports grid optimisation, defers capital upgrades, enhances reliability, and ensures value is shared across all consumers not just those able to invest privately. While innovation through community-scale batteries, behind-the-meter systems, and regulatory sandboxes remains important, enabling EDB ownership provides the foundational infrastructure and public value necessary to support a modern, resilient, and inclusive electricity system. We also emphasise the importance of ongoing stakeholder engagement and cross-agency collaboration particularly with MBIE and the Commerce Commission to ensure the regulatory framework remains adaptive, inclusive, and future-ready.

Unison and Centralines remain committed to supporting the Authority in shaping a robust and forward-looking regulatory environment for BESS. We welcome further engagement and are available to participate in future consultations or working groups.

This submission does not contain any confidential information, and we recognise that it will be made public. Should you require additional details, including those related to operational requirements, please feel free to contact us.

Nā māua noa, nā

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