31 July 2025

Future Security and Resilience Team
Electricity Authority
Attention: fsr@ea.govt.nz

**BESS Roadmap Feedback**
**Re: Enabling Hybrid Renewable Energy Systems in the New Zealand Electricity Market**

Thank you for the opportunity to provide feedback on the regulatory roadmap for battery energy storage systems (BESS). We broadly support the proposed BESS roadmap and strongly encourage the Authority to implement changes to facilitate increased BESS participation in the market as quickly as possible.

Lightsource bp is a global leader in the development and management of solar energy and BESS infrastructure, active across 19 markets (including Australia and New Zealand) and has successfully developed over 11.5 gigawatts of utility scale solar projects and 1.3 gigawatt hours of BESS capacity across the world. In 2022, Lightsource bp entered a 50/50 joint venture with Contact Energy to develop multiple solar farm projects in various locations across New Zealand, including the 168MWp Kowhai Park Solar Farm under construction in Christchurch. We see significant potential to contribute to New Zealand's energy transition through the co-location of BESS and solar at a single connection point (a "hybrid project").

In Australia, following recent rule changes, hybrid projects are now being developed at pace to deliver firmed renewables, meeting the flexibility and reliability needs of the market. Lightsource bp has commenced construction of the Goulburn River Solar Farm in New South Wales which will incorporate 585MWp of solar capacity with a 49MW/562MWh DC-coupled BESS. The company also has various other hybrid projects under development with hybrids expected to be become the predominant form of future projects.

As outlined in the Electricity Authority's Battery energy storage systems roadmap (the "Roadmap"), under the current New Zealand market framework, there are material regulatory and operational barriers to operating hybrid projects, particularly DC-coupled systems. We believe that addressing these barriers should be a priority for the Electricity Authority as part of efforts to facilitate greater renewable investment and improve system flexibility.

**The Benefits of Hybrid Systems**

Hybrid projects offer multiple advantages that are increasingly critical to the performance, resilience, and efficiency of modern power systems:

- Accelerated Renewable Build-Out: Co-locating storage with generation can significantly improve project economics, reduce curtailment, and allow better utilisation of limited grid capacity, enabling faster deployment of renewables without requiring extensive network upgrades or additional environmental permitting.
- Grid Flexibility and Reliability: Batteries co-located with solar can shift abundant daytime energy to peak demand periods, provide firm capacity, and deliver ancillary services - contributing to system reliability as renewable penetration increases.

- Cost Efficiency: Hybrid systems, especially DC-coupled configurations, benefit from shared infrastructure (e.g. inverters, grid connections, land, and balance of plant) and improved loss efficiency, lowering overall system costs and increasing the attractiveness of investment.

**Progress in Australia: A Model for Reform**

Until recently, Australia's National Electricity Market (NEM) also faced regulatory challenges in enabling hybrid systems, particularly with regard to how co-located assets were registered and dispatched within the NEM. These challenges constrained the development of DC-coupled and tightly integrated systems.

Following extensive industry and stakeholder consultation across 2020 and 2021, the Australian Energy Market Operator (AEMO) and the Australian Energy Market Commission (AEMC) announced a rule change determination in December 2021: "National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021" (referred to as "IESS Rule")[1].

The IESS Rule came into effect in June 2024, to remove barriers to market entry for storage and hybrid systems and to explicitly facilitate better integration of hybrid projects into the NEM. A key outcome of the IESS Rule was the creation of a new participant category: the Integrated Resource Provider (IRP). This category:

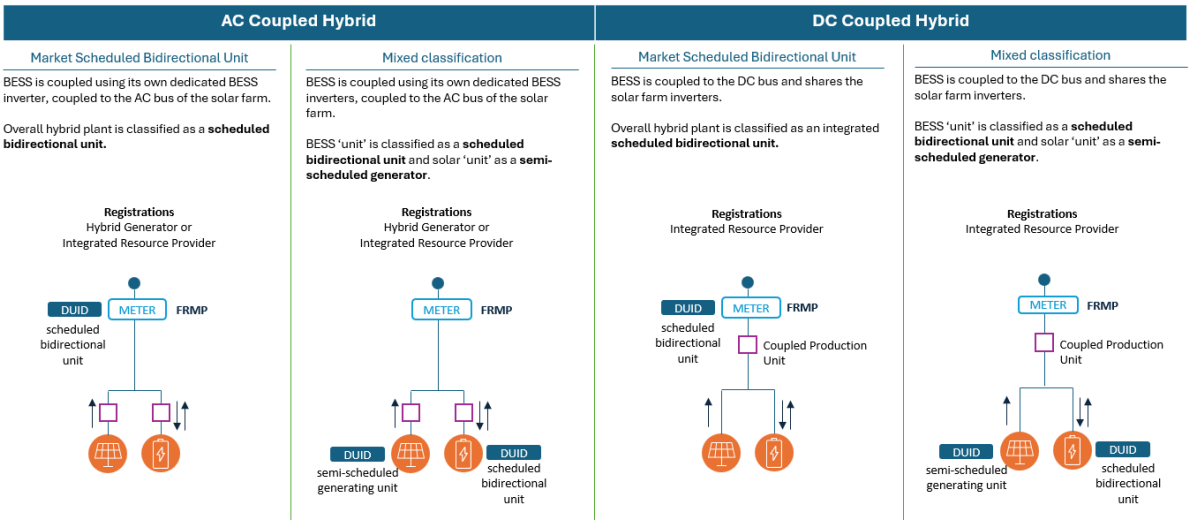
- Allows hybrid facilities to participate in the market under a single registration category,
- Reduces metering complexity, and
- Supports streamlined dispatch and settlement processes.

Within the NEM, hybrid systems that are now registered as an IRP or Hybrid Generator, have the option to choose between classifying the solar and BESS 'units' individually, i.e. the solar would be a "semi-scheduled generating unit" and the BESS a "scheduled bidirectional unit"; or placing both 'units' under the same classification, i.e. both solar and BESS (as a coupled production unit) are considered a "scheduled bidirectional unit"[2]. The introduction of the different classification options allows greater flexibility for the project's hybrid configuration, energy offtake product offerings, provision of ancillary services, and dispatch bidding strategy.

The classification options for each hybrid coupling type are as follows:

[1] https://www.aemc.gov.au/rule-changes/integrating-energy-storage-systems-nem

[2] https://aemo.com.au/-/media/files/electricity/nem/participant_information/registration/2024/registration-fact-sheet-nem-hybrid-systems.pdf?la=en




Having this flexibility to classify projects either under a single DUID or separate DUIDs, supports the strategic development of assets, allowing for independent operation of the BESS from the solar generation, and different trading strategies to be applied for each asset or 'unit'.

Since the initial announcement of the proposed IESS Rule change in 2021, and the implementation of the rule change in June 2024, there has been a notable increase in the number of standalone BESS, solar and BESS hybrids, and retro-fit BESS projects registered within the NEM. In the 30 April 2025 media release, AEMO stated[3]:

> *"New generation and storage projects in the final commissioning stage have grown year-on-year from 1.5 gigawatts (GW) as at the March quarter last year to 7 GW in 2025, highlighting investment momentum in renewables and firming technologies in the National Electricity Market (NEM)."*
>
> *"By technology type over the same period, standalone batteries have increased from 11 GW to 20.5 GW, [and] hybrid solar and battery projects have increased from 4.5 GW to 5.6 GW…".*
>
> *"Along with the growing diversity of projects connecting to the grid, there are also an increasing number of applications for alterations to a generating system being made, including adding batteries, firmware updates, like-for-like replacements and plant alterations.*
>
> *Of the 10 alterations in registration, seven are battery additions, making up an additional 480 MW of added storage capacity."*

As a result of the implementation of the IESS Rule change, there has been rapid growth within Australia's energy storage pipeline (including hybrid, standalone, and retrofit BESS projects), with clear market signals being sent to investors and investors responding accordingly.

*Furthermore, the way network charges are applied to BESS in Australia has also been carefully considered to enable and not disincentivise BESS development by recognising that while they have both load and generation characteristics, they provided significant benefits to the system.*

[3] https://aemo.com.au/newsroom/media-release/large-increase-in-energy-projects-approaching-commissioning

**Investment Interest and Need for Reform**

Lightsource bp is actively exploring opportunities to invest in New Zealand, given the strong policy signals around renewable energy, growing demand for flexible capacity, and alignment with broader decarbonisation goals. We understand that there is broader industry interest in hybrid projects in New Zealand.

However, the lack of a fit-for-purpose regulatory framework for hybrid systems presents a key constraint. As developers, we require clarity and confidence that we can design, register, and operate hybrid assets efficiently within the market. Without these changes, investment is likely to be delayed or diverted to other jurisdictions with more enabling policy settings.

**Recommended Next Steps**

We strongly encourage the Electricity Authority to prioritise market development work on hybrid systems, with a view to:

- Aligning dispatch, metering, and settlement processes to allow for co-located solar and storage to operate efficiently under a single connection;
- Drawing on recent Australian experience (including the IRP model) to inform the design of appropriate rule changes and application of network charges;
- Enabling hybrid technology that exists today and is being deployed now throughout the world;
- Engaging with industry stakeholders - both domestic and international - to identify workable solutions and support rapid implementation.
- Considering implementation of interim arrangements if rule changes take time to come into effect.

We would welcome the opportunity to contribute to this process and share our technical, commercial, and regulatory experience in hybrid system development. The rapid evolution of energy technologies makes this an opportune moment for New Zealand to establish itself as a leader in lowest cost, reliable, flexible, and integrated renewable infrastructure.

We commend the Electricity Authority for its proactive approach to market design, and we look forward to further engagement on this topic.