

**19 December 2025**

Electricity Authority  
By e-mail: OperationsConsult@ea.govt.nz

**Re: Wholesale market arrangements for battery energy storage systems**

Dear Electricity Authority,

Lodestone Energy appreciates the opportunity to provide feedback on the EA's consultation on the **Wholesale market arrangements for battery storage systems, issues and options paper**. This letter forms the entirety of our submission and includes both our position and supporting technical commentary.

Lodestone Energy was founded in 2019 with the mission to "harness the sun's energy to power Aotearoa's zero carbon future". We currently operate four solar farms in Kaitia, Edgumbe, Whitianga and Waiotaha with another under construction at Clendebay. In addition, we have a pipeline to deliver another nine sites over the next few years. Our experience as an early mover gives us practical insights from an independent into the operations and complexity of the wholesale market.

**Executive Summary**

Lodestone Energy views the proposed options as a step in the right direction. As a relatively small independent generator and retailer we believe any changes to the wholesale market rules should be thoroughly examined to ensure they do not inadvertently advantage incumbents with deep wholesale trading teams and sophisticated bidding systems.

We support bidirectional offers and SoC-aware scheduling - but with light touch compliance. It's important that overly complex telemetry or forecasting obligations don't disproportionately burden smaller entrants. For many use cases, including solar firming and customer risk management, BESS is intended to operate on a predictable, pre-declared schedule rather than through continuous price-responsive optimisation, and market design should accommodate this.

We note the Electricity Authority is not proposing to shorten gate closure. We understand the reasons for the Authority's position but maintain our support for shorter gate closure in the short-medium term. We see BESS as a driver of future efficiency and a supporter of the system and believe that the benefits of shorter gate closure are potentially under-stated. Risks to the system from shorter gate closure are also potentially over-stated. We acknowledge that additional work in this area is required to give all stakeholders re-assurance in the event of any changes.

We support open participation in reserve markets. Reserves are a key revenue stream for BESS and competition is currently limited.

Finally, we also support transparent and proportionate System Operator intervention powers. These should support system security but avoid giving the SO carte blanche to override market outcomes particularly where participants have submitted clear and compliant bids and offers.

## 1 Response to Consultation Questions

Question	Comments
Q1. Do you agree we have sufficiently identified the unique characteristics of BESS to assist in developing appropriate arrangements?	Yes. As a comment, we note that overseas four hour systems are starting to become more common, so any proposed changes implemented now shouldn't preclude the fact that the "normal" level of BESS storage will likely increase over time.
Q2. Do you have any views on how BESSs should be defined in the Code?	<p>Yes, our view is that large scale BESS is similar in nature to generation for the purpose of the wholesale market and should be treated as a single entity that can both consume and produce energy.</p> <p>We agree that the highly flexible nature of BESS's should be considered when designing appropriate wholesale market systems and support initiatives that allow BESS's to explore additional revenue streams from ancillary services.</p>
Q3. Do you agree that BESS can deliver the benefits described? Are there any other benefits that will assist us in assessing the size of benefits of different arrangements?	Yes - In addition to the benefits described, BESS materially improves wholesale price formation by increasing supply during scarcity periods, reducing reliance on 'quick thermal', and lowering the duration and severity of extreme price outcomes. These effects benefit all consumers and improve investment signals for new renewable generation.
Q4. Do you agree with our description of how BESSs are likely to operate and how this will change over time? If not, why?	Yes
Q5. Do you have any other insights about potential BESS operation that will help with assessing the benefits of our options?	No
<b><i>Dispatch requirements for BESS when charging</i></b>	
Q6. Do you agree with the way we have framed the issues?	Yes
Q7. Do you agree with the Authority's preferred option? If not, what are alternative options that would better address the issues? Are there any particular risks with our preferred option that you would like to identify?	Partially. We support BESS submitting fixed-volume bids and offers that reflect a clearly defined charging and discharging schedule where this aligns with the intended use case. However, we do not support arrangements that enable routine or discretionary System Operator intervention to alter battery operation. Dispatch outcomes should follow submitted bids and offers, with intervention

	limited to genuinely exceptional system security events.
<b>Bids and offers forms for BESS</b>	
Q8. Do you agree with how we have framed the issues?	Yes
Q9. Do you agree with our preferred options? If not what other options would better address the issues identified?	Yes. The preferred options appropriately support bid-based participation by BESS without requiring continuous optimisation or complex operational intervention.
Q10. Do you think further restrictions to BESS participation in MFK under the current arrangements would have any effect on their participation?	<p>Yes. Due to the bidirectional nature of a BESS and fast power electronic controls a BESS is an ideal and technologically superior frequency controller to existing synchronous generation. This has been observed in other markets such as the Australian NEM. Once BESS's were allowed to participate in the FCAS market there they quickly cornered it.</p> <p>BESS's in NZ should not be restricted from participating in the MFK service. In addition, it is also helpful to make sure that the financial incentives for this service are proportionate to the benefit that they provide to the system.</p>
<b>Balancing flexible trading with security needs</b>	
Q11. Do you agree the issues identified by the Authority are worthy of attention? If so, do you agree with our framing?	<p>Yes. We generally agree with your framing. However, there is a risk that current assessments place disproportionate weight on security risks that are easier to model and attribute, while under-valuing market efficiency and flexibility benefits that emerge endogenously as participant behaviour adapts, particularly as more fast responding BESS is installed.</p> <p>Modern systems can handle dynamic environments and appropriately consider complex market and system security trade-offs.</p> <p>In addition to flexibility, predictable and pre-declared BESS operation should be recognised as supportive of system security, rather than treated as a risk requiring ongoing intervention. This should not preclude other participants from operating fast-responding or price-responsive batteries where appropriate.</p>
Q12. Do you agree that BESS should have the same arrangements when charging and discharging, and that embedded BESS should	Yes.

have the same arrangements as grid connected BESS?	
Q13. Do you agree with our preferred new arrangements for BESS?	Yes, with qualifications. We agree that the preferred solution is a good interim step but that the Authority should continue to investigate and pursue the option of a shorter gate closure period in the short-medium term. Many international markets are trending to lower gate closure intervals or other "ex-post" products to better reflect real-time system conditions and flexibility.
Q14. Do you see any issues with how we have defined state of charge constraints?	No
Q15. Do you agree that the benefits of state of charge constraints likely outweigh the costs?	Yes
Q16. Do you agree with how we have characterised the differences between various options?	Yes
Q17. Are there any other options that you think would better achieve the gate closure objectives?	Possibly, other "ex-post" products could be considered to reduce imbalance risk in the event of a shorter gate closure intervals. We note that this would require a more comprehensive market review which is outside the scope of this project.
Q18. Do you consider an interim solution is necessary? If so, do you agree with the potential solution we suggested?	Yes and Yes.
Q19. Do you have any information that can help us better understand the benefits and costs of different options? This includes, for example, substantiating the system risks, and how to improve our modelling of benefits	<p>To help improve understanding of the benefits and costs of the different options, further evidence and refinement of modelling approaches could be considered in the following areas:</p> <ul style="list-style-type: none"> <li>• <b>Substantiating system risks:</b> Use observable operational metrics (such as frequency outcomes, reserve shortfalls, forecast error distributions within the final hour, and the incidence of binding constraints or operator interventions), reported by trading period and system conditions and including tail-risk measures rather than relying solely on deterministic or worst-case scenarios.</li> <li>• <b>Participant behaviour:</b> Modelling should avoid assuming that BESS operators continuously re-optimize bids and offers in response to price changes. For many use cases, including solar firming, batteries are intended to operate on a predictable, pre-declared schedule.</li> </ul>

	<p>Assuming trading-desk style behaviour risks overstating system risks and understating the benefits of scheduled BESS operation.</p> <ul style="list-style-type: none"> <li>• <b>Representation of flexibility:</b> Explicitly represent fast-responding flexible resources, including storage, and how their operational characteristics interact with market timing.</li> <li>• <b>Back-testing and sensitivity analysis:</b> Re-run historical dispatch using different forecast vintages (e.g. T-60 compared with later updates) and test outcomes across a range of system conditions, including tight supply and high renewable variability.</li> <li>• <b>Transparency of benefits:</b> Present results with a clearer decomposition of benefit sources (such as forecast accuracy, competitive effects, and changes in operator interventions) to support interpretation.</li> </ul>
<b>Constrained off payments</b>	
Q20. Do you agree the issues identified by the Authority are worthy of attention?	Yes
Q21. Do you agree with our framing of the issue?	Yes
Q22. Do you consider having constrained off payments would affect bidding and offering behaviour from BESS?	Possibly
Q23 . Do you agree with our preferred solution?	Yes

Kind regards

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