30 June 2026

Electricity Authority
By email to: mail to OperationsConsult@ea.govt.nz

Tēnā koe

Re: Code amendment consultation – BESS market arrangements

Thank you for the opportunity to provide input into the Code amendment consultation on wholesale market arrangements for battery energy storage systems. Our detailed responses are attached.

One of the key priorities in Contact Energy's Contact 31+ strategy is to lead and accelerate grid-scale battery development. Our 100MW BESS at Glenbrook-Ohurua started trading on 1 April this year, and a 200 MW expansion is currently in development at the same location. A further 200MW of capacity has been consented. In addition, Contact Energy has resource consent for up to an additional 500 MW of battery capacity in Stratford

The backdrop to this work is that New Zealand's gas market is fast declining and thermal generation is being displaced. We see battery energy storage systems (BESS) as one of the most important assets to strengthen winter capacity resilience and to support a more flexible, reliable and self-sufficient electricity system. For this reason, we consider the Authority's work to enable the efficient operation of BESS assets to be one of its most important priorities. We appreciate the constructive way the Authority has engaged on BESS matters to date. However, we consider that the speed of implementation is critical to underpin BESS development and efficient function. We recognise that this will need to be phased in accordance with other priorities and resourcing requirements, but we would encourage the Authority to prioritise the relevant Code amendments for BESS and ensure there is adequate resourcing for this work.

We are supportive of efforts to address issues posed by gate closure; however, we have reservations about the proposed amendment to introduce state of charge (SoC) constraints to the System Operator's dispatch tools. In our view, this could introduce significant risks due to the high level of operational and modelling complexity. The consultation itself acknowledges the challenges associated with SoC accuracy, telemetry reliability, and the need to incorporate factors such as round-trip efficiency and warranty conditions into the modelling framework. More importantly, embedding SoC into the dispatch model does not fully resolve the underlying issues that the Authority is seeking to address. Even with SoC constraints, dispatch outcomes may differ from forecasts, leading to deviations in actual storage levels.

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We also note that the Authority is considering some concepts to reflect the unique characteristics of BESS operating within gate closure. Namely, a dynamic approach to bids and offers within gate closure whereby prices are linked directly to SoC levels and allowing BESS owners to dynamically set min and max storage levels in their bids and offers. Contact believes that these considerations further highlight the mismatch between gate closure and market objectives. The fundamental issue is that the duration of BESS is comparable to the gate closure period.

Contact submits that the Authority should prioritise trials to reduce gate closure rather than adding several layers of complexity to the System Operator's dispatch tool. In addition, we ask that the Authority retain and improve constrained payment arrangements and further consider the broader 5-minute dispatch/30-minute settlement mismatch.

We acknowledge the Authority's proposed interim solution, allowing revisions within gate where the actual state of charge for a BESS differs from the participant's expectation at gate closure (due to unexpected dispatch outcomes). This interim solution is about providing clarity around BESS bidding and offering behaviour and the use of bonafides.

Contact is very happy to actively engage in workshops or further discussions to help deliver a solution for the industry.

Ngā Mihi

Helen Roberts
Senior Specialist Regulatory, Contact Energy

Appendix B – Format for submissions

Wholesale market arrangements for battery energy storage systems – Code amendment consultation

Submitter: Contact Energy Ltd

Questions	Comments
Issue 1: Dispatch requirements for BESS when charging	
Q1. Do you agree with our proposal to require BESSs to be dispatchable while consuming?	Yes - Contact agrees that BESS should be required to always be dispatchable, including while consuming. All BESS should be treated equally. (We note that Contact bids our BESS as dispatchable).
Q2. Do you have any comments on our proposed Code drafting for issue 1?	No comment
Issue 2: bids and offer forms for BESS	
Q3. Do you agree with our proposal to have separate offers and dispatch for interruptible load and generation reserve?	Yes – Contact believes it is important that IL and NSGR do not get conflated as they are related to different states of BESS operation (i.e., BESS must be charging to provide IL, whereas NSGR represents generation headroom). Separate offers and dispatches for IL and NSGR ensure that dispatched reserve will align with availability. To take an example: • Suppose that IL and NSGR offers are combined into a single offer form. • A BESS offers 100MW at $0.01 (with the intention of this to represent IL). • A second 100MW tranche of reserve is offered at $3.00. • The BESS is dispatched to charge at 50MW, and 100MW of reserve. • The 100MW reserve dispatch reflects 50MW of IL and 50MW of NSGR, which does not represent the intention of the offer. To achieve a physically feasible dispatch, IL offers should be priced below NSGR offers.
Q4. Do you agree with our proposal that BESS owners have 10 price bands for their bids and 10 price bands for their offers. If not, how many price bands do you think they should have?	Yes, Contact considers that 10 bands for each is sufficient.
Q5. Do you agree with our proposal that BESS owners not be required to submit maximum up and down ramp rates?	Contact agrees that BESS owners should not be required to submit maximum up and down ramp rates given their ability to ramp almost instantaneously. The only limits should be those deemed necessary by the System Operator for grid stability. Contact notes that BESS should be able to ramp as fast as possible, while maintaining the stability of the system.

Q6. Do you agree with our proposal to address issue 2?	Yes
Q7. Do you have any comments on our proposed Code drafting for issue 2?	We consider that this change should allow for MFK provision by BESS across the entire operating range, including when idle, charging and discharging.
Issue 3: gate closure arrangements for BESS	
Q8. Should BESS owners be able to withhold energy if requested to do so in a grid emergency?	Contact is supportive of responding to a request by the System Operator to withhold energy in a grid emergency. The flexibility of BESS is highly valuable and should be used to support system security under times of system stress. Contact notes that under these circumstances, constrained-off payments to a generator (that are currently not paid) should apply – noting that there is some nuance to how these should be calculated. Please see example below. Suppose that: • The SO instructs a BESS owner to withhold energy leading up to a potential grid emergency. Final prices at the time of the request are $500 and the BESS is offered at $350. • A grid emergency is avoided, and the BESS is not dispatched. • The BESS should be compensated for being constrained off in this instance. A more complicated situation arises if the BESS is dispatched during a time of stress where the final price is above the final price at the time of the request to withhold. Contact acknowledges that the BESS owner has already been compensated adequately for the request, and receiving a constrained off payment would be unnecessary. Contact encourages the Authority to consider the application of constrained off payments to generators under these circumstances and ensure that assets owners are compensated (noting that these payments are paid when generators are constrained off for MFK).
Q9. Should BESS bid and offer arrangements be aligned?	Yes: we interpret the proposed bid and offer rules to mean that we should submit charge bids and discharge offers that reflect the battery's real physical capability, and price them in such a way that the market's dispatch schedule remains feasible given the battery's expected state of charge. Because that is how Contact already operates, the proposal to align bids and offers fits with our current implementation.
Q10. Do you think greater clarity is needed around the	Whether greater clarity is needed depends largely on the

circumstances which allow trade revisions after gate closure?	regulatory framework that will apply to post-gate trade revisions. Contact does not consider that there is material ambiguity in what situations allow for trade revisions after gate closure under the current rules.
Q11. Do you agree that, to align with forecast schedules, the SoC constraint that applies in the dispatch schedule should be based on energy availability over a half hour period? If not, do you think it should be based on energy availability over a 5 minute period, or the energy availability over the time remaining before the end of the trading period?	Contact has reservations around introducing complexity by incorporating SoC constraints into the System Operator's dispatch model. Contact encourages the Authority to accelerate trials to reduce gate closure as a method for solving issues, rather than introducing significant complexity. If the Authority is to proceed with a SoC constraint, Contact submits that it should be based on real dispatch conditions, which are best represented by the time remaining in the trading period. The question exposes a broader mismatch between 5-minute dispatch and 30-minute trading period/settlement settings. Contact operates in a 5-minute dispatch market, and 30-minute settlement is not aligned with how the market functions.
Q12. Should state of charge constraints account for round trip losses? If not, why not?	Yes: to model or calculate the battery's energy availability, SoC constraints or constrained-off entitlements, the Authority will need to include efficiency assumptions (as 'energy in' does not equal 'energy out', because some energy is lost in the cycle). If the new rules are implemented and they ignore round trip losses, they may overstate the battery's actual energy availability and miscalculate dispatch feasibility. It is also important to note that these efficiency assumptions are inherently estimates and will change over time as the battery degrades, so there should also be an appropriate process to ensure they are reviewed and updated as needed.
Q13. Do you agree that the WITS manager and clearing manager require SoC constrained bid and offer information to perform their functions?	Yes, Contact agrees that constrained (off and on for purchasing; on for generation) payments should be based on available energy, provided these are accurately calculated.
Issue 3: final proposal	
Q14. Do you agree with our proposal to make gate closure arrangements the same between operational states and between grid-connected and embedded BESSs?	Yes
Q15. If we decided to make gate closure one hour for embedded BESSs, do you consider a legacy clause may be warranted? If so, what do you consider the details of that clause should be?	No comment.
Q16. Do you agree with how we propose to incorporate round-trip losses in calculating state of charge	Any method for incorporating round-trip losses into SoC constraints will be an estimate rather than perfectly

constraints? If not, is there a better alternative to ensure state of charge constraint accuracy?	accurate. The real issue is whether those estimation errors materially distort dispatch outcomes. If actual SoC is updated through telemetry in real time, near-term dispatch should remain broadly accurate, which may reduce the practical importance of perfect prior modelling accuracy. SoC will be reported differently from different telemetry systems. To avoid unnecessary overheads, we request that there be separate efficiency values for charging and discharging.
Q17. Are there any other factors that need to be taken into account in adjusted capacities and limits?	There will likely be a different minimum SoC for energy operations vs reserves. A BESS operator may be willing to allow the SoC to go lower in the unlikely event that reserves are triggered.
Q18. Are there any other reasons why a BESS owner should be able to, or need to, revise their trades after gate closure? If so, what?	In the case that telemetry data is unavailable or deemed unreliable, revisions to trades would be necessary.
Q19. Do you agree with our proposal to address issue 3?	Contact has concerns with the complexity of the Authority's proposal to address issue 3. Contact encourages the Authority to accelerate trials of reducing gate closure which will more adequately address the issues inherent in gate closure.
Q20. Do you have any comments on our proposed Code drafting to address issue 3?	13.46 (3A) states "if the MW specified in any price band in the reserve offer exceeds…" but this should refer to the cumulative MW offered. In schedule 13.1 (form 10): The loss factor should be separated into charge and discharge, as previously recommended. Are the units for the fixed loss factor MWh per TP? Schedule 13.3 12. (4A) states: "…scheduled quantity of electricity to be generated plus the scheduled quantity of sustained instantaneous reserve to be provided exceeding the maximum effective reserve capacity of that battery energy storage system station as specified in the reserve offer…" This appears to apply a constraint to the sum of IL and NSGR, which does not reflect the physical constraints faced by the BESS. 13.46 (3A) (a) + (b): it appears that the reserve offers need to be manually revised, rather than managed using SoC constraints – is this correct? Schedule 13.3 (9A) (d, ii) / (10) (b): given that the SoC min/max constraints need not match the true SoC limits, these may vary between TPs. In this case it is possible that the expected SoC at the beginning of a given TP is

	not in range. The wording of (9A) (d, ii) is: "…the scheduled quantity of electricity to be generated by the battery energy storage system station does not exceed the difference between the state of charge at the beginning of the trading period" This difference could be negative. It should be clearly stated that in such a case, the maximum discharge quantity should be 0MW. In addition, this constraint is in MWh, but the schedule is in MW, so a conversion is necessary.
Issue 3: Interim proposal	
Q21. Are there any other factors that need to be taken into account in adjusted capabilities under our interim proposal?	No comment
Q22. Are there any other reasons why a BESS owner should be able to, or need to, revise their trades after gate closure under our interim proposal? If so, what are these reasons?	No comment
Q23. Do you agree with our interim proposal to address issue 3?	Contact agrees with the interim proposal, and we see this as the preferred approach, combined with a shortened gate closure to a maximum of 15 minutes. Contact's view is that this pairing (interim solution and shorter gate closure) is less complicated than modelling SoC within the dispatch engine.
Q24. Do you have any comments on our proposed Code drafting for our interim proposal to address issue 3?	No comment
Issue 4: constrained off payments	
Q25. Do you agree with the Authority's decision not to propose removing constrained off payments for BESSs while charging at this stage? If not, why not?	Yes, we agree. Constrained off payments for BESS while charging is an essential part of aligning market dispatch and settlement. Removing them would remove appropriate incentives.
BESS owners' existing obligations	
Q26. Do you consider our proposed Code amendment accurately captures BESS owners' obligations in Parts 13, 14, and 15 of the Code?	No comment
Regulatory Statement for the proposed Code amendment	
Q27. Do you agree with the objectives of the proposed amendment? If not, why not?	Yes – we agree with these objectives.
Q28. Do you agree the benefits of the proposed amendment outweigh its costs?	No comment
Q29. Can you provide any evidence or further information about potential benefits or costs?	No comment
Q30. Do you agree the proposed amendment is preferable to the other options? If you disagree, please explain your preferred option in terms consistent with the Authority's statutory objective in section 15 of the Act.	No – Contact submits that introducing SoC constraints and retaining a 1-hour gate closure carries significant complexity and risk. Focusing on reducing gate closure will more appropriately address the issues that longer gate closure causes.

Q31. Do you agree the Authority's proposed amendment complies with section 32(1) of the Act?	No comment
Code drafting	
Q32. Do you have any comments on the drafting of the proposed amendment?	No comment