30 June 2026

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

Tēnā koe

Re: Common quality and wholesale market arrangements for BESS and BESS-hybrids

Thank you for the opportunity to provide input into the Authority's consultation paper on quality and wholesale market arrangements for Battery Energy Storage Systems (BESS) and BESS-hybrid stations. Our detailed responses are attached.

Contact is generally supportive of the Authority's proposed direction for BESS and BESS-hybrid station arrangements, particularly where the proposals improve flexibility, enable technology-component-based offers, and extend existing dispatch arrangements rather than creating entirely new obligations. However, we would emphasise the fact that BESS hybrid arrangements are emerging at pace, and that a speedy implementation of the governing framework is crucial. One element we think is missing is an interim arrangement for BESS-hybrid projects that come online before the preferred long-term option is implemented, and we encourage the Authority to give that consideration.

This is of particular interest to Contact as we are developing (in partnership with Lightsource bp):

- a 170MWdc solar farm with grid-scale battery in Stratford, Taranaki; and
- a 171MWdc solar farm in Glorit, on the Kaipara Coast which will include a DC-coupled BESS.

We support the proposed five-level generating asset structure as it allows greater flexibility in grouping offers. This is important for BESS and hybrid assets, where operating configurations may not fit neatly into existing asset definitions. We also support requiring BESS-hybrid stations to offer by technology component in appropriate circumstances, rather than creating entirely new obligations. However, as noted above, BESS-hybrid projects are entering the NZ market quickly and implementation timelines need to reflect market reality. Issues identified by the Authority around forecasting state of charge are largely a consequence of the current one-hour gate closure period. Shortening gate closure to 15 minutes or less should reduce this issue.

Our strong view is that obligations should apply only where a BESS is actively charging or discharging, and not when it is idle. Imposing obligations during idle periods would add compliance burden without a corresponding system benefit and could create disincentives for investment in flexible storage assets.

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We do acknowledge the complexity of BESS arrangements and the Authority's likely need to prioritise the various initiatives according to availability of expertise. Contact is more than happy to discuss the relative prioritisation of these initiatives with the Authority.

Ngā Mihi

Helen Roberts
Senior Specialist Regulatory, Contact Energy

Appendix E – Format for submissions

Common quality and wholesale market arrangements for BESSs and BESS-hybrid stations – Issues and options consultation paper

Submitter: Contact Energy Ltd

Questions	Comments
Section 3: Terminology	
Q3.1. Do you support the proposed 5-level structure for generating asset definitions?	Yes – supportive of the structure that allows for greater flexibility in grouping of offers.
Q3.2. Do you foresee any implementation issues or unintended consequences associated with the 5-level structure for generating asset definitions?	No
Q3.3. Do you have any feedback on the System Operator's recommendations in its Hybrid Plant Integration report?	No comment
Section 4: Asset owner performance obligations for 'idle' BESSs and BESS-hybrid stations	
Q4.1. Do you agree with how the Authority has defined the 'idle' operating state of a BESS and a BESS-hybrid station? Please give reasons if you do not agree.	Yes
Q4.2. Do you consider that frequency management obligations should apply to an idle BESS and an idle BESS-hybrid station? Please give reasons if you do not agree.	No. Frequency management obligations should not automatically apply to an idle BESS or idle BESS-hybrid station. Requiring an idle BESS to respond to frequency deviations would result in additional cycling, even where the asset is not otherwise dispatched. That cycling can contribute to battery degradation and reduce asset life, which weakens the investment case for BESS technology. It may also make state of charge management more difficult, because frequency response is unlikely to be perfectly energy-neutral over time: charge and discharge volumes may not offset each other. This uncertainty could lead BESS owners to take a more conservative approach to market offers to preserve state of charge and manage operational risk. In addition, some BESS owners may be subject to contractual operating requirements, including limits on cycling or state of charge, with financial consequences if those requirements are not met.
Q4.3. Do you consider that voltage support obligations should apply to an idle BESS and an idle BESS-hybrid station? Please give reasons if you do not agree.	No. This would result in a deferment in grid investment in reactive plant, or contracting of a non-transmission solution or ancillary service. The proposal as it stands would mean that all costs are borne by the BESS owner rather than the beneficiaries of this type of investment or contract. It should be noted that not all BESS technologies are able to be voltage dispatched without a MW dispatch.
Q4.4. Do you foresee any implementation issues or unintended consequences that we have not discussed in this paper?	No comment
Q4.5. What do you consider to be the key benefits and	As BESS have a finite economic lifespan, determined by

costs associated with applying frequency- and voltage-related AOPOs to BESSs and BESS-hybrid stations in the 'idle' operating state? Please quantify these benefits and costs if possible.	cyclical energy throughput, frequency cycling in idle state would result in a direct opportunity cost to BESS owners.
Section 5: Applying the AOPOs to BESS-hybrid stations	
Q5.1. Which option for applying frequency AOPOs to BESS-hybrid stations that are in the injection or consumption operating state do you support? Please give reasons for your answer.	Option 2B. This aligns with Trading Arrangement changes to have separate market nodes for each technology type within a hybrid station and would avoid any unintended consequences regarding increased cycling of a BESS.
Q5.2. Do you consider there to be options for applying frequency AOPOs to BESS-hybrid stations in the injection or consumption operating state that are preferable to those identified by the Authority? Please give reasons for your answer.	No. Each technology type within a hybrid station should be treated separately with respect to its ability to support frequency AOPOs.
Q5.3. Do you foresee any implementation issues or unintended consequences associated with applying the frequency AOPOs to BESS-hybrid stations in the injection or consumption operating state that are not identified in this paper?	No. We reiterate that the finalised Code amendment needs to consider the unintended consequences of reducing the market efficiencies that a BESS provides, and the reduction in lifetime of the asset.
Q5.4. What do you consider to be the key benefits and costs associated with the options for applying frequency AOPOs to BESS-hybrid stations that are in the injection or consumption operating state? Please quantify these benefits and costs if possible.	The key benefit of option 2B is that the BESS would not be subject to additional cycling (which would reduce lifetime).
Q5.5. Which option for applying the voltage support AOPO to BESS-hybrid stations that are in the injection or consumption operating state do you support? Please give reasons for your answer.	Option 3B. This aligns with Trading Arrangement changes to have separate market nodes for each technology type within a hybrid station and would avoid any unintended consequences relating to the increased cycling of a BESS.
Q5.6. Do you consider there to be options for applying the voltage support AOPO to BESS-hybrid stations in the injection or consumption operating state that are preferable to those identified by the Authority? Please give reasons for your answer.	No. Each technology type within a hybrid station should be treated separately with respect to its ability to support voltage AOPOs.
Q5.7. Do you foresee any implementation issues or unintended consequences associated with applying the voltage support AOPO to BESS-hybrid stations in the injection or consumption operating state that are not identified in this paper?	Please refer to Q5.3 response.
Q5.8. What do you consider to be the key benefits and costs associated with the options for applying the voltage support AOPO to BESS-hybrid stations that are in the injection or consumption operating state? Please quantify these benefits and costs if possible.	The key benefit of option 3B is that the BESS would not be subject to additional cycling to power the inverters (which would reduce lifetime).
Q5.9. Do you consider that clause 8.23 should be revised to move the point of compliance from the generating unit terminals to the point of connection to the transmission network (on the high voltage side of the connection transformer)? Please give reasons for your answer.	No. We do not support moving the point of compliance to the high-voltage side of the connection transformer. Under this proposal, the impedance of the generator step-up transformer, or any transformer used to step generation up to grid voltage, would determine the reactive power capability required from the connected generation. That transformer impedance is typically set by fault level requirements on the low-voltage bus, rather than by the generator's inherent capability. A

	high-impedance transformer would require a level of reactive power capability that exceeds existing Code requirements.
Q5.10. Do you consider there to be an alternative that is preferable to a reactive power export/import requirement of ±39.5% or ±33% of maximum continuous MW output power, measured at the generating station's point of connection to the transmission network (on the high voltage side of the connection transformer)? Please give reasons for your answer.	There is already an alternative defined in clause 114.1 of the Policy Statement, which defines the current Code requirement to be at the low voltage terminals of the step up transfomer.
Q5.11. Do you foresee any implementation issues or unintended consequences associated with moving the point of compliance under clause 8.23 from the generating unit terminals to the point of connection to the transmission network that are not identified in this paper?	Please refer to Q5.9 response.
Q5.12. What do you consider to be the key benefits and costs associated with moving the point of compliance under clause 8.23 from the generating unit terminals to the point of connection to the transmission network? Please quantify these benefits and costs if possible.	We do not see any material benefit to generator asset owners from moving the point of compliance, for the reasons set out in our response to Q5.9. In our view, the Authority should instead review the existing requirements in clauses 8.23(a) and 8.23(b). As currently drafted, those provisions require generators to provide 50% reactive power at 1.10 pu grid voltage and -33% reactive power at 0.95 pu grid voltage. Meeting those requirements can require a large tap range on the generator step-up transformer, which could increase transformer complexity and the risk of failure. This issue has previously been raised with the System Operator.
Q5.13. Do you consider that legacy arrangements would be needed for existing generation? Please give reasons for your answer.	Yes, based on our response to Q5.9.
Section 6 questions: Wholesale arrangements for BESS-hybrid stations	
Q6.1. Do you agree with the preferred option of requiring BESS-hybrid stations to offer by technology component except in certain circumstances, over the alternative option of creating new obligations for BESS-hybrid stations? If not, why not?	Yes, we agree with this approach. However, we note that BESS hybrid projects are coming to the NZ market quickly and urge the Authority to be mindful of that fact when determining the timeline for changes. We also note that an interim solution is required for projects that come online prior to the preferred option being implemented.
Q6.2. Do you agree with our characterisation of the benefits and costs with our preferred option? Are there any other aspects we should consider?	No comment.
Q6.3. Do you agree station dispatch arrangements should be extended to accommodate BESS-hybrid stations that are offered by technology component? What, if any, other issues do you see with the station dispatch arrangements that are in addition to those identified above?	Yes, we welcome the flexibility of extending station dispatch arrangements to BESS. The SoC forecasting issues identified by the Authority are a result of gate closure being one hour. Shortening gate closure to 15 minutes or less should reduce this issue.
Q6.4. Considering the options above, how should the System Operator manage network injection from a BESS-	Option 6A - a static market node constraint - is likely to suffice, and we agree with the general form of the

hybrid station where injection is limited by inverter capacity? What implications would this have on your processes or systems?	constraint. We do not see huge value in the capacity constraint being dynamic. We agree that Option 6C will distort marginal prices at the node, which would not provide appropriate investment signals.
Q6.5. Do you agree with our preferred approach to calculating constrained costs for DC-coupled BESS-hybrid stations? Can you provide any insights about what metering arrangements would be required to enable this approach?	We agree with the preferred approach: DC side metering is required to measure volume from each component to determine constrained payments.