datagrid
SUSTAINABLE DATACENTER PARK

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

Dear Operations Team

BESS Consultation Papers

Thank you for the opportunity to comment on the two consultation papers concerning battery energy storage systems, BESS Wholesale market arrangements for battery energy storage systems, and common quality and wholesale market arrangements for BESSs and BESS-hybrid stations.

Datagrid is proposing to construct a large AI training data centre in Southland with commissioning targeted for 2027 - 2028.

Summary

Neither paper contemplates a BESS deployed behind a large consumer's connection for the primary purpose of smoothing that consumer's own load. Requiring such a BESS to register, offer and be dispatched as a market generator under Part 13 would prevent it performing that function, because load-smoothing operates on sub-second-to-second timescales that market dispatch cannot match. We ask the Authority to recognise this use case and to provide that a consumer with co-located storage that does not inject to the grid above the de minimis threshold is not required to offer as a generator. This supports the Authority's statutory objective by substituting private investment for frequency-keeping and reserve costs that would otherwise be socialised across consumers.

AI Training use case complexities

AI training technologies have the potential to impose large, rapid demand swings on the grid in excess of that allowed in clause 39B of the System Operator’s Policy Statement referred to in part 8 of the Code. Datagrid is considering the use of a co-located BESS to smooth the load presented to the grid. To be effective in load smoothing the BESS needs to respond to data centre load changes by charging when the site load reduces rapidly and discharging when it increases rapidly, so the grid sees a smoother and more predictable offtake.

The use of a BESS to smooth load is a quite different use case for a BESS compared to the current BESS solutions which are used for price arbitrage and providing ancillary services. In the proposed mode the BESS will support the grid by not requiring additional frequency keeping services and reserve to be provided by the System Operator to support the fast ramp rates of the AI training centre load.

Challenges with the current proposals

Effective load smoothing requires local, automatic control that responds to the site's own load in real time. The market mechanisms in the proposals (bid and offer forms, gate closure, and dispatch instructions) operate on dispatch-interval timescales and cannot deliver the sub-second response that load-following requires. Part 13's requirement that a BESS offer discharge as a generator (and, under the proposed changes, offer both charging and discharging) is therefore incompatible with the BESS performing its load-smoothing function - even where the combined load and BESS never inject to the grid. There is at present no mechanism for the System Operator or the Authority to allow a consumer's load and co-located BESS to be treated together as a net load.

Suggested solution

We ask the Authority to look at this use case for BESS operation when it considers the proposed code changes under both consultations, and offer two options:

Option A: Provide that, where the primary purpose of a co-located BESS is to smooth the host consumer's load, the BESS is not required to offer both charging and discharging as a generator and load under Part 13. This would impact the existing code and the proposed changes to the code.

Option B: Allow a direct consumer with an associated BESS to operate as a net load under part 13 of the code provided injection to the grid is less than the 10 MW de minimis applying under part 8 of the Code.

Consistency with the statutory objective

The change we seek is consistent with the Authority's objective of promoting competition, reliable supply and efficient operation for the long-term benefit of consumers. It avoids reserve and frequency-keeping costs, reduces frequency risk from a large and volatile load, and removes an unintended barrier to a consumer BESS solution that supports the grid.

Datagrid welcomes the opportunity to meet and provide further technical detail if helpful.

Sincerely

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