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26 February 2024

Ms Stephanie Jolly
Executive General Manager Consumers, Policy & Markets
Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601

email: [redacted]

Dear Ms Jolly

Ergon Energy's waiver application against the Australian Energy Regulator's Ring-fencing Guidelines – one energy storage device

Under the *National Electricity Rules* (NER), Ergon Energy Corporation Limited (Ergon Energy Network) must comply with the Australian Energy Regulator's (AER) Electricity Distribution Ring-fencing Guideline (the Guideline).[1] The Guideline permits Ergon Energy Network to apply for a waiver of the legal separation obligations. Ergon Energy Network is seeking a waiver for one energy storage device under the streamlined waiver process.

Ergon Energy Network looks forward to providing continued assistance to the AER in considering our enclosed application. Should you require additional information or wish to discuss any aspect of this application, please do not hesitate to contact myself, or Andrew Bozin, Policy and Regulatory Reform Specialist, on 0436 447 814.

Yours sincerely

[redacted]

Stephanie McDougall
Executive General Manager Regulation
Telephone: [redacted]
Email: [redacted]

Encl: Ergon Energy's streamlined waiver application

[1] Clause 6.17.2.

New Energy Storage Devices Waiver Application

This application is for DNSPs who wish to apply for a waiver of its obligation under clause 3.1 of the Electricity Distribution Ring-fencing Guideline in respect of a New Energy Storage Device and believe they meet the criteria for a streamlined waiver as set out in Explanatory Statement to the guideline (Version 3). If applying for a waiver of obligations other than clause 3.1, a full waiver assessment process will be needed.

Please attach any relevant documents.

Applicant Information

1	**Name(s)**	Ergon Energy Corporation Limited (Ergon Energy Network)
2	**Project description**	One 4MW / 8MWh battery energy storage system (BESS) at Bohle Plains near Townsville, Queensland, on the Ergon Energy distribution network to test network use cases and National Energy Market (NEM) participation with a retail market partner. The location in which the BESS is connected to Ergon Energy's distribution network is specified in Appendix A. The BESS is connected in an area where there is high and forecast to increase local distributed energy resource (DER) penetration, and where the BESS could therefore reduce network risk. The BESS was commissioned in 2020 and is owned and operated by Yurika Proprietary Limited (Yurika) (part of the Energy Queensland Limited group), as part of a virtual power plant (VPP) trading on the wholesale energy and frequency control ancillary services markets, and also as grid support during demand peaks. However, the asset is now being transferred to Ergon Energy Network as part of the Ergon Energy Network / Energex Local Battery Plan, with the primary goal of supporting the renewable energy transition. BESS units are considered fundamental to a renewables-enabled future energy system, because they can provide unique services (which are not yet valued or difficult to value), including: • supporting system strength by providing vertical inertia; and

- providing local network support, such as capacity and voltage management, in areas with low short circuit ratios and areas with large and growing penetrations of solar photovoltaic (PV).

The BESS will be available for use by a third party in accordance with the terms of an arms-length commercial arrangement, for participation in wholesale energy arbitrage, ancillary services, and other emerging markets, further benefiting customers through lower overall energy costs.

Ergon Energy Network, in partnership with Energex Limited (Energex), engaged with third parties via a competitive expression of interest (EOI). The EOI was promoted on the Queensland Government's Business Queensland QTenders website and complied with the Ring-fencing Guideline's discrimination obligations. The EOI (SR23999961) was released on 27 January 2023 and was open until 1 March 2023.[1] In addition to the public QTenders notification, Ergon Energy Network notified 18 retailers of the EOI via email.

The subsequent shortlisting process resulted in in-depth negotiations with three retailers. Following further extensive discussions, [identity of retailer is CONFIDENTIAL] [redacted] was successful and notified in February 2024, subject to the AER approving this waiver application.

Third party access to the battery will also be subject to the conditions imposed by Ergon Energy Network, including:

- the ability for the network business to direct battery operation for demand response to reduce network risks through on-call capacity;
- battery voltage performance for supporting network voltage management;
- the battery can only be operated within a Dynamic Operational Envelope (DOE) and therefore cannot add to network capacity risks when operated by a third party;
- the battery will be available to the third party to participate in markets of their choice, likely including wholesale market

[1] https://qtenders.epw.qld.gov.au/qtenders/tender/display/tender-details.do?id=48262&action=display-tender-details

		arbitrage and frequency control ancillary services markets; and • potential participation in emerging system stability markets, leveraging grid forming capabilities of the systems.
3	**Reason for waiver**	**Rationale for supplying excess capacity to third parties** Ergon Energy Network is of the strong view that all delivery models should be understood and explored, with the learnings shared publicly to support the development of innovative energy storage markets. Exploration of distribution connected BESS is warranted due to the unprecedented adoption of roof top solar PV and its effect on minimum system load and the very large need for energy storage required to safely and reliably operate energy systems of the future. Minimum system load on our network is falling faster than peak demand is growing, signalling the criticality of the minimum system load challenge and the need to explore every credible means for an efficient resolution of the problem. Ergon Energy Network and Energex are forecasting there could be a total of 10GW of solar PV connected to the two distribution networks by 2030, compared to a combined forecast peak demand of 7GW. In addition, AEMO's draft 2024 Integrated System Plan (ISP) forecasts under the Step Change scenario the need across the NEM for investment that would: • Almost quadruple the firming capacity from sources alternative to coal that can respond to a dispatch signal, using utility-scale batteries, pumped hydro and other hydro, coordinated consumer energy resources as VPPs, and gas-powered generation. This includes 50GW / 654GWh of dispatchable storage, as well as 16GW of flexible gas. • Support a four-fold increase in rooftop solar capacity reaching 72GW by 2050.[2] AEMO also notes the risk of uncertainty for infrastructure investment, with the energy transition dependent on timely investment decisions, and that Government initiatives help reduce

[2] AEMO, Draft 2024 Integrated System Plan for the National Electricity Market: A roadmap for the energy transition, p 10-11.

that uncertainty.[3] The Queensland Government is set to legislate a new emissions reduction target of 75% below 2005 levels by 2035,[4] in addition to its commitments of 70% renewable energy by 2032 and 80% by 2035.[5]

The challenges to our network and the whole power system were also acknowledged by AEMO in its 2023 Electricity Statement of Opportunities, including the need for accelerated complementary market-based and operational support to address the risks to security and reliability of the power system.[6] BESS will play an integral part in addressing these risks.

Despite the clear need, there continues to be an under-investment in distribution-connected energy storage. In the NEM, installed capacity of coordinated and passive DER storage is 0.1 and 0.6GW respectively in 2023-24, with 3.7 and 2.8GW required in 2029-30 and 37.3 and 6.8GW required in 2049-50, under the Step Change scenario.[7] Ergon Energy's distribution network is geographically dispersed with many radial feeders, where markets are less likely to establish than in other, more densely populated areas. As we illustrate in Section 8 of this application, this under-investment has been demonstrated by recent regulatory investment tests for distribution (RIT-D) that Energex undertook, where the preferred option of market-led energy storage was unable to be commercially contracted, highlighting that the commerciality of such investments remains difficult, with the trade-offs largely unknown at present.[8]

The proposed waiver will enable Ergon Energy Network to continue to gain valuable learnings into the customer, system, and overall societal benefits of a currently immature value stacked energy storage market and support the development of the distribution-connected storage market. This would occur while limiting the cost

[3] AEMO, Draft 2024 Integrated System Plan for the National Electricity Market: A roadmap for the energy transition, p 15.

[4] https://statements.qld.gov.au/statements/99361

[5] https://www.epw.qld.gov.au/about/initiatives/renewable-energy-targets

[6] AEMO, *2023 Electricity Statement of Opportunities, August 2023*, p 40.

[7] AEMO, Appendix 2. Generation and Storage Development Opportunities, December 2023, Appendix to the Draft 2024 Integrated System Plan for the National Electricity Market, Table 1, p 14.

[8] https://www.energex.com.au/__data/assets/pdf_file/0015/1002165/Coomera-Final-Project-Assessment-Report.pdf and https://www.energex.com.au/__data/assets/pdf_file/0020/1002188/Logan-Village-Final-Project-Assessment-Report.pdf

		to customers, with Ergon Energy Network excluding the BESS from its regulated asset base (RAB). **Estimate of the expected annual utilisation of the battery capacity** The goal of this proposal is to increase the knowledge of Ergon Energy Network and third parties about how to identify the values of different services and maximise the overall benefits of grid forming BESS. As such, annual utilisation is a learning that will be reported on. The learnings will also examine the trade-offs associated with different levels of utilisation across the services (including how and when each service is offered), with the aim of maximising total value. The learnings will also help inform operational models for the transition to more complex and interactive grids managed by distribution system operators.
4	**Period of the waiver**	Ergon Energy Network proposes the waiver commences immediately upon the transfer of the BESS to Ergon Energy Network and expires on 30 June 2035, which aligns with the estimated life of the BESS.

Supporting information for waiver application

This section is to provide information that will assist the AER's assessment of whether the benefits outweigh the costs for the battery project.

5	**Costs if waiver not granted**	If the waiver is refused, Ergon Energy Network will only be able to use the BESS for distribution services and not use the BESS to the fullest extent possible to provide additional "other services". In the absence of an established value-stacked market, investor hesitancy will likely hinder the establishment of a market in time to address the impacts of rapidly declining minimum demand on the security and reliability of our network. For example, there has been a slow build of capacity for the wholesale demand response mechanism, with a total registered capacity of only 65.3 MW across New South Wales, Victoria, South Australia and Queensland.[9] Overarchingly, refusal of the waiver would result in:

[9] AEMO, *Wholesale Demand Response Annual Report, June 2023*, p 3.

		• the benefits described in section 6 below not being realised; • market benefits, through shared trial learnings, not being realised; and • alternative solutions to address the challenges associated with increasing minimum demand into the future, needing to be delivered as part of Ergon Energy Network's common distribution services. Additionally, the refusal of this waiver application would be a missed opportunity to help relieve the ongoing tension between higher energy prices for customers, with market volatility forecast to increase as the transition to Net Zero accelerates, and poorer network performance in the long term.

6	**Benefits if waiver granted**	The National Electricity Objective (NEO) is to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of customers of electricity with respect to:
		• price, quality, safety and reliability and security of supply of electricity;
		• the reliability, safety, and security of the national electricity system;
		• the achievement of targets set by a participating jurisdiction—
		  ○ for reducing Australia's greenhouse gas emissions; or
		  ○ that are likely to contribute to reducing Australia's greenhouse gas emissions.
		
		The prior Energy Security Board also acknowledged the need for regulatory arrangements to evolve to support the impacts of two-way energy flows on the ability of networks to transport and deliver electricity safely, securely, and reliably.[10]
		
		In support of the imperatives outlined above, BESS utilisation for both distribution services and other services would identify the following:

[10] ESB, *Summary of the final reform package and corresponding Energy Security Board recommendations*, p 4.

- The extent to which distribution-connected BESS effectively promotes all the upstream benefits such as frequency response, generator ramping, transmission investment offsets, voltage stability, while operating within distribution network envelopes and maintaining a safe, reliable distribution network.
- The impacts of dynamic operating envelopes to support DER operation within local level and overall system constraints.
- The extent to which BESS can provide network peak and minimum demand voltage support and reactive power events via Principal dispatch request.
- The extent to which BESS can contribute to deferred network augmentation in areas of high solar penetration when the excess capacity is shared with a third party.
- Management of the differing needs of parties wishing to share the BESS capacity, including when and where the capacity is required.
- How a DNSP's battery policies and operational practices affect the stack of commercial values for third parties and also customer benefits under existing and potential future markets.
- How the Transmission Use of Service (TUOS) and Distribution Use of Service (DUOS) charges impact the overall economic benefit of distribution-connected BESS.
- How connection policies, connection standards and processes can be improved to integrate energy storage more efficiently and expeditiously into the distribution network in a safe and commercially viable manner.
- Information that can help develop price signals for HV connections, to:
    - encourage the import and export of electricity at times that mitigate the network impacts caused by increasing solar PV generation;
    - alleviate the use of the network during peak times; and
    - ensure that these types of customers make an efficient and equitable contribution to the recovery of the residual (fixed) costs of owning and operating the electricity network.

		In addition, the arrangement would contribute to a more robust evidence base to inform the development of a mechanism to allocate costs and prevent cross-subsidisation taking into account future variations in use. As noted by the AER, there is currently no well-established approach for how much of a battery asset should be assigned to the RAB where it is not intended solely for network services. The AER also noted batteries are a new technology where the potential split between use for distribution and other contestable services is currently unknown, and use of a battery may well change over time.[11] Ultimately, we consider Ergon Energy Network's ownership of the BESS and sharing of capacity with a third party can help deliver more efficient outcomes for customers in the long term by: • demonstrating the shared value of distribution connected energy storage to a hesitant and immature market; • de-risking entry for private investors; and • informing regulatory decisions to support the creation of a deep and liquid energy storage market.

Evidence demonstrating that the risk of cross subsidisation is sufficiently addressed or does not arise

Applications that sufficiently address risk of cross subsidisation or where the risk does not arise could be eligible for the streamlined waiver process.[12]

7	**Cost Allocation[13]**	The battery arrangement is treated in the same way as any other customer connection to the distribution network. The entire capital project including battery assets, connection assets and associated control assets is funded from unregulated project funding. Following the BESS's transfer to Ergon Energy Network, the BESS will be classified as an unregulated asset and be excluded from Ergon Energy Network's RAB.

[11] AER, *Draft Electricity Distribution Ring-fencing Guideline – Explanatory statement (Version 3)*, p 44.

[12] AER, *Electricity Distribution Ring-fencing Guideline – Explanatory Statement (Version 3)*, p 29-31.

[13] For information on cost allocation methods, see AER, *Electricity Distribution Ring-fencing Guideline – Explanatory Statement (Version 3)*, p 35-36.

		The connection assets up to the BESS connection point are treated as an Alternative Control Services connection, with the initial customer having already funded the connection assets upfront, and Ergon Energy Network then having transferred those connection assets to the network RAB at zero cost, to ensure the correct allocation of connection charges. To date, the ongoing maintenance of the BESS asset has been funded by the initial customer. Following the BESS's transfer to Ergon Energy Network, this ongoing maintenance will be excluded from Ergon Energy Network's regulatory operating costs and instead be attributed to unregulated services, consistent with the principles of its approved cost allocation methodology. The ongoing maintenance of the connection assets is a Standard Control Service. Therefore the maintenance of the connection asset is already funded by Ergon Energy Network and recovered via network charges, which under the proposed waiver will be paid by the retailer partnering Ergon Energy Network, following the transfer of the BESS. For completeness: • battery assets include inverters, batteries, transformers, protection equipment and communications and control equipment; and • connection assets include the cable/wire, protection and power quality local network control and communication equipment.
8	**Process to engage third party suppliers of network services[14]**	Both Ergon Energy Network's and Energex's demand management programs demonstrate there is currently no established market for distribution-connected batteries, nor a market for utilising behind the meter batteries for network support. Ergon Energy Network and its counterpart, Energex, have repeatedly tried to engage the market via mechanisms such as our online rewards maps.[15] Also, recently, Energex was unable to contract terms on batteries for two RIT-D processes where they were identified as the preferred

[14] AER, *Electricity Distribution Ring-fencing Guideline – Explanatory Statement (Version 3)*, p 34-37.

[15] https://www.ergon.com.au/network/manage-your-energy/cashback-rewards-program/request-for-proposals-and-eoi and https://www.energex.com.au/manage-your-energy/cashback-rewards-program/request-for-proposals-and-eoi/feeder-limitations

		options.[16] Similarly, Ergon Energy Network also engages the market annually, via its Demand Side Engagement Register (and website advertising), to request proposals for non-network services as alternatives to network investment for approximately 20 feeders per calendar year, where the estimated cost of addressing the identified need falls below the threshold at which a RIT-D is required. However, to date, Ergon Energy Network has not contracted any energy storage, noting network options remain the more economically-viable solutions in these situations. While we have received some market interest, we have been unable to contract any energy storage due to a combination of lack of interest, absence of commercial value, the targeted nature of the distribution needs and the associated network requirements. Despite this, our request to engage with the market for these services remains active in the market. The location in which the BESS is connected is an area with high and forecast to increase local DER penetration, and where the BESS could support network risk reduction. This, coupled with the fact the BESS is not being funded through charges for standard control services, reflects Ergon Energy Network's commitment to the provision of non-network alternatives, including energy storage, to address identified needs on our network, in ways that minimise impacts on customers' electricity bills.
9	**Any other information**	As part of this arrangement, Ergon Energy Network is committed to publicly sharing information, which may include total capacity installed, impacts of operational envelopes, connection arrangements, impacts of network and market needs and network benefits, where doing so does not compromise customer interests, network security, ring-fencing requirements or the commercially sensitive information of any party. Such information can be shared via publication of information and presentations at conferences.

[16] https://www.energex.com.au/__data/assets/pdf_file/0015/1002165/Coomera-Final-Project-Assessment-Report.pdf and https://www.energex.com.au/__data/assets/pdf_file/0020/1002188/Logan-Village-Final-Project-Assessment-Report.pdf

Please note that, if approved, the following conditions are likely to apply:

- Ex-post public sharing of information about the battery (e.g., location(s), size, status of the project (trial or full scale roll out), intended purposes and uses, approved cost allocation method, and a key contact for external stakeholders if they wish to discuss the project further) and any useful learnings from the battery usage that will support the battery market.
- Provide on an annual basis a comparison of the uses (volume and frequency) of the battery that confirms the different uses of the battery (e.g., that was provided in the application), and an explanation of any differences between the two. The independent assessor, as part of annual ring-fencing compliance assessment to confirm the comparison is accurate.
- If some of the cost of the battery is included in the RAB, as part of annual ring-fencing compliance assessment, the independent assessor to verify that the cost allocation method in the waiver has been applied between the services/uses.

Appendix A – Site Details

The following location for the BESS is in the public domain. All values below are based on 2023 observations and forecasts.

Site 1

Location: Kalynda Parade, Bohle Plains, Q4817

Customer numbers, Zone Substation: 5,338 (2023) and 6,008 (2029/30)

Total PV Capacity, Zone Substation: 14,705 kVA (2023) and 25,701 kVA (2029/30)

Peak Demand, Zone Substation: 19.52 MVA (2023) and 19.22 MVA (2029/30)

Minimum Demand, Zone Substation: -505 kW (2023) and -10,944 kW (2029/30)