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Stephanie Jolly
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email: [REDACTED]

Dear Ms Jolly

Energex's waiver application against the Australian Energy Regulator's Ring-fencing Guidelines – three new energy storage devices

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

Energex 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 [REDACTED]

Yours sincerely

[REDACTED]

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Encl: Energex's streamlined waiver application

¹ Clause 6.17.2.

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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)	Energex Limited (Energex)
2	Project description	<p>Installation of three battery energy storage systems (BESS) at various locations on the Energex distribution network to test network use cases and National Energy Market (NEM) participation through market partners. Each of the batteries will be 4MW / 8MWh.</p> <p>The locations in which the BESS will connect to Energex's network in Southeast Queensland are outlined in Appendix A and are confidential until all sites are publicly announced by the Queensland Government. The BESS will be connected in areas where there is high and forecast to increase local distributed energy resource (DER) penetration, and where the BESS could therefore reduce network risk.</p> <p>These 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:</p> <ul style="list-style-type: none"> • 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 PV. <p>The stored energy in the systems will then be available for use by third parties in accordance with the terms of an arms-length commercial arrangement, for participation in wholesale energy</p>

arbitrage, ancillary services, and other emerging markets, further benefiting customers through lower overall energy costs.

Energex, in partnership with Ergon Energy Corporation Limited (Ergon Energy Network), 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, Energex notified 18 retailers of the EOI via email.

The subsequent shortlisting process resulted in in-depth negotiations with two retailers. Following extensive discussions, [REDACTED] was successful and was notified in September 2023, subject to the AER approving this waiver application.

Third party access to the batteries will also be subject to the conditions imposed by Energex, including:

- the ability for the network businesses to direct battery operation for demand response to reduce network risks through on-call capacity;
- battery voltage performance for supporting network voltage management;
- batteries can only be operated within a Dynamic Operational Envelope (DOE) and therefore cannot add to network capacity risks when operated by a third party;
- batteries will be available to the third party to participate in markets of their choice, likely including wholesale market arbitrage and frequency control ancillary services markets; and
- potential participation in emerging system stability markets, leveraging grid forming capabilities of the systems.

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

Energex 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 photovoltaic (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 2022 Integrated System Plan (ISP) forecasts the need across the NEM for 15GW of storage capacity by 2030 and 61GW by 2050 under the step change scenario,² which is considered the most likely scenario to play out. This is with the backdrop of coal retiring much faster than anticipated (AEMO indicates 60% retired by 2030), a forecast continued growth in distributed solar PV (35GW by 2030) and high prices for transition fuels such as gas.³ This combination of pressures magnifies the need to explore every opportunity and business model enabling energy storage.

These 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.⁴ BESS will play an integral part in addressing these risks.

Despite the clear need, there continues to be an under-investment by market participants in energy storage, including where it is

² <https://aemo.com.au/energy-systems/major-publications/integrated-system-plan-isp/2022-integrated-system-plan-isp>

³ <https://aemo.com.au/newsroom/media-release/aemo-releases-30-year-electricity-market-roadmap>

⁴ AEMO, *2023 Electricity Statement of Opportunities*, August 2023, p 40.

distribution-connected. Energex's network is in high density areas where land is at a premium, making it difficult to install large volumes of energy storage to address the significant volume of roof top solar. 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.⁵

The proposed waiver will enable Energex to continue to gain valuable learnings into the customer, system, 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 to customers, with Energex excluding the BESS from its regulated asset base (RAB).

Estimate of the expected annual utilisation of the battery capacity

The goal of this proposed program is to increase the knowledge of Energex and third parties about how to identify the values of different services and maximise the overall benefits of grid forming BESS. As such, the expected annual utilisation is part of the trial and will be reported on. The program's 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

Energex proposes the waiver commences immediately upon commissioning of each BESS and expires on 30 June 2038, which closely aligns with the estimated life of the BESS.

⁵ 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

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, Energex would be unable to proceed with the trial as planned. While it would be able to use the BESS for distribution services, it will not be able to use the BESS to the fullest extent possible, that is, 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.⁶

Overarchingly, refusal of the waiver would result in:

- 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 Energex'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; and

⁶ AEMO, *Wholesale Demand Response Annual Report, June 2023*, p 3.

- the reliability, safety, and security of the national electricity system.

Commonwealth, state and territory Energy Ministers have also agreed a new National Energy Transformation Partnership, with its initial priorities including introducing an emissions objective into the NEO and cooperation on plans for generation and storage adequacy, demand evolution, and workforce, supply chain and community needs.⁷

The Energy Security Board has 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.⁸

In support of the objectives outlined above, a trial of BESS utilisation for both distribution services and other services would identify the following:

- 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.
- Insight into and experience in the management of the differing needs of parties wishing to share the BESS capacity, including when the capacity is required.

⁷ DCCEE, *Incorporating an emissions reduction objective into the national energy objectives: proposed legislative package to give effect to an emissions reduction objective in the National Electricity Law, the National Gas Law and the National Energy Retail Law, Consultation Paper, 20 December 2022*, p 1.

⁸ ESB, *Summary of the final reform package and corresponding Energy Security Board recommendations*, p 4.

- 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 trial 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.⁹

Ultimately, we consider Energex's ownership of BESS and sharing of capacity with the 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;

⁹ AER, *Draft Electricity Distribution Ring-fencing Guideline – Explanatory statement (Version 3)*, p 44.

- 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.¹⁰

7 Cost Allocation¹¹

The capital cost of the BESS for Energex under this program is \$33.96 million, wholly funded by Energy Queensland Limited, Energex's parent company.

Each battery arrangement will be treated in the same way as any other customer connection to the distribution network. The entire capital project including connection assets, battery assets and associate control assets will be funded from the unregulated project funding. Energex will not use the Demand Management Innovation Allowance to meet any of the costs of the batteries.

The BESS will be classified as unregulated assets and be excluded from Energex's RAB.

The connection assets up to the BESS connection point will be treated as an Alternative Control Services (ACS) connection, therefore the customer (i.e., unregulated project) will fund the connection assets upfront, which will then be transferred to the network RAB at zero cost to ensure the correct allocation of connection charges to the retailer.

The ongoing maintenance of the BESS asset will be funded from unregulated project costs and be excluded from Energex's regulatory operating costs, consistent with the principles of our approved cost allocation methodology.

¹⁰ AER, *Electricity Distribution Ring-fencing Guideline – Explanatory Statement (Version 3)*, p 29-31.

¹¹ For information on cost allocation methods, see AER, *Electricity Distribution Ring-fencing Guideline – Explanatory Statement (Version 3)*, p 35-36.

8 Process to engage third party suppliers of network services¹²

The ongoing maintenance of the transferred connection assets is a standard control service, therefore the maintenance of the connection asset will be funded by the distributor (Energex) and recovered via network charges (Distribution Use of System charges), which will be paid by the retailer.

For completeness, the:

- battery asset will include, inverters, batteries, transformers, protection equipment and communications and control equipment; and
- connection assets will include the cable/wire, protection and power quality local network control and communication equipment.

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. Energex and its counterpart, Ergon Energy Network, have repeatedly tried to engage the market via mechanisms such as our online rewards maps.¹³ Also, recently, Energex was unable to contract terms on batteries for two RIT-D processes where they were identified as the preferred options.¹⁴ Similarly, Energex 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 Energex 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.

¹² AER, *Electricity Distribution Ring-fencing Guideline – Explanatory Statement (Version 3)*, p 34-37.

¹³ www.ergon.com.au/network/manage-your-energy/reward-programs/cashback-rewards/search-incentives and www.energex.com.au/home/control-your-energy/cashback-rewards-program

¹⁴ 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

9 Any other information

Despite this, our request to engage with the market for these services remains active in the market.

Given the current lack of a market for distribution connected energy storage, and the barriers to any rapid advancement of such a market, Energy Queensland has procured three BESS to be connected at strategic locations in Energex's network.

The locations in which the BESS will be connected are areas that are having high and forecast to increase local DER penetration, and where the BESS could support network risk reduction. This, coupled with the fact the BESS are not being funded through charges for standard control services, reflects Energex'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.

As part of this program, Energex 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.

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 – Confidential Site Details

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]