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)**	Essential Energy ABN 37 428 185 226
2	**Project description**	**Project highlights** • Installation of up to 35 pole mounted low voltage (LV) battery energy storage systems (BESS) of sizes 30kW/80kWh & 40kW/85kWh at various locations on the Essential Energy distribution network. • Equal equity and revenue sharing agreement between Essential Energy and its retail partner. • Qualifies for streamlined waiver application: ○ Essential Energy's equity position funded from unregulated revenue – No cross-subsidisation or Regulatory Asset Base (RAB) implications. • Objective: to test a combination of network, wholesale and retail uses cases with a retail partner. Essential Energy is looking to test various use cases including exploring Customer, Network, Market benefit, and potential new customer offerings through a retail partner **confidential** [redacted] The proposal is for a jointly funded project with equal equity and revenue sharing arrangements with the retail partner. The BESS will be installed in locations which align with the retail partner's customer base where there are areas of high Consumer Energy Resource (CER) penetration. As part of the outcomes of the trial, we are seeking to better understand how funding and revenue sharing arrangements can facilitate the rapid roll-out of storage devices to address network constraints at lower cost, increase reliability, and provide direct customer benefits. It is envisioned that

		early intervention through strategic partnerships, will expedite the maturity of the non-network solutions market, network access to lower cost and quick to deploy non-network solutions, and customer access to lower cost, carbon free, resilient energy. Essential Energy and its retail partner are exploring methods to utilise the full value stack of the batteries in different ways: If approved, Essential Energy will, amongst other things, gain the following experience in network access and tariff design, potentially including but not limited to: o Application of Dynamic Operating Envelopes, o Local Use of Service Charging o Network Battery Tariff o Optimal network voltage management settings to support network power quality and hosting capacity (i.e. multi-benefit/service) o Phase balancing, solar-soak, network voltage support, and improving network utilisation (i.e. reducing minimum and maximum demand) o Development of pole-mounted battery storage connection standards. Essential Energy's chosen market partner will use the excess capacity for market services and potential customer storage offerings: o Wholesale Energy Arbitrage o Ancillary Services o Emerging markets o New customer offers.
3	**Reason for waiver**	**Rationale for supply of excess capacity through third party** The goal of the trial is to gain knowledge and understanding as to how to maximise the benefits of pole-mounted battery solutions in terms of network need, commercial considerations of third-party operators and improved customer outcomes, including access to new services. The strategic retail partnership is vital, as it provides for appropriate risk apportionment, cost allocation and allows each party to focus on its own comparative advantage.

The LV batteries will also promote the National Energy Objectives (NEO) by providing consumers in our network safety, reliability and security benefits through frequency and voltage support.

In addition, the energy services provided by LV batteries will support generation capacity to meet maximum demand, thereby strengthening system security. Frequency and voltage services will also facilitate maintaining system stability. LV batteries will also facilitate increased connection of CER, without the need for major augmentation. This not only benefits consumers through improved network performance and reliability but also drives down network costs in the long-term.

LV batteries will promote the long-term interests of the national electricity system by providing a case study that will:

- Identify scenarios where network batteries are an efficient, and economically viable, solution to resolve network issues as the growth of CER on the low voltage network continues.
- Identify optimal operational models for a network battery to maximise customer and network benefits.
- Validate operational and technical benefits, feasibility such as real-time control, protection scheme, and safety.
- Build an understanding of the value-stack of batteries for network and existing markets.
- Develop an evidence base on which to develop future commercial arrangements with third party battery and service providers.

Demonstrating the optimal technical, operational, and commercial models for the deployment of network batteries will provide valuable insights to progress the maturity of the third-party battery market. A mature and competitive third-party battery market will result in efficiencies that will decrease associated costs for consumers across the national electricity system and make the use of batteries a cost-effective network solution to manage the network and the growth of CER.

4	**Period of the waiver**	Essential Energy proposes that the waiver commences immediately upon commission of each unit and expires in 2037, which is approximately the life span of the batteries at 15 years.

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, the various benefits outlined in this application would not be realised, specifically: o Customer benefits related to system security and reliability. o Price and system strength benefits that effective integration of CER provides. o Consumer price benefits and lower carbon emissions through increased hosting capacity that maximises consumers roof top solar investments o Benefits to the national electricity system from the maturity of the third-party battery industry and associated cost-efficiencies, and system strength that the deployment of network batteries at scale can provide. If the waiver is not granted this would likely result in o Maintaining an immature market for the installation of pole mounted batteries o Lower investor confidence o Lost lower cost non-network options that could potentially be leveraged to lower connections costs and the effective cost of grid energy o Curtailed renewables or higher grid costs to increase hosting capacity o Poorer network performance o Ongoing tension between higher energy prices for customers and poorer network performance in the long term. As such, consumers would avail of greater benefits if the waiver is granted.

6	**Benefits if waiver granted**	There will be long-term benefits for the national electricity system gained through an evidence base to support the deployment of network batteries and the development of the contestable market. The battery will promote the long-term interests of the national electricity system by providing a case study that will: o Identify scenarios where network batteries are an efficient, and economically viable, solution to resolve network issues as the growth of CER on the low voltage network continues. o Identify optimal operational models for a network battery to maximize customer and network benefits. o Validate operational and technical benefits, feasibility such as real-time control, protection scheme, and safety. o Build an understanding of the value-stack of batteries for network and existing markets. o Develop an evidence base on which to develop future commercial arrangements with third party battery and service providers o Contribute to lowering the costs of non-network solutions o Enhance the availability of Retailer product offerings o Allow for the further testing of various battery tariffs. Network impact, battery operation, and customer responses to inform future Tariff Strategy Statements o Test shared battery benefits and business models which share value between customer, market participants, and networks. o Collect data and information to develop pole mounted battery storage connection standards, battery tariffs that reflect the long-term efficient cost of providing access to the network, and appropriate market metering arrangement. Demonstrating the optimal technical, operational, and commercial models for the deployment of network batteries will provide valuable insights to progress the maturity of the third-party battery market. A mature and competitive third-party battery market will result in efficiencies that will decrease associated costs for consumers across the national electricity system and make the use

		of batteries a cost-effective network solution to manage the network and the growth of CER.

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.[1]

7	**Cost Allocation**[2]	Total cost of the trial is expected to be $11 million and is wholly funded through unregulated revenue. Therefore, the project assets will be excluded from Essential Energy's RAB and classified as unregulated assets. Any ongoing costs will be excluded from Essential Energy's regulated operating costs, which will be consistent with the principles of our approved cost allocation methodology.
8	**Process to engage third party suppliers of network services**[3]	**The problem:** There is currently no established market for distribution-connected batteries nor a market for utilising behind the meter batteries for network support. Through past battery storage trials (such as Networks Renewed), Essential Energy has learned of multiple challenges leveraging behind the meter battery storage to address network constraints. The behind the meter solution was slow to deploy and resulted in insufficient capacity to address the emerging network constraint. **A possible solution:** Pole mounted batteries may enable a targeted approach, better aligned to network need (minimising required network support and cost), while being quick to deploy. In addition, as both the behind the meter and grid side battery market matures, an optimal blend of both solutions could be deployed based on the highest market net benefit for customers while supporting expedited network access to lower cost solutions for the long-term interest of customers.

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

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

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

		Essential Energy requested multiple pole mounted battery quotes from the limited number of suppliers. Through the trial, Essential Energy is deploying two of the three pole mounted battery storage products identified. It was found that not all pole mounted battery products comply with Australian Standards (such as AS4777, only one of the products selected is compliant) required as part of connecting to the network, nor do network standards currently exist to connect a pole mounted battery to the network. Regarding market metering, there is currently no standard arrangement for pole mounted batteries, in addition, the installation of customer metering on poles is prohibited as per section 18 of the Code for safe installation of direct-connected whole current electricity metering in NSW[4]. Through the trial Essential Energy is aiming to develop pole mounted battery storage connection standards, battery tariffs that reflect the long-term efficient cost of providing access to the network, and appropriate market metering arrangement. To support further maturity in valuing network services for third parties, this trial project will facilitate a better understanding on how to value network services for the purpose of supporting third party owned batteries. This information will be used in future market testing to enable a more complete and concise tender for services to the private sector. For example, this could include new battery tariffs, dynamic operating envelopes, connection arrangement, and direct payments for network services.
9	**Any other information**	The learnings from the proposed trial will be shared to inform the development of markets for the provision of these services including through, evidence based regulatory change necessary to give effect to such markets as required. Specifically, through this trial project we are seeking to develop evidence of: o Where the current rules and regulation are not fit for purpose to support the uptake of CER and non-network solutions o Appropriate pole mounted battery connection standards o Battery network tariffs

[4] Code for safe installation of direct-connected whole current electricity metering in NSW

	○ Additional customer value through the development of new customer offerings ○ Potential as a lower cost solution to address network constraints through leveraging access to market and new customer services to lower the effective cost of the solution. ○ Practical issues through sharing an LV connected battery ○ Scalability ○ Any challenges re operating the network and connected LV BESS, such as emergency conditions, network reconfiguration, and maintenance. ○ Role of Dynamic Operating Envelopes to support uptake of CER and commercial benefits to third parties ○ Appropriate market metering arrangement, ensuring ease of access and safety are addressed. ○ Potential barriers to installing LV batteries in the LV network, i.e. visual amenity, planning laws, etc.

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.*