

Consultation notice

Essential Energy islandable microgrids sandbox trial waiver application

30 September 2026

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1 Introduction

The Australian Energy Regulator (AER) established the Energy Innovation Toolkit (also referred to as ‘regulatory sandboxing’) in 2022. This function aims to help energy innovators and start-ups navigate complex regulatory frameworks and enable the trial of new products and services that seek to deliver greater choice and cheaper energy options for consumers.

The Energy Innovation Toolkit framework facilitates trials of innovative projects in part by giving the AER a power to issue trial waivers. A trial waiver temporarily exempts an innovator from having to comply with specific rules that present regulatory barriers to allowing an innovative trial project to proceed. As part of its consideration of trials, the AER is required to publicly consult on proposals it receives.

Essential Energy (the trial proponent), a distribution network service provider in New South Wales, lodged applications for trial waivers with the AER through the Energy Innovation Toolkit on 27 August 2026. A copy of this application is included with this consultation notice at Attachment A.

1.1 Proposed trial

Essential Energy (Essential) seeks multiple trial waivers from the AER to enable implementation of up to 10 (potentially more) islandable microgrids, across its distribution network.

An islandable microgrid is a local electricity system that can operate in two modes:

1. Grid-connected mode, whereby it remains connected to the wider distribution network and normally receives or exchanges electricity through that network.
2. Islanded mode, whereby it temporarily disconnects from the wider network and uses local resources, such as batteries, solar PV and back-up diesel generators, to supply a defined group of customers.

The key feature of an islandable microgrid is that it is not permanently isolated from the grid, unlike a stand alone power system (SAPS). Its defining feature is its ability to transition safely between connected and islanded operation.

Islandable microgrids can provide reliability and resilience in remote or isolated sections of a distribution network, where conventional network solutions may be constrained or uneconomic to address risks of outage and interruption. For example, during an upstream network outage, an islandable microgrid can isolate the affected township, continue supplying local customers and later safely reconnect to the main grid.

Currently, there is no clear regulatory framework governing such systems. Essential Energy is seeking waivers of up to 5 years from a series of clauses outlined below at section 2.2 to enable deployment of islandable microgrids.

ARENA has granted Essential Energy funding for microgrids through its Regional Microgrids Program and First Nations Community funding stream for microgrids in the communities of

Wilcannia, Sunset Strip and Bendick Murrell. Essential Energy is also seeking funding from the NSW Government for additional microgrids in far west NSW.¹

A full copy of Essential Energy's application is included at Attachment A.

1.2 Purpose of consultation

It is a requirement under clause 8.16.3 of the NER that the AER carry out public consultation in relation to a proposed trial waiver, unless the AER is satisfied that the proposed waiver is unlikely to have an impact on other registered participants, or is unlikely to have a direct impact on retail customers other than those who provide explicit informed consent to participate in the trial project.²

Issues or concerns raised through consultation may inform the final design of the trial waiver, including conditions, reporting requirements or other obligations.

With this consultation notice, the AER now seeks stakeholder views on whether the application meets the innovative trial principles³ and any other additional considerations.

1.3 Confidential information

To facilitate an informed and transparent consultative process, we prefer all submissions to be publicly available. The AER will treat all submissions as public documents unless otherwise requested and blanket confidentiality claims generally will not be accepted.

Parties wishing to provide a submission that contains confidential information are requested to:

- clearly identify the information that is the subject of the confidentiality claim, and provide reasons for the claim
- provide a separate, non-confidential version of the submission in a form suitable for publication.

The AER does not generally accept blanket claims for confidentiality over the entirety of the information provided and such claims should not be made unless all information is truly regarded as confidential. The identified information must be genuinely of a confidential nature and not otherwise publicly available. The AER recognises that the disclosure of a business's confidential commercial information may have a substantial adverse effect on the interests of that business. However, trial waivers may also substantially affect other parties (such as access seekers or competitors), and some disclosure of information may be necessary for open and transparent decision-making.

¹ NSW Climate and Energy Action, [Microgrids to strengthen Far West's energy resilience](#), NSW Government, accessed 16 September 2026.

² The AER also offers [fast-tracked sandboxing waivers](#) for technical metering proposals.

³ The innovative trial principles are set out in NEL section 7B, NERL section 13A, NGL section 24A.

1.4 Next steps

Questions about and submissions to this consultation should be lodged by emailing regulatorysandbox@aer.gov.au by 12 November 2026.

Following consultation, the AER will consider submissions and any concerns or issues raised. Where necessary, further information may be sought from the project proponent.

Following this, the AER will make and publish a formal decision. The AER's decision on any trial waiver application depends on stakeholder feedback and may change from the original trial design.

Depending on the decision, the AER will provide details on the final waiver as outlined in clause 4.8 of the [Trial Projects Guidelines](#).

2 Overview

The current regulatory framework does not neatly accommodate microgrids that can operate both as part of the interconnected national electricity system as well as in ‘islanded’ mode. The AER recognises the important role that islandable microgrids may play within Australia’s energy system now and in the future. For example, they can increase resilience and reliability for areas of the network affected by longer-term outages or serve as an alternative to network augmentation.

‘Microgrid’ is not a defined term and does not reference one specific model. The AER notes the working terminology is to refer to these as ‘temporary stand alone power systems’ (T-SAPS), noting the SAPS framework could provide a starting point for a potential framework. We understand the Australian Energy Market Operator (AEMO) intends to soon submit a rule change proposal to the Australian Energy Market Commission (AEMC) in relation to T-SAPS. The AER is supportive of further work to integrate T-SAPS into the regulatory framework.

2.1 Purpose of trial

The purpose of the trial is to enable Essential Energy to test the deployment and regulatory treatment of islandable microgrids as business-as-usual distribution network solutions using trial waivers. Chosen microgrids would combine generation, storage and control systems in various configurations. The projects are intended to improve supply reliability and resilience in communities exposed to frequent outages.

Essential Energy seeks trial waivers to deploy up to 10 islandable microgrid sites. It also proposes that additional government-supported deployments could be included in specified circumstances.

Essential Energy, a Distribution Network Service Provider (DNSP), intends to test different models of islandable microgrid deployment. Essential Energy specifies that its application is explicitly technology, ownership and operating-model neutral. It contemplates DNSP-ownership and operation, DNSP-ownership with third-party operation, as well as third-party ownership and operation, and hybrid models.

2.2 Overview of the trial waivers

Essential Energy requires waiver applications to permit the microgrids to temporarily island from the National Electricity Market and for Essential Energy to own and/or operate the generation and storage assets. Essential Energy proposes to procure a third party Financially Responsible Market Participant (FRMP) to operate some of the microgrids. Essential Energy may also seek to operate some microgrids without a third party FRMP.

Essential Energy’s trial waivers seek to address the core legal and technical barriers to operating islandable microgrids, as well as permit the organisational and commercial integration needed to deliver the projects.

Essential Energy’s request for trial waivers forms a proposed ‘waiver framework’. The waivers sought are not requested for a single project, site or technical configuration. Rather, Essential Energy is requesting the waivers enable a flexible regulatory framework that can be applied to a set of eligible microgrid deployments, likely up to 10 sites.

The AER is interested in stakeholder views on the proposed waiver framework and its application to multiple sites without those sites being explicitly identified in the application.

2.2.1 Trial waivers

If granted, the trial would provide Essential Energy with trial waivers for the following specific clauses of the National Electricity Law and National Electricity Rules:

- **NEL s 11(1) and NER 2.1A.1(a)–(b)**: own, control or operate generation and integrated resource systems within eligible microgrids without registering as a Generator or Integrated Resource Provider, where the activity is primarily for distribution reliability and resilience.
- **NER 5.2.3(b)**, together with **S5.1.2.1, S5.1.3, S5.1.8, S5.1.9** and **S5.1.10.2(c)–(d)**: apply approved islanded-mode requirements for contingencies, frequency, stability, protection and load/generation controls while a network section is temporarily islanded.

Essential Energy has not sought waivers from settlement, metering, tariff or other related market-interface issues that may arise during temporary islanding. Microgrid operation and islanding may have implications for AEMO's role as market operator, as well as network reliability reporting and incentive treatments, depending on how outages are recorded and processed. Essential Energy has not sought to treat these impacts as regulatory prohibitions requiring waiver relief.

Essential Energy seeks waivers of the following provisions of the [AER Distribution Ring-fencing Guideline](#) where required for eligible microgrid deployments:

- **3.1(b)** – to permit Essential Energy to undertake incidental other services associated with an eligible microgrid
- **3.1(d)(i)** – to permit Essential Energy to grant an appropriately appointed third party rights to operate, orchestrate or make bounded secondary use of an Essential Energy-owned new energy storage device
- **4.2.1** – contingent relief from physical office separation requirements
- **4.2.2** – contingent relief to allow appropriately identified Essential Energy staff to undertake integrated operational functions
- **4.2.3** – contingent relief from branding and cross-promotion separation requirements.

The trial waivers from ring-fencing obligations are intended to operate as a targeted and complementary component of the sandbox trial. To provide Essential Energy with a waiver of the above provisions, it will require a waiver of clause 6.17.1 of the NER, which otherwise requires Essential Energy's compliance with the Distribution Ring-fencing Guideline. If the trial waivers are granted, the AER will require Essential Energy to comply with all other provisions of the Distribution Ring-fencing Guideline.⁴

⁴ AER, [Ring-fencing guideline \(electricity distribution, version 4\)](#), Australian Energy Regulator, 27 February 2025.

3 Questions for consultation

The AER seeks comments on all aspects of the trial waivers application, including on how the application addresses the [innovative trial principles](#) and if the trial project is likely to contribute to the achievement of the National Energy Objectives. Views put forward by stakeholders will form part of the AER's substantive assessment of the application, which we will undertake after consultation is complete.

In addition to any general feedback provided on the trial waivers application, the following questions are separately included as additional points, on which the AER is particularly interested in stakeholder views.

3.1 Contribution to regulatory and industry experience

The proposed trial may contribute to industry experience by generating practical evidence from real-world islandable microgrid operation. Essential Energy notes that evidence generated under the trial may inform future consideration of broader reforms (including T-SAPS-style frameworks or other rule changes).

Question 1: What regulatory and industry learnings could this trial generate regarding islandable microgrids as a network solution?

3.2 Trial benefits

Essential Energy notes it expects the trial to deliver public interest benefits, including:

- improved reliability and resilience outcomes for customers in remote, fringe-of-grid and high-risk communities
- reduced reliance on temporary and reactive supply measures during extended outage events
- more efficient utilisation of network and non-network assets, where microgrids represent a least-cost network-equivalent solution
- improved regulatory understanding of emerging distribution-level solutions, supporting better-informed decision-making over time (e.g. regulatory evidence for future regulatory reform related to T-SAPS).

The AER also considers that the projects may provide additional benefits to rural communities and First Nations people in Essential Energy's distribution area and reduce diesel use at a critical time for Australia's fuel security where non-diesel generation sources are installed within the microgrids.

Question 2: What are stakeholders' views as to the proposed benefits of this trial?

3.3 Trial risks

The trial projects may have risks as well as benefits. The trial may impact customers, AEMO as the market operator, as well as third parties.

The AER considers that the trial may present the following risks:

- technical and safety risks – such as failures in protection, frequency control, stability, islanding or reconnection that could affect supply or equipment
- temporary islanding may have implications for AEMO, retailers and FRMPs and may lead to an increase in settlement and metering anomalies
- increased competitive neutrality risk as DNSP ownership or operation of generation and storage could disadvantage contestable providers or create cross-subsidisation concerns
- consumer impacts – for example, customers, including life-support customers or customers living with vulnerabilities, could experience poorer service if the microgrid underperforms or communications are inadequate; alternatively, customers may experience more reliable power
- regulatory transition risk associated with the proposed exit strategy – trial assets may require costly changes or new approvals when the waiver expires, or if an enduring framework is introduced.

Question 3: Do stakeholders consider that the trial may impact the operation of the national electricity system and market, including AEMO's role as the system and market operator? If so, how?

Question 4: What are stakeholders' views on potential risks of the trial? How might such risks be mitigated with conditions? Which conditions do stakeholders think will be appropriate to manage these risks?

3.4 Additional considerations

Essential Energy has identified other regulatory and operational issues it considers do not require waiver relief but will need to be actively managed during the trial to ensure consumer protection, market integrity and operational safety. Essential Energy has categorised these issues into two broad categories:

1. issues managed through deployment-specific design decisions, operating protocols and commercial arrangements
2. issues that require structured oversight, engagement and governance through the sandboxing framework itself.

The AER notes that different microgrid deployments may adopt different technical, ownership and operating models so issues that apply to one microgrid may not apply to another.

Essential Energy recognises that some consequences of temporary islanding may affect parties other than itself, including retailers, FRMPs, metering participants and AEMO.

Essential Energy's application has provided the following detail on its planned approach to identifying and deploying the islandable microgrids:

- **Number of trial microgrid sites**

- A deployment is a project that relies on one or more of the regulatory waivers granted under this proposed waiver.
- Microgrid site locations should be able to be substituted if necessary.
- Essential Energy proposes a soft cap of 10 sites, with the option to exceed the microgrid 'cap' if additional deployments arise through NSW or Australian Government funding programs, policy initiatives or requests directed at addressing identified distribution reliability or resilience needs.

- **Purpose and sizing**

- It is deploying microgrids as distribution solutions and not as market-facing assets.
- The relevant test is whether the deployment addresses an identified distribution network need and delivers an appropriate reliability or resilience outcome for the customers affected by that need.

- **Regulated asset base (RAB) boundary and revenue treatment**

- Essential Energy notes that the treatment of any revenues associated with microgrid assets will reflect the distinction between RAB-funded and non-RAB components.
- To the extent that assets funded through the RAB give rise to net revenues, those revenues would be assessed on a net basis and reflected proportionally, having regard to the share of the asset funded through the RAB.
- Essential Energy notes this approach is consistent in principle with the AER's existing treatment of net positive generation revenues for regulated SAPS, where revenues associated with RAB-funded assets are reflected in customer outcomes through defined regulatory processes.
- Essential Energy proposes to apply a similar approach in the context of islandable microgrids, with the relationship between asset funding and any associated revenues observable through established reporting and regulatory proposal processes.
- Essential Energy notes that approximately \$2.6 million of the \$23.8 million microgrid program will be contributed by Essential Energy through its RAB, while a third-party investor/operator will be sought to fund the balance of the development.
- Where microgrid assets are materially funded through the RAB, Essential Energy notes it is prepared to work with the AER to ensure that any incidental trading revenue benefits customers.

- **Contestability and delivery model**

- Essential Energy considers that ownership and operational arrangements for each microgrid should not be determined through this waiver process, but rather according to the delivery model that best promotes efficient implementation and

long-term customer outcomes. For example, some islandable microgrid sites may rely on more of the waiver provisions to operate than others.

- Essential Energy considers microgrids do not represent a departure from its core role as a DNSP, but rather they provide an additional means of delivering distribution services, particularly where conventional approaches are limited by geography, risk exposure or restoration timeframes. Essential Energy considers the deployment of microgrids is driven by network need, not by market participation or generation objectives.
- Essential Energy states that it does not intend to use the ring-fencing waiver to permit it to provide unconstrained contestable services, to derive unregulated revenue unrelated to the distribution purpose of microgrids, or to engage in discriminatory or anti-competitive conduct. It intends to use the ring-fencing waiver to allow interactions between regulated distribution services and certain ancillary activities that are incidental to, and subordinate to, the primary network function of maintaining reliability and resilience in defined locations.
- **Transparency, reporting and regulatory visibility**
 - Essential Energy has not identified individual sites as part of its application. Essential Energy instead proposes to undertake community and stakeholder engagement on a site-by-site basis as opportunities progress through project development.
 - Essential Energy is subject to community engagement and knowledge-sharing obligations under ARENA funding arrangements.
 - Essential Energy also proposes to provide annual sandboxing and ring-fencing reporting.
 - The application is framed as a program-level waiver that could apply across multiple deployments, rather than as a series of site-specific waivers. The AER is interested in whether this approach provides an appropriate balance between flexibility and regulatory oversight, including how much deployment-specific information should be available before Essential Energy relies on the waiver, whether individual deployments should require AER approval or notification, how sites may be added or substituted during the trial, and what changes to a deployment should trigger further assessment.
 - Individual customer consent is not being sought by Essential Energy and impacted customers will not be able to opt out of receiving electricity from the islandable microgrid if the trial is granted. Community engagement will be completed beforehand for every site location.

Example trial conditions

Essential Energy's application suggests that its proposed guardrails could form the basis for any conditions proposed if this trial proceeds. Other examples of conditions include:

- Example condition 1: Where a deployment can proceed under the ordinary NEL and NER framework, including through an available registration exemption, that framework will continue to apply.

- Example condition 2: All microgrid deployments enabled under this waiver framework must serve a primary distribution network purpose – namely, the delivery of improved reliability and resilience of electricity supply to customers located at the fringe, edge or remote sections of Essential Energy’s distribution network.

Question 5: Is a program-level waiver framework appropriate for this trial? What deployment-specific information should be available before the waiver can be relied on (e.g. should individual deployments require AER approval or notification; to what extent should sites be able to be added or substituted over time; and what should constitute a material change requiring further assessment?)

Question 6: Does this trial raise any other regulatory or operational barriers that need to be considered? Are there any further waivers required in addition to the ones identified by Essential Energy?

Question 7: What are stakeholders’ views as to Essential Energy utilising a mix of self-owned and third-party owned and operated microgrid assets? What further information should the AER take into account when deciding whether to grant the trial waivers?

Question 8: What are stakeholders’ views as to the operational arrangements outlined in Essential Energy’s application that would need to be in place before a site is allowed to island? What should be the parameters around islanding?

Question 9: Do stakeholders have concerns with the possibility to exceed 10 deployments? What possible conditions could be imposed to ensure trial deployments are appropriately identified and managed?

Question 10: We are interested in stakeholders’ views on the boundaries between contestability and competition. What constraints or other conditions could be placed on Essential Energy’s ownership and operation of the microgrids to support efficient outcomes for customers regarding affordability and reliability of their electricity supply?

Question 11: What are stakeholders’ views as to the appropriate RAB and revenue treatment of the microgrids and their assets?

Question 12: What impacts could there be on third parties? How could these be managed appropriately? What conditions might need to be imposed to help manage any impacts on third parties?

3.5 Exit strategy

Sandboxing trial waivers are intended to be time-limited and transitional. Essential Energy proposes a 5-year trial period. Proponents of trial waivers are required to propose an exit strategy for the project. Essential Energy proposes that it would move each microgrid to the most suitable enduring regulatory arrangement available at the time.

The AER understands that this could involve:

- operating under the existing regulatory framework without further waiver applications, or
- transitioning to a revised or new framework, including a future T-SAPS-style arrangement, if this has been implemented by the end of the trial.

Another exit strategy could be to transition the microgrids to a SAPS rather than a T-SAPS.

As customers retain their existing retail and connection arrangements throughout the trial, Essential Energy proposes the exit is primarily a regulatory transition requiring appropriate trial management, rather than requiring customers to revert to a different supply arrangement.

If a T-SAPS framework is introduced during the trial, Essential Energy proposes to work with the AER and AEMO to determine which projects should transition and how operational, settlement and reporting arrangements for some sites could be aligned.

A new framework, such as a potential T-SAPS framework, may be or may not be an appropriate landing point for each of these projects.

Question 13: What do stakeholders think about this exit strategy?

Question 14: Do stakeholders have concerns around decommissioning, transition costs or impacts on customers' energy supply arrangements?

Question 15: Do stakeholders have any other comments about the trial?

Attachment A – Trial Waiver Application

WAIVER APPLICATION

Summary

ID N/A

Title: Essential Energy Islandable Microgrids Trial Waiver Application

Submitting User: Adam Young

Job Title/Position: Regulatory Strategy Manager

Contact Number: [REDACTED]

Email: adam.young@essentialenergy.com.au

Initial Submission Date: 30 July 2026

Latest Submission Date: 27 August 2026

I have read, understood and agreed to the Legal Disclaimer:
Yes/No

I have read, understood and agreed to the Consent to Information Sharing Statement:
Yes/No

I have read, understood and agreed to the Privacy Statement
Yes/No

Organisation/s

Organisation 1	
ABN	37 428 185 226
ACN (if applicable)	N/A
Organisation Name	Essential Energy
Information about the type of organisation applying for a trial waiver (i.e. whether the applicant is a private limited company, partnership, trust, or joint venture etc.)	Essential Energy is a New South Wales statutory State-owned corporation and a regulated electricity Distribution Network Service Provider. It operates the electricity distribution network across regional, rural and remote New South Wales and provides standard control services and other distribution services under the National Electricity Law, National Electricity Rules and applicable regulatory instruments.
Organisation Business Address Address line 1 Address line 2 City/Suburb State/Territory Postcode Is the postal address the same? If not please list Address line 1 Address line 2 City/Suburb State/Territory Postcode	The portal screenshot shows separate fields for: 8 Buller St Port Macquarie NSW 2444 Australia

NOTE: some questions may appear in in this PDF that were not presented to you in the application process. Questions will differ depending on whether you are applying to the AER or ESC for a trial waiver. Responses to questions not presented to you will be left blank.

General Information

Previous Engagement

Has the applicant/s previously engaged with the Energy Innovation Toolkit on this matter?	Yes
Has the applicant previously engaged with the AER or ESC regarding a trial waiver?	AER

Applicant Licence and Exemptions

Does the applicant/s hold any licences or exemptions to hold a licence to operate in the electricity and/or gas industry?	Yes
If so, is it a licence, an exemption or both licence(s) and exemption(s)?	Licence
Licence(s) held	Electricity distribution licence
Exemption(s) held	

AEMO Registration

Is the applicant/s registered with the Australian Energy Market Operator as a market participant?	Yes
If so, which categories?	
If the applicant/s is intending to register, provide details of the registration or inquiries made. If the applicant is not intending to register with the Australian Energy Market Operator, please provide a reason.	

Parent Licences and Exemptions

Does the applicant's parent company or company group hold any licences or exemptions from having to hold a licence to operate in the electricity and/or gas industry?	Yes
If so, is it a licence, an exemption or both licence(s) and exemption(s)?	Licence
Licence(s) held	Electricity Distribution Network Operator Licence (NSW). The current licence is issued under the <i>Electricity Supply Act 1995 (NSW)</i> and administered through IPART.
Exemption(s) held	

Previous Licence Suspensions and Cancellations

Has the applicant or their parent company previously held a licence that has been suspended or cancelled?	No
Suspension/cancellation details	
Has the applicant, any directors of the applicant, any related body corporate, or any person with significant managerial responsibility or influence on	No

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the applicant been involved in any material breaches of obligations regulated by the commission or any other regulator?
If yes, please provide details

Is the applicant, any directors of the applicant, any related body corporate, or any person with significant managerial responsibility under investigation in relation to its regulatory obligations?
If yes, please provide details

Partner Organisations

Are you submitting an enquiry on behalf of a third-party, or is the applicant proposing its innovation to be delivered in partnership with other organisation(s)?

Provided Organisation Details (if any)

Project Description

Overview

Description of the applicant's project, including if the innovation is a product, service, new business model or other	Essential Energy's BAU Microgrids Program is a strategic initiative to deliver reliable, resilient, and affordable energy to regional and remote communities across Essential Energy's network footprint. The program is aligned with Essential Energy's corporate vision of building network and community resilience to extreme weather and other risks, and is supported by funding approved in the 2024–29 regulatory determination.¹ Essential Energy's approach to microgrids is deliberately modular and flexible, recognising that different communities and network locations require different technical and commercial solutions. The program encompasses several distinct models, including but not limited to: 1. Legacy reliability solutions – diesel-only generation • Diesel generation back-up supply to vulnerable townships and communities • Standalone systems, no market interface, no market-facing meter • Do not require Ring-fencing or sandboxing waivers. 2. Battery-only microgrids • These systems use a Battery Energy Storage System (BESS) to provide backup supply and manage local reliability. • They may be charged from the main grid, from local distributed generation, or both. • No local generation is required, and the system operates as a "resilience node" during outages. • Where the BESS has been sized to meet reliability and resilience requirements, and where any excess capacity is
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¹ [Essential Energy, 2024-29 Regulatory Proposal](#)

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	not traded in the market are not traded in the market, these models do not require a ring-fencing waiver and do not require a sandboxing waiver if Essential Energy does not own the connecting generation assets. 3. Grid-connected microgrids with local generation • These microgrids combine BESS with local generation (e.g. diesel, solar PV, or other renewables). • They can operate in parallel with the grid or in islanded mode, supplying local loads during outages or planned isolation. • The ARENA-funded pilots follow this model, with solar PV, BESS, and backup generation (e.g. Wilcannia Sunset Strip, and Bendick Murrel). • Essential Energy is also working with NSW Government on additional microgrids to support remote communities in the Far West of NSW, which were subject to prolonged outages in October 2024, including White Cliffs, Milparinka, Packsaddle and a renewable transition of diesel generators at Tibooburra. • Where Essential Energy owns generation or seeks to engage a third party to trade surplus energy, a sandboxing and or Ring-fencing waiver may be required, depending on the specific regulatory context. 4. Community or third-party operated microgrids • In some cases, microgrids may be operated by third parties or community entities, with Essential Energy providing network services, orchestration, or backup. • Ownership and operational responsibilities are shared or contracted, and regulatory requirements vary accordingly. Key features across models: • Technology and ownership neutrality: The program supports a range of asset configurations and commercial arrangements, tailored to site needs and customer requirements. Ownership arrangements will be selected according to the delivery model that best promotes timely delivery, efficient implementation and long-term customer outcomes in the circumstances of each deployment. • Fit-for-purpose design: Each microgrid is designed to address specific local challenges – whether that’s extended outages, high bushfire risk, or integration of renewables. • Regulatory flexibility: Not all microgrids require the same regulatory relief. The need for ring-fencing or sandboxing waivers is assessed on a case-by-case basis, depending on asset ownership, market participation, and service delivery model. • Customer and community focus: All models aim to improve reliability, resilience, and affordability for customers, with particular attention to vulnerable and remote communities.
Confidential information (if any)	
Aims, objectives and success criteria for the applicant's project	The long-term goal is a regulatory solution that enables Essential Energy – and other Distribution Network Service Providers (DNSPs) – to deploy, operate, and innovate across all microgrid models – without the need for repeated, model-specific assessments or approvals. The waivers should provide a menu of options,

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	empowering Essential Energy to deliver reliable, resilient, and affordable energy for all customers, in line with its corporate vision and strategic plan. The sandboxing trial is intended to generate practical, in-field evidence on the operation of islandable microgrids as BAU distribution solutions. Trial objectives focus on: • demonstrating reliability and resilience outcomes for customers in selected locations; • testing delivery and operational models under controlled conditions; • identifying which regulatory barriers materially affect delivery; and • informing future regulatory decision-making through evidence rather than assumption. Public interest benefits are expected to include improved customer outcomes in remote and fringe-of-grid communities, reduced reliance on reactive supply measures during extended outages, and improved regulatory understanding of emerging distribution-level solutions. The proposed framework aligns with existing regulatory approaches to shared assets and SAPS, including the treatment of net revenues associated with RAB-funded infrastructure. The program is also subject to a comprehensive knowledge-sharing regime under the Australian Renewable Energy Agency's (ARENA) Regional Microgrids Program funding arrangements. This includes public technical and regulatory reporting, public community insights reporting, provision of project data, participation in industry events and dissemination of project learnings, ensuring that knowledge generated through the trial can be shared broadly with industry participants, policymakers and regulators.
Confidential information (if any)	

Waiver Frameworks

Selected framework(s) for the waiver application	National Energy Framework
Is this confidential?	False
Selected National laws and/or rules for which the waiver is being sought	National Electricity Rules, National Energy Law
Is this confidential?	False
Selected Victorian laws and/or rules for which the waiver is being sought	N/A
Is this confidential?	False
If Commission Code of Practice, please specify	N/A
Confidential information (if any)	
If Commission Guideline, please specify	N/A
Confidential information (if any)	
If Other, please specify	N/A
Confidential information (if any)	
Description of the particular provision(s) the applicant is seeking a waiver from	1. DNSP ownership, control and operation of generation and integrated resource systems NEL s 11(1); NER 2.1A.1(a)–(b).

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Relief is sought to the extent necessary to permit Essential Energy to own, control or operate a generating system or integrated resource system forming part of an eligible microgrid without registration as a Generator or Integrated Resource Provider, where the relevant activity is undertaken principally for distribution reliability and resilience purposes and is subject to the trial conditions and guardrails.

NER 2.1A.2, 2.1B, 2.2 and 2.9.3 form part of the existing registration, exemption, classification and intermediary framework and inform the need for and scope of the relief sought. **Essential Energy does not seek a trial waiver from those provisions.** Where an eligible deployment can proceed satisfactorily under an existing registration or exemption pathway, that ordinary framework will continue to apply.

2. Power system performance requirements during temporary islanded operation

NER 5.2.3(b), together with S5.1.2.1, S5.1.3, S5.1.8, S5.1.9 and S5.1.10.2(c)–(d), only to the extent necessary during temporary islanded operation.

Relief is sought to allow an affected section of Essential Energy's distribution network, while intentionally islanded, to operate under pre-approved islanded-mode technical and operational protocols where direct application of an identified interconnected-system requirement would be inconsistent with safe and effective islanded operation.

Specifically, the proposed relief may permit:

- **S5.1.2.1 – credible contingency events:** application of approved islanded-mode contingency and operating protocols during islanded operation;
- **S5.1.3 – frequency variations:** application of island-specific frequency operating limits and control settings;
- **S5.1.8 – stability:** application of islanded-mode stability criteria supported by engineering studies and operational protocols;
- **S5.1.9 – protection systems and fault clearance times:** application of approved island-mode protection settings and fault-clearance arrangements; and
- **S5.1.10.2(c)–(d) – DNSP load/generation control facilities:** application of approved island-mode frequency and under-voltage settings during islanded operation.

Ordinary Schedule 5.1 requirements will continue to apply except where relief from an expressly identified provision is necessary for an eligible deployment. In particular, Essential Energy does not presently seek relief from requirements relating to voltage quality, voltage fluctuations, harmonic distortion, voltage unbalance, equipment ratings or safe automatic reclosing.

Further detail is provided in **Essential Energy Sandboxing Application, sections 2.2–2.4 and 3.2, Tables 4 and 5.**

3. Distribution Ring-fencing Guideline – complementary ring-fencing relief

In addition to the sandboxing relief identified above, Essential Energy seeks complementary relief from specified provisions of the AER Distribution Ring-fencing Guideline where required for eligible microgrid deployments. The relief sought is limited to:

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	• clause 3.1(b) – to permit Essential Energy to undertake incidental “other services” associated with an eligible microgrid where those activities are subordinate to the primary distribution reliability and resilience purpose and subject to the trial guardrails; • clause 3.1(d)(i) – to permit Essential Energy to grant an appropriately appointed third party rights to operate, orchestrate or make bounded secondary use of an Essential Energy-owned new energy storage device, subject to reliability priority, arm’s-length arrangements and the waiver safeguards; • clause 4.2.1 – contingent relief from physical office separation requirements only where an eligible deployment is not covered by an existing exemption and integrated staffing or operations are reasonably necessary for delivery of the microgrid; • clause 4.2.2 – contingent relief to allow appropriately identified Essential Energy staff to undertake integrated operational functions where required for safe and efficient microgrid operation and no existing exemption applies; and • clause 4.2.3 – contingent relief from branding and cross-promotion separation requirements only where necessary for an eligible microgrid to be identified as a distribution reliability/resilience project and an existing exemption is insufficient. Essential Energy will not rely on waiver relief where an existing exemption under the Guideline applies. No relief is sought from clause 3.2 cost-allocation/accounting obligations, clause 4.1 non-discrimination obligations or clause 4.3 information-access and disclosure obligations. The ring-fencing relief is intended to operate as a targeted and complementary component of the sandbox trial and remains subject to the scope limitations, safeguards and conditions described in section 3.3 and Table 7 of the supporting <i>Essential Energy Sandboxing Application</i>.
Confidential information (if any)	

Purpose and Assets

Why is the trial waiver required to conduct the trial project?	The trial waiver is required because the existing regulatory framework was not designed for distribution-led microgrids that transition between grid-connected and temporary islanded operation. The immediate Category A barriers for which sandbox relief is sought are: 1) Registration / role constraint – NER 2.1A.1(a)–(b) may require Essential Energy to register as a Generator or Integrated Resource Provider where it owns, controls or operates generation or an integrated resource system forming part of an eligible microgrid. The trial seeks targeted relief to allow those arrangements where they are undertaken principally for distribution reliability and resilience purposes. 2) Network performance requirements during temporary islanded
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	operation – NER 5.2.3(b), together with S5.1.2.1, S5.1.3, S5.1.8, S5.1.9 and S5.1.10.2(c)–(d), may apply notwithstanding that the affected section of the distribution network has been intentionally electrically separated from the interconnected system. Some of those requirements assume interconnected-system contingency, frequency, stability, protection and control arrangements that may be inappropriate to the temporary islanded operating state. The trial therefore seeks targeted relief only where necessary to permit operation under pre-approved islanded-mode technical and operational protocols. Ordinary Schedule 5.1 requirements continue to apply except where an identified provision is expressly displaced under the waiver. Other matters, including settlement, metering, market interfaces and reliability incentive interactions, are not presently identified as regulatory prohibitions requiring waiver relief. These matters will be managed through trial design, protocols, stakeholder engagement, monitoring and reporting. If monitoring identifies a material regulatory barrier not addressed by the approved waiver, Essential Energy will engage with the AER and AEMO regarding the appropriate regulatory pathway before relying on any additional relief. The waiver is intended to operate as a targeted, time-limited framework. It does not permit unconstrained generation, unconstrained trading or wholesale market participation for commercial purposes. Any generation, storage or market interaction must remain bounded and subordinate to the primary distribution reliability and resilience purpose. Further detail: Essential Energy Sandboxing Application – sections 2 and 3.
Confidential information (if any)	
Description of whether the applicant's project will include the installation of new infrastructure or assets	Yes. Eligible deployments may include new or upgraded infrastructure comprising combinations of: • solar PV or other generation; • battery energy storage systems; • backup generation; • protection and control systems; • communications systems; and • associated distribution assets. The precise configuration will vary by location and network need. Assets will be sized, configured and operated primarily to maintain supply during outages or constrained network conditions, support planned isolation or network works, and improve community-level resilience. Further detail: Essential Energy Sandboxing Application – sections 1.1–1.4 and 3.4–3.5.
Confidential information (if any)	

Markets and Locations

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Description of the applicant's intended audience/customer. How many and what type of consumer will be involved? How does the applicant intend to recruit them?	The intended customers are electricity customers supplied from sections of Essential Energy's distribution network where an islandable microgrid represents an appropriate response to an identified distribution reliability or resilience need. These are expected principally to include regional, rural, remote, fringe-of-grid and high-risk communities. Customer numbers will vary by deployment. Current projects illustrate the expected scale, but the waiver is sought as a program-level framework rather than for a fixed list of customers or sites. Customers are not being recruited to purchase a new retail product. The microgrid is a distribution reliability and resilience solution. Community and stakeholder engagement will form part of deployment development and will inform matters including site selection, design and implementation. Further detail: Essential Energy Sandboxing Application – sections 1.2–1.4, 3.4–3.7 and 4.
Confidential information (if any)	
Which market/s will it operate in?	NSW
Is this confidential?	True/False
Location/s of the applicant's intended customers	New South Wales – within Essential Energy's distribution network area.
Is this confidential?	True/False
Other location description (if applicable)	The locations identified in the supporting application are current candidate, funded or illustrative deployments and are not intended to constitute an exhaustive or fixed list of trial sites. Locations remain dynamic and may be added, substituted, deferred or not proceed as project development progresses, including as a result of detailed engineering and network assessment, funding, land and planning considerations, procurement, and community and stakeholder consultation. The geographic boundary of the trial is Essential Energy's distribution network area. Eligibility is determined by the characteristics and purpose of each deployment, including a clear and documented distribution-led reliability or resilience need, compliance with the technical and operational scope of the trial, and application of the program guardrails. This approach allows the same controlled waiver framework to be applied across different network contexts without requiring a new waiver merely because an eligible project location changes. Further detail: Essential Energy Sandboxing Application – sections 1.3, 3.4, 3.5 and 3.7.
Confidential information (if any)	True/False
Customers' aggregate consumption at a supply point is or is likely to be	xxxx
Is this confidential?	True/False

Project Progress

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Proposed duration of the trial project (in months or years)	5 years
Is this confidential?	False
Stages of the applicant's innovation project that have already been completed	Pre-feasibility; Consultation; Financing; Planning or development approval; Market Research; Product Development
Is this confidential?	False
Has the applicant previously engaged with any of the following entities about the innovation?	Australian Energy Market Operator (AEMO); Australian Energy Market Commission (AEMC); Australian Energy Regulator (AER)
Is this confidential?	False
Other entities the applicant has engaged with	
Confidential information (if any)	True/False

Project Funding

Has the applicant received funding or financing from a third party?	Yes																				
Is this confidential?	False																				
What sources have approved financial support?	ARENA, NSW DCCEW																				
Is this confidential?	False																				
Funding received from specified Government agency and program (if applicable)	Essential Energy has been awarded grants by ARENA’s Regional Microgrid Program, under Stream A focusing on Regional Australia Microgrid Pilots and stream B for First Nations Community, for the projects listed in Table 3 Table 3 - ARENA Microgrid Projects <table><tr><th>COMMUNITY</th><th>BATTERY SIZE</th><th>SOLAR SIZE</th><th>AVERAGE ANNUAL OUTAGE HOURS SAVED</th><th>APPROXIMATE CUSTOMERS CONNECTED</th></tr><tr><td>Wilcannia</td><td>5 MW / 8 MWh</td><td>3.25 MWac</td><td>11.8</td><td>745</td></tr><tr><td>Sunset Strip</td><td>5 MW / 8 MWh</td><td>3.75 MWac</td><td>11.0</td><td>420</td></tr><tr><td>Bendick Murrell</td><td>5 MW / 5.6 MWh</td><td>2.9 MWac</td><td>7.3</td><td>760</td></tr></table>	COMMUNITY	BATTERY SIZE	SOLAR SIZE	AVERAGE ANNUAL OUTAGE HOURS SAVED	APPROXIMATE CUSTOMERS CONNECTED	Wilcannia	5 MW / 8 MWh	3.25 MWac	11.8	745	Sunset Strip	5 MW / 8 MWh	3.75 MWac	11.0	420	Bendick Murrell	5 MW / 5.6 MWh	2.9 MWac	7.3	760
COMMUNITY	BATTERY SIZE	SOLAR SIZE	AVERAGE ANNUAL OUTAGE HOURS SAVED	APPROXIMATE CUSTOMERS CONNECTED																	
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Sunset Strip	5 MW / 8 MWh	3.75 MWac	11.0	420																	
Bendick Murrell	5 MW / 5.6 MWh	2.9 MWac	7.3	760																	
Is this confidential?	False																				
Funding received from other financial source (if applicable)	Essential Energy's microgrid program is supported through a combination of funding sources, including the Australian Renewable Energy Agency (ARENA), NSW Government funding programs, and Essential Energy investment approved through the 2024-29 regulatory determination. Government funding supports the development and deployment of microgrid solutions in regional and remote communities across Essential Energy's network footprint.																				
Is this confidential?	False																				

Project Stage

When does the applicant plan to launch its innovation?	In less than 6 months
Is this confidential?	False
Description of the applicant's business development stage	
Confidential information (if any)	

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Description of how the trial project will be monitored, reported on and evaluated, include how learnings will be shared	<u>Monitoring, reporting and transparency</u> Essential Energy will provide the AER with regular reporting on the application and operation of the waivers, proportionate to the scale and risk of the trial. Reporting will include, as appropriate: • the number and type of microgrid deployments utilising the waiver framework; • the nature of the waivers applied to each deployment; • cumulative customer numbers, NMIs and installed capacity operating under the waiver framework, including notification where deployment materially exceeds the scale contemplated in this application; • operational learnings arising from islanding events; and • any material issues identified in relation to customer outcomes, system performance or market interactions. These reporting arrangements are intended to support regulatory oversight and shared learning, rather than to impose unnecessary administrative burden. Essential Energy notes that the BAU Microgrids Program is subject to an extensive knowledge-sharing and reporting framework under the executed ARENA Regional Microgrids Program Funding Agreement. Those arrangements include delivery of public technical and regulatory insights reports, public community insights reports, a final project knowledge-sharing report, provision of project data, participation in industry events and workshops, site visits, project evaluation activities, and ongoing reporting of lessons learned and project outcomes. Importantly, compliance with these obligations is linked to project milestone achievement and funding payments and is supported by audit, evaluation and information-sharing provisions. As a result, the Project is already subject to a structured and enforceable framework designed to ensure that learnings are captured, documented and disseminated across industry. Accordingly, Essential Energy proposes that any reporting requirements associated with the sandboxing and ring-fencing waivers should, where practicable, leverage and align with existing ARENA reporting processes to avoid duplication and unnecessary administrative burden, whilst still providing the AER with appropriate visibility of trial outcomes and regulatory learnings. <u>Interaction with incentive and accountability frameworks</u> Where unplanned outages or performance shortfalls occur, the resulting outcomes will continue to be addressed through existing incentive and accountability mechanisms (including STPIS), as applies to other distribution assets. The application of these mechanisms does not alter the permissions granted under the sandboxing or ring-fencing waivers, nor does it convert reliability outcomes into compliance breaches under the waiver framework. This distinction preserves the appropriate separation between financial incentives and regulatory permissions. <u>Review and adaption</u>
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	Given the evolving nature of microgrid technologies and delivery models, the waiver framework is intended to be adaptive. Learnings generated through the trial may inform refinements to operational practices, safeguards or reporting arrangements over time, subject to engagement with the AER. This adaptive approach supports the broader objective of using sandboxing as a mechanism to inform durable, long-term regulatory settings.
Confidential information (if any)	

Eligibility Criteria

Consumer Impacts

Description and identification of the benefits to consumers from the trial project, and how these benefits will be measured	The trial is expected to deliver public interest benefits, including: - improved reliability and resilience outcomes for customers in remote, fringe-of-grid and high-risk communities; - reduced reliance on temporary and reactive supply measures during extended outage events; - more efficient utilisation of network and non-network assets, where microgrids represent a least-cost network-equivalent solution; and - improved regulatory understanding of emerging distribution-level solutions, supporting better-informed decision-making over time. By enabling learning under controlled conditions, the sandboxing framework supports innovation without compromising consumer protections or market integrity, and contributes to the long-term interests of electricity consumers.
Confidential information (if any)	
Description of how consumers experiencing vulnerability will be supported	Consumer protections remain paramount under the waiver framework. Microgrid deployments enabled under this application will continue to operate within existing consumer protection arrangements, including: - life-support customer identification and management; - complaints handling and escalation processes; and - retailer and ombudsman arrangements, as applicable. Participation in trial activity will not diminish customer rights or protections. Where trial-specific arrangements are required, these will be implemented in a manner consistent with existing consumer protection principles.
Confidential information (if any)	
Description of how consumer protections will be maintained through the trial	Existing consumer protection arrangements will continue to apply. The trial does not alter customers' retail contracts, connection arrangements or existing rights and protections. Existing life-support, complaints, retailer and energy ombudsman arrangements will continue to operate.
Confidential information (if any)	
Description of how customer privacy will be maintained, including how customer information will be collected, used, managed and disclosed	The trial does not require any general displacement of existing customer privacy arrangements. Any customer information required for project development or operation will be collected, used, managed and disclosed in accordance with Essential Energy's

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	existing privacy and information-management obligations and processes.
Confidential information (if any)	

Risk management

Description of the risk management plan for the proposed trial project	<u>Overview</u> The sandboxing and ring-fencing waivers sought under this application are intended to operate within a controlled and transparent framework, supported by defined conditions, safeguards and reporting arrangements. These measures are designed to: • manage risks associated with trial operation; • protect customers and the integrity of the energy market; and • provide the AER with appropriate visibility of how the waivers are applied in practice. The conditions and safeguards described below reflect the transitional nature of the waiver framework and are proportionate to the scope and scale of the activities proposed. <u>Scope controls and eligibility criteria</u> The application of the sandboxing and ring-fencing waivers will be limited to eligible microgrid deployments that meet defined criteria, including: • a clear and documented distribution-led reliability or resilience objective; • operation within the technical and operational parameters described in this application; • consistency with the in-scope and out-of-scope boundaries set out in Section 3.4; and • alignment with the intent of the Microgrids Program as a business-as-usual distribution solution. Not all microgrid deployments will require access to all waivers. For example, microgrids that operate predominantly as islanded systems with minimal interaction with energy markets (and which are functionally closer to large SAPS-type arrangements) may require access to a narrower subset of regulatory relief than islandable microgrids that operate across both grid-connected and islanded states over time. The framework allows Essential Energy to apply the relevant regulatory tool only where necessary, based on the characteristics of each deployment. <u>Operational Safeguards</u> Operational safeguards will be implemented to manage risks associated with islanding events and trial operation, including: • pre-defined technical and operational protocols governing islanding, reconnection and normal operation; • conservative system design and operating limits appropriate to the scale and purpose of each microgrid; and • operational decision-making that prioritises safety, system stability and continuity of supply.
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	These safeguards recognise that islanding events may involve unplanned outages and system contingencies, and are intended to manage such events consistently with established distribution network practices.
Confidential information (if any)	
Description of the risks for other market participants and how these will be mitigated	Temporary islanding may have consequences for parties including retailers, Financially Responsible Market Participants (FRMPs), metering participants and AEMO, particularly in relation to settlement, metering, reconciliation and market-interface arrangements. These matters are not presently identified as regulatory prohibitions requiring waiver relief. They will be managed as Category B trial issues through deployment-specific design, operating protocols, stakeholder engagement, monitoring and transparent reporting. Where a deployment gives rise to material implications for a third-party participant, Essential Energy will engage with affected parties and the AER to determine whether additional protocols, consultation or reporting arrangements are appropriate. The trial will also assess the materiality, frequency and duration of any settlement or reconciliation anomalies before assuming that structural regulatory changes are required. Further detail: Essential Energy Sandboxing Application – sections 2.5, 3.7 and 4.3.
Confidential information (if any)	
Description of the processes in place to monitor and respond to potential risk events	Essential Energy has historically relied on a range of established planning and operational responses to manage reliability and resilience risks, including: • network duplication or augmentation; • targeted asset hardening; • feeder automation and sectionalising; • standalone power systems (SAPS) for individual customer connections; and • deployment of portable generation during major outage events. While these measures remain important components of the distribution toolkit, they are not universally suitable or cost-effective. In particular: • network duplication can involve high capital costs relative to utilisation in remote or low-density areas; • asset hardening does not always mitigate upstream or external disruption risks; • SAPS solutions are well-suited to discrete customer connections but do not address township-level resilience; and • portable generation is inherently reactive rather than preventative and does not provide enduring resilience benefits. As a result, there are circumstances where no single traditional option provides a satisfactory balance of cost, reliability, resilience and customer outcomes.

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Confidential information (if any)	
Does the applicant expect there to be any risks to the safety, reliability and security of electricity supply of energy and/or gas as a result of the project?	Essential Energy operates one of the largest and most geographically dispersed electricity distribution networks in Australia, characterised by long radial feeders, remote supply points, and communities located at the fringes of the interconnected grid. Many parts of the network are exposed to increasing reliability and resilience risks arising from extreme weather events, bushfire, flooding, and constrained access during outages. In these contexts, maintaining reliable electricity supply is not simply a matter of asset age or maintenance condition. Rather, it reflects structural characteristics of the network footprint, including long restoration times following upstream faults and limited alternative supply paths. Within this operating environment, microgrids are being assessed and developed as distribution-level solutions to address these challenges, alongside more traditional network options. Their role is to provide a localised capability to maintain supply to defined sections of the network during periods when connection to the broader system is unavailable or impractical. Microgrids do not represent a departure from Essential Energy's core role as a DNSP, but rather provide an additional means of delivering distribution services, particularly where conventional approaches are limited by geography, risk exposure or restoration timeframes. Their deployment is therefore driven by network need, not by market participation or generation objectives. Essential Energy recognises that some consequences of temporary islanding may affect parties other than Essential Energy, including retailers, FRMPs, metering participants and AEMO. While these matters do not presently require waiver relief to enable deployment, they will be assessed as part of deployment planning and stakeholder engagement processes. Where a deployment gives rise to material implications for third-party participants, Essential Energy would engage with affected parties and the AER to determine whether additional protocols, consultation or reporting arrangements are appropriate.
Is this confidential?	
Explanation of what these risks are and how those risks will be avoided or mitigated	
Confidential information (if any)	
If no, why not?	
Confidential information (if any)	
Description of any consultation undertaken with Australian Energy Market Operator, Energy Safe Victoria or any other relevant bodies regarding the proposed trial project and the risk management plan	This application has benefitted from review and feedback from AEMO.
Confidential information (if any)	

Operational capability

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Evidence of the organisation's operational, technical and financial ability to carry out the proposed trial project	Essential Energy is a state-owned electricity infrastructure company which owns, maintains and operates the electrical distribution networks for much of New South Wales, covering 95 percent of the state geography.
Confidential information (if any)	

Exit strategy

Description of the trial project closure process and how participating customers will revert to their pre-existing supply arrangements or move onto suitable alternative arrangements that comply with all relevant regulatory requirements after closure of the trial project	The waiver framework is explicitly time-bound and transitional. At the conclusion of the trial period, or earlier if appropriate, Essential Energy anticipates transitioning microgrid deployments to the most appropriate enduring regulatory arrangements available at that time. These may include: - operation under existing regulatory frameworks without the need for ongoing waiver relief; or - operation under revised or new regulatory arrangements informed by trial outcomes (including, but not limited to, future T-SAPS-style or related reforms if progressed). If a T-SAPS framework is finalised during the waiver period, Essential Energy would actively engage with the AER and AEMO regarding the interaction between the waiver framework and the new arrangements. This may include consideration of whether particular deployments should transition into the T-SAPS framework, whether specific aspects of the waiver framework remain necessary, and whether operational, settlement or reporting arrangements should be aligned with the new framework. This is consistent with the transitional nature of the sandboxing pathway and reflects Essential Energy's intention that the trial should inform, and where appropriate evolve alongside, enduring reform.
Confidential information (if any)	

Consumer protection

Description of how participating retail customers and/or participants will provide their explicit informed consent and how this will be recorded. If it is intended that explicit informed consent will not be obtained, the applicant must explain why this should not be required	Explicit individual customer consent is not proposed because customers are not enrolling in a new retail product or service and the trial does not replace their existing retail or connection arrangements. The microgrid forms part of Essential Energy's distribution reliability and resilience response and operates to maintain supply during circumstances in which customers would otherwise experience an interruption. Community and stakeholder engagement will nevertheless be undertaken for each proposed deployment as part of site selection, design and implementation. Essential Energy's current microgrid projects are at an early stage, with no BAU renewables-based microgrid yet delivered due to regulatory barriers (see Section 3). However, pilot projects and community engagement activities are underway: - Ivanhoe: Microgrid under development, including a 4MWh battery, 4MVA inverter, and backup diesel generator. Designed to supply the township and surrounding areas, with the battery providing up to 10 hours of average load and the generator topping up during extended outages. - Tibooburra: Planned microgrid with 300–400kW solar PV, 4MWh BESS, temporary generator, and EV charging stations.
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	The microgrid will supply power during grid outages, with community engagement shaping site selection and design. These projects are designed to test the viability of microgrids as a BAU solution, generate evidence for regulatory reform, and deliver direct benefits to participating communities.
Confidential information (if any)	
Description of how participating retail customers and/or participants can raise a dispute in relation to the proposed trial project and the processes and procedures in place to resolve these, noting this could include recourse to the relevant energy ombudsman	No separate trial-specific dispute resolution process is proposed. Customers will retain access to Essential Energy's existing complaints and escalation processes and, where applicable, their retailer and the relevant energy ombudsman arrangements.
Confidential information (if any)	
Description of how participating retail customers and/or participants can opt out of the proposed trial project or, if it is proposed that customers should not be able to opt out of the trial project or that there should be restrictions on the circumstances in which customers can opt out, the reasons why this should be the case	Not applicable in the manner contemplated by this question. Customers are not being recruited into a new retail product or service and their existing retail and connection arrangements are not replaced by participation in the trial. The microgrid operates as distribution infrastructure intended to maintain supply during network outages or planned isolation. Accordingly, individual customer opt-in or opt-out is not proposed.
Confidential information (if any)	

Disconnections

Description of the proponent's proposed processes in relation to disconnection where the proposed trial project directly involves the supply or sale of electricity or gas to small customers	Not applicable. The trial does not involve a new retail supply or sale arrangement and does not establish a separate trial-specific disconnection regime. Existing regulatory and contractual arrangements relating to customer connection and disconnection continue to apply.
Confidential information (if any)	

Development of regulatory experience

Description of how the proponent consider the trial project contributes to the development of regulatory and industry experience	The purpose of the sandboxing trial is to enable Essential Energy to test, observe and evaluate the deployment of islandable microgrids as business-as-usual distribution network solutions, in circumstances where the existing regulatory framework has not yet evolved to accommodate their operation at scale. The trial is intended to generate practical, in-field evidence across technical, operational, commercial and consumer dimensions, and to inform the development of durable, model-agnostic regulatory settings over time. It is not intended to predetermine the form of any future rule change or regulatory framework. Consistent with the AER's Energy Innovation Toolkit, the trial focuses on enabling delivery under controlled conditions, while ensuring that
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consumer protections, market integrity and regulatory oversight are preserved.

Learning outcomes – Category B issues

The trial will generate evidence in relation to Category B issues, which do not require immediate waiver relief but must be actively managed during trial operation to ensure consumer protection, market integrity and operational safety.

These learning outcomes include:

- Operational and settlement interfaces Observations on how islanding events interact with existing metering, settlement and market systems, including the materiality, frequency and duration of any settlement or reconciliation anomalies. including whether retention of ordinary market treatment during islanding periods provides a simpler and more proportionate outcome than alternative approaches in particular deployment contexts.
- Reliability reporting and incentive interactions Practical experience with how islanding events are reflected in reliability metrics and incentive
- frameworks (including STPIS), and whether current arrangements appropriately capture the customer and network outcomes delivered by microgrids.
- Consumer protections in islanded operation Insights into the effectiveness of existing consumer protection arrangements (including life-support identification, complaints handling and retailer interfaces) in the context of islandable microgrids.
- Operational protocols and safeguards Evidence on the effectiveness of technical and operational protocols governing islanding, reconnection and contingency management under real-world conditions, including the interaction between DNSP-operated, third-party-operated and hybrid operating models and how responsibilities are allocated during transitions between connected and islanded operation. This naturally includes responsibility for islanding activation, resynchronisation, reconnection and restoration activities
- Evidence on how DNSP-led microgrids interact with the principles underpinning emerging T-SAPS frameworks, including activation criteria, operational treatment, settlement consequences, treatment of affected connection points, metering arrangements and transition back to normal interconnected operation.

These learning outcomes are intended to inform refinements to operational practice and regulatory guidance, rather than to require resolution of all issues upfront.

Learning outcomes – Category C issues

The trial is also intended to inform Category C issues, which are structural in nature and best addressed through evidence-based reform rather than assumption.

These include:

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	- Regulatory characterisation of islandable microgrids Whether existing regulatory concepts adequately reflect systems that operate across both grid-connected and islanded states, or whether modified or new classifications may be warranted over time. - Registration, metering and role clarity Insights into whether existing registration categories, registration thresholds and metering requirements remain proportionate for resources that operate solely to support temporary islanding or continuity-of-supply outcomes. This includes consideration of whether alternative approaches may be appropriate for generation or storage assets that operate exclusively within an islanded section and do not participate in normal market activities. - Service classification and ring-fencing settings Evidence on how different microgrid configurations interact with service classification and ring-fencing frameworks, including the effectiveness of waiver-based approaches compared with more enduring solutions. - Boundary between network services and market participation Learnings on how secondary activities can be bounded and subordinated to distribution purposes without creating undue complexity, compliance risk or competitive distortion. These outcomes are intended to support informed consideration of future reforms, without presuming their form, timing or necessity.
Confidential information (if any)	

Consultation with other regulators

Has the applicant engaged with the jurisdictional safety regulator on the project?	Not applicable
Is this confidential?	True/False
If no, why not?	
Confidential information (if any)	
If yes, does the applicant require an exemption, and did the applicant receive one from them?	
Confidential information (if any)	

Confidential information

The commission must consider whether the extent and nature of any confidential information impair the commission's ability to provide public transparency in relation to the conduct and outcomes of trial projects. Provide any comments you consider relevant to this assessment	
Confidential information (if any)	

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The AER must consider whether the extent and nature of any confidential information impair the AER's ability to provide public transparency in relation to the conduct and outcomes of trial projects. Provide any comments you consider relevant to this assessment	Essential Energy has provided the AER with access to the ARENA funding grant on a commercial-in-confidence basis. That information is not required to assess the merits of the trial waiver application and is provided as additional context only.
Confidential information (if any)	
Explanation of whether the proponent considers the extent and nature of the confidential information may impair the appropriate development of regulatory and industry experience arising from the trial project	
Confidential information (if any)	

Innovative Trial Principles

Innovative Trial Principles

Explanation of whether the trial project is focused on developing new or materially improved approaches to the use or supply of, or demand for, electricity	While Essential Energy's 2024–29 regulatory proposal contemplated microgrids as part of its reliability toolkit, these were primarily battery and diesel-based systems that did not require regulatory waivers. Since that time, network needs, technology options, and government and community expectations have evolved significantly. The current program reflects a strategic shift away from diesel-reliant solutions – driven by the high and volatile cost of diesel, supply chain risks during adverse events, and the increasing expectation to transition toward lower-emissions, renewable generation sources. This application addresses a new class of microgrid – Category A – requiring targeted regulatory relief to enable innovative, resilient, and future-focused solutions. This application seeks targeted – regulatory relief to address those constraints, while preserving consumer protections, market integrity and regulatory oversight, and while generating evidence to inform future regulatory decision-making. This application does not seek waivers for legacy diesel or battery-only reliability assets, which remain outside the scope of market facing activity and contestable services. This application has also been informed by the ongoing RACE for 2030 'Community and Regulatory Perspectives on Microgrids' project. Preliminary findings from RACE2030 reinforce the need for targeted, proportionate regulatory relief – particularly in relation to settlement and tariff anomalies, the limited relevance of the Retailer Reliability Obligation (RRO) for Temporary Stand-Alone Power System (T-SAPS) customers, and the importance of clear protocols for third-party participation. Essential Energy's proposed waiver framework is designed to address these barriers in a manner consistent with sector best practice, as emerging from the RACE2030 research
Confidential information (if any)	
Explanation of whether the trial project likely to contribute to the	The trial is expected to deliver public interest benefits, including: Essential Energy Sandboxing Application

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achievement of the national electricity objective	- improved reliability and resilience outcomes for customers in remote, fringe-of-grid and high-risk communities; - reduced reliance on temporary and reactive supply measures during extended outage events; - more efficient utilisation of network and non-network assets, where microgrids represent a least-cost network-equivalent solution; and - improved regulatory understanding of emerging distribution-level solutions, supporting better-informed decision-making over time.
Confidential information (if any)	
Explanation of whether the trial project is able to demonstrate a reasonable prospect of giving rise to materially improved services and outcomes for consumers of electricity	Expected to include improved customer outcomes in remote and fringe-of-grid communities, reduced reliance on reactive supply measures during extended outages, and improved regulatory understanding of emerging distribution-level solutions. The proposed framework aligns with existing regulatory approaches to shared assets and SAPS, including the treatment of net revenues associated with RAB-funded infrastructure.
Confidential information (if any)	
Explanation of whether the trial project maintains adequate consumer protections, including whether the trial project may involve risks to consumers and (if so), how those risks might be mitigated	Consumer protections remain paramount under the waiver framework. Microgrid deployments enabled under this application will continue to operate within existing consumer protection arrangements, including: - life-support customer identification and management; - complaints handling and escalation processes; and - retailer and ombudsman arrangements, as applicable. Participation in trial activity will not diminish customer rights or protections. Where trial-specific arrangements are required, these will be implemented in a manner consistent with existing consumer protection principles.
Confidential information (if any)	
Explanation of whether the trial project is unable to proceed under the existing regulatory framework	The BAU Microgrids Program involves the deployment of islandable microgrids that operate across two distinct operating states: - grid-connected operation, as part of the interconnected distribution network; and - temporary islanded operation, during upstream outages or planned isolation events, to preserve supply to customers. The existing regulatory framework was not designed to accommodate assets and systems that transition between these states while remaining within the distribution network. As a result, the following provisions give rise to regulatory barriers that cannot be resolved through existing exemptions or administrative processes.
Confidential information (if any)	
Explanation of whether the trial project has moved beyond research and development stages but is not yet established, or of sufficient maturity, size or otherwise commercially ready, to attract investment	Essential Energy's current microgrid projects are at an early stage, with no BAU renewables-based microgrid yet delivered due to regulatory barriers.
Confidential information (if any)	
Explanation of whether the trial project may negatively impact the	Operational safeguards will be implemented to manage risks associated with islanding events and trial operation, including:

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Australian Energy Market Operator's operation of the national electricity system and national electricity market and, if there are impacts, how those impacts can be mitigated	• pre-defined technical and operational protocols governing islanding, reconnection and normal operation; • conservative system design and operating limits appropriate to the scale and purpose of each microgrid; and • operational decision-making that prioritises safety, system stability and continuity of supply. These safeguards recognise that islanding events may involve unplanned outages and system contingencies, and are intended to manage such events consistently with established distribution network practices.
Confidential information (if any)	
Explanation of whether the trial project may impact on competition in a competitive sector of the national electricity market	The ring-fencing waiver sought under this application is not intended to permit Essential Energy to provide unconstrained contestable services, to derive unregulated revenue unrelated to the distribution purpose of microgrids, or to engage in discriminatory or anti-competitive conduct. Rather, it is intended to allow restricted and transparent interactions between regulated distribution services and certain ancillary activities that are incidental to, and subordinate to, the primary network function of maintaining reliability and resilience in defined locations. The ring-fencing waiver will operate subject to defined structural, accounting and conduct safeguards, including separation between regulated and contestable activities where applicable, compliance with cost-allocation and accounting requirements, and transparency of arrangements involving third parties. These safeguards are intended to ensure that any competitive interaction remains incidental to the distribution purpose of microgrids and does not give rise to cross-subsidisation or market distortion. Contestability is preserved through the procurement of all contestable components, including generation and storage equipment, construction activities and ASP works. These activities are undertaken through established competitive processes and reflect Essential Energy's broader approach to engaging the market. This delineation between integrated asset operation and contestable supply maintains opportunities for third-party participation while avoiding fragmentation of ownership and operational responsibility that would introduce complexity and risk in the trial phase of BAU implementation. This guardrail responds to concerns regarding market participation and potential crowding out of competitive providers by maintaining a clear and active role for the market in the delivery of microgrid components.
Confidential information (if any)	

National Energy Regulations Additional Principles

Explanation of whether the trial project is able to be trialled and evaluated	Essential Energy notes that the BAU Microgrids Program is subject to an extensive knowledge-sharing and reporting framework under the executed ARENA Regional Microgrids Program Funding Agreement. Those arrangements include delivery of public technical and
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	regulatory insights reports, public community insights reports, a final project knowledge-sharing report, provision of project data, participation in industry events and workshops, site visits, project evaluation activities, and ongoing reporting of lessons learned and project outcomes. Importantly, compliance with these obligations is linked to project milestone achievement and funding payments and is supported by audit, evaluation and information-sharing provisions. As a result, the Project is already subject to a structured and enforceable framework designed to ensure that learnings are captured, documented and disseminated across industry.
Confidential information (if any)	
Explanation of whether there is potential for the trial project to be successfully expanded	Expansion beyond the request outlined in the application is not anticipated.
Confidential information (if any)	
Explanation of whether the trial project will provide for public sharing of knowledge, information and data resulting from the trial project	The trial is subject to significant public reporting processes through the ARENA funding grant.
Confidential information (if any)	

Supporting Files

Description	Filename	File Size
Full Sandbox application	Essential Energy - Microgrid Sandboxing Application - August 2026	1397kb

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Essential Energy Sandboxing Application

Islandable microgrids

01 August 2026

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Executive Summary

Essential Energy seeks approval for a regulatory sandbox trial waiver, supported by a ring-fencing waiver, to enable the delivery of its Business-as-Usual (BAU) Microgrids Program.

Islandable microgrids are being progressed by Essential Energy as distribution-led reliability and resilience solutions for customers located at the fringe, edge and remote sections of the distribution network. In these locations, conventional network responses may be constrained, uneconomic or insufficient to address extended outage risk. While microgrids are increasingly assessed as part of BAU network planning, their deployment at scale has been constrained by the application of existing regulatory frameworks that were not designed for assets and systems operating across both grid-connected and islanded states.

While Essential Energy's 2024–29 regulatory proposal contemplated microgrids as part of its reliability toolkit, these were primarily battery and diesel-based systems that did not require regulatory waivers. Since that time, network needs, technology options, and government and community expectations have evolved significantly. The current program reflects a strategic shift away from diesel-reliant solutions – driven by the high and volatile cost of diesel, supply chain risks during adverse events, and the increasing expectation to transition toward lower-emissions, renewable generation sources. This application addresses a new class of microgrid – Category A – requiring targeted regulatory relief to enable innovative, resilient, and future-focused solutions.

This application seeks targeted regulatory relief to address those constraints, while preserving consumer protections, market integrity and regulatory oversight, and while generating evidence to inform future regulatory decision-making. This application does not seek waivers for legacy diesel or battery-only reliability assets, which remain outside the scope of market facing activity and contestable services. This application has also been informed by the ongoing RACE for 2030 'Community and Regulatory Perspectives on Microgrids' project.¹ Preliminary findings from RACE2030 reinforce the need for targeted and proportionate regulatory treatment, while also identifying settlement, tariff, metering and related market-interface matters as issues whose materiality should be assessed through the trial rather than assumed to require waiver relief upfront. The proposed framework reflects this distinction by separating provisions requiring specific waiver relief from matters managed through trial protocols, monitoring and future reform.

Program description and scope

The BAU Microgrids Program is a modular, technology- and ownership-neutral program designed to improve network reliability and resilience outcomes in defined locations across Essential Energy's distribution network. Islandable microgrids may incorporate generation, storage and control systems that enable temporary islanded operation during upstream outages or planned isolation events, while operating as part of the interconnected distribution network at other times.

The program is deliberately designed to accommodate a range of delivery models, including Essential Energy ownership and operational control of assets for distribution purposes, engagement of third-party operators, and interaction with government or community-funded initiatives. Not all microgrid deployments will require regulatory relief. The application therefore seeks a framework, rather than project-specific approvals, enabling regulatory tools to be applied where necessary to delivery intended reliability outcomes and protections for consumers and markets.

¹ RACE2030, Community and Regulatory perspectives on Microgrids; interim report May 2026

Regulatory problem and rationale for sandboxing

The current regulatory framework creates a discrete set of barriers that prevent islandable microgrids from being deployed as BAU distribution solutions. These barriers arise from the application of National Electricity Law (NEL), National Electricity Rules (NER) and Ring-fencing Guideline provisions to systems that transition between grid-connected and islanded operation, and to DNSP ownership or operational control of generation and storage assets for network purposes.

Essential Energy has categorised these barriers into:

- Category A: barriers that require explicit waiver relief to proceed;
- Category B: issues that can be managed through trial design, protocols and engagement; and
- Category C: longer-term reform candidates best informed by trial evidence.

A regulatory sandbox trial waiver is the most appropriate pathway to address these issues at this stage. It enables controlled delivery and learning under defined conditions, without pre-empting enduring regulatory solutions or rule changes.

The application does not assume or rely on the progression of future reforms, including any Temporary Stand-Alone Power System (T-SAPS) framework. Essential Energy recognises that a T-SAPS rule change, if progressed, may provide a more enduring framework for aspects of market recognition, settlement and operational treatment during islanded operation. However, that reform pathway remains prospective and is unlikely to be resolved before this application is assessed. In any event, it would not, of itself, address the full suite of barriers relevant to DNSP-led islandable microgrids, including DNSP ownership and operational control of generation and storage, ring-fencing constraints, and the treatment of assets that operate across both grid-connected and islanded states. For that reason, T-SAPS reform is treated as a complementary future pathway, not a prerequisite for granting the sandboxing and ring-fencing relief sought in this application.

Proposed waiver framework

To address the identified Category A barriers, Essential Energy seeks approval for:

- a sandboxing waiver framework, enabling defined conduct under the National Electricity Law and Rules that is currently constrained; and
- a ring-fencing waiver, enabling clearly bounded interactions between regulated distribution services and ancillary activities necessary to support microgrid delivery.

The waiver framework is targeted and proportionate. It includes clear scope boundaries, conditions, safeguards, reporting obligations, review arrangements and a defined sunset pathway. Secondary or market-facing activities, where permitted, are expressly required to remain secondary and subordinate to the primary distribution purpose of maintaining network reliability and resilience.

The waivers are expressly time-limited and transitional, with ongoing regulatory engagement and reporting to support Australian Energy Regulator (AER) oversight and shared learning.

Where microgrid assets are materially funded through the Regulated Asset Base (RAB), Essential Energy would be prepared to work with the AER to ensure that any incidental trading revenue benefits customers.

Trial objectives, learning outcomes and public benefit

The sandboxing trial is intended to generate practical, in-field evidence on the operation of islandable microgrids as BAU distribution solutions. Trial objectives focus on:

- demonstrating reliability and resilience outcomes for customers in selected locations;
- testing delivery and operational models under controlled conditions;
- identifying which regulatory barriers materially affect delivery; and
- informing future regulatory decision-making through evidence rather than assumption.

Public interest benefits are expected to include improved customer outcomes in remote and fringe-of-grid communities, reduced reliance on reactive supply measures during extended outages, and improved regulatory understanding of emerging distribution-level solutions. The proposed framework aligns with existing regulatory approaches to shared assets and SAPS, including the treatment of net revenues associated with RAB-funded infrastructure.

The program is also subject to a comprehensive knowledge-sharing regime under the Australian Renewable Energy Agency's (ARENA) Regional Microgrids Program funding arrangements. This includes public technical and regulatory reporting, public community insights reporting, provision of project data, participation in industry events and dissemination of project learnings, ensuring that knowledge generated through the trial can be shared broadly with industry participants, policymakers and regulators.

CUSTOMER VALUE PROPOSITION

The direct beneficiaries of the trial are customers supplied from remote, fringe-of-grid and other high-risk sections of Essential Energy's network where long radial feeders, limited redundancy and constrained access can result in extended outages and restoration times. This includes residential customers, businesses and essential community services such as health, emergency, education and communications facilities.

For these customers, the principal benefit is continuity of electricity supply during upstream network outages: an eligible microgrid can temporarily island the affected community and maintain local supply that would otherwise be interrupted. The expected customer value therefore includes fewer and shorter supply interruptions, improved resilience during severe weather and other network events, reduced dependence on reactive temporary generation and, where a microgrid is the efficient network-equivalent solution, avoidance of higher-cost conventional network augmentation.

How to read this application

To assist assessment, this application is supported by two signposting artefacts:

- Table ES-1 (Sandbox Eligibility Summary) – a concise mapping of the BAU Microgrids Program against the AER's sandbox eligibility criteria, with references to relevant sections of the application; and
- Table ES-2 (Summary of Waivers Requested) – a consolidated summary of the sandboxing and ring-fencing waivers sought, their purpose, scope and controls.

These tables are intended to support efficient navigation of the application and are not substitutes for the detailed analysis set out in the body of the submission.



Table ES-1 Sandbox eligibility summary

SANDBOX CRITERION	HOW THE APPLICATION ADDRESSES IT	WHERE ADDRESSED
Innovation	Islandable microgrids deployed as BAU distribution solutions operating across grid-connected and islanded states	Sections 2 and 3
Learning and evidence	Structured trial objectives and Category B/C learning outcomes	Section 4
Consumer benefit	Improved reliability and resilience outcomes for customers in high-risk locations	Sections 2 and 4
Risk containment	Defined scope boundaries, safeguards, reporting and sunset	Section 3.6–3.7
Regulatory uncertainty	Discrete Category A barriers addressed through targeted waiver relief	Section 3
Time-limited trial	Defined duration, review and sunset framework	Section 3.7

Table ES-2 Summary of waivers requested

WAIVER	WHAT IT ENABLES	WHY IT IS REQUIRED	KEY CONTROLS
Sandboxing waiver	Trial operation of islandable microgrids under modified regulatory settings	NEL s 11(1) and NER 2.1A.1(a)–(b) may prevent Essential Energy from owning, controlling or operating generating systems or integrated resource systems used principally for distribution reliability and resilience unless Essential Energy is registered or exempt. During temporary islanded operation, NER 5.2.3(b), together with S5.1.2.1, S5.1.3, S5.1.8, S5.1.9 and S5.1.10.2(c)–(d), may also impose requirements designed for interconnected-system operation that are inappropriate to the islanded operating state. Relief is sought only from these identified provisions, and only to the extent necessary for an eligible deployment.	Scope limits, safeguards, reporting, review and sunset
Ring-fencing waiver	Clearly bounded interaction between regulated services and ancillary activities	Ring-fencing Guidelines prohibit necessary arrangements without approval	Separation, transparency, cost-allocation and reporting safeguards

1. Project Description and Scope

1.1 What is a Microgrid?

A microgrid is a localised energy system comprising interconnected loads and distributed energy resources – such as solar PV, battery energy storage, and backup generation – that can operate both while connected to the main electricity grid and independently (islanded mode) during grid outages or planned isolation. Key components typically include:

- Generation: Solar panels, diesel or other backup generators.
- Storage: Battery Energy Storage Systems (BESS) to store and dispatch energy as needed.
- Control systems: Advanced inverters, communications, and automation to manage transitions between grid-connected and islanded operation.
- Load: The community, township, or critical infrastructure the microgrid is designed to supply.

The primary purpose of a microgrid is to enhance reliability, resilience, and supply security for customers – especially in remote, fringe-of-grid, or high-risk locations where traditional network solutions are impractical or uneconomic. Microgrids can also support decarbonisation, enable greater use of renewable energy, and provide a platform for innovation in energy services.

1.2 Essential Energy’s Microgrids Program: Strategic Context

Essential Energy’s BAU Microgrids Program is a strategic initiative to deliver reliable, resilient, and affordable energy to regional and remote communities across Essential Energy’s network footprint. The program is aligned with Essential Energy’s corporate vision of building network and community resilience to extreme weather and other risks, and is supported by funding approved in the 2024–29 regulatory determination.²

Essential Energy’s approach to microgrids is deliberately modular and flexible, recognising that different communities and network locations require different technical and commercial solutions. The program encompasses several distinct models, including but not limited to:

1. Legacy reliability solutions – diesel-only generation

- Diesel generation back-up supply to vulnerable townships and communities
- Standalone systems, no market interface, no market-facing meter
- Do not require Ring-fencing or sandboxing waivers.

2. Battery-only microgrids

- These systems use a Battery Energy Storage System (BESS) to provide backup supply and manage local reliability.
- They may be charged from the main grid, from local distributed generation, or both.
- No local generation is required, and the system operates as a “resilience node” during outages.
- Where the BESS has been sized to meet reliability and resilience requirements, and where any excess capacity is not traded in the market, these models do not require a ring-fencing waiver and do not require a sandboxing waiver if Essential Energy does not own the connecting generation assets.

² [Essential Energy, 2024-29 Regulatory Proposal](#)

3. Grid-connected microgrids with local generation

- These microgrids combine BESS with local generation (e.g. diesel, solar PV, or other renewables).
- They can operate in parallel with the grid or in islanded mode, supplying local loads during outages or planned isolation.
- The ARENA-funded pilots follow this model, with solar PV, BESS, and backup generation (e.g. Wilcannia Sunset Strip, and Bendick Murrel).
- Essential Energy is also working with NSW Government on additional microgrids to support remote communities in the Far West of NSW, which were subject to prolonged outages in October 2024, including White Cliffs, Milparinka, Packsaddle and a renewable transition of diesel generators at Tibooburra.
- Where Essential Energy owns generation or seeks to engage a third party to trade surplus energy, a sandboxing and or Ring-fencing waiver may be required, depending on the specific regulatory context.

4. Community or third-party operated microgrids

- In some cases, microgrids may be operated by third parties or community entities, with Essential Energy providing network services, orchestration, or backup.
- Ownership and operational responsibilities are shared or contracted, and regulatory requirements vary accordingly.

Key features across models:

- **Technology and ownership neutrality:** The program supports a range of asset configurations and commercial arrangements, tailored to site needs and customer requirements. Ownership arrangements will be selected according to the delivery model that best promotes timely delivery, efficient implementation and long-term customer outcomes in the circumstances of each deployment.
- **Fit-for-purpose design:** Each microgrid is designed to address specific local challenges – whether that’s extended outages, high bushfire risk, or integration of renewables.
- **Regulatory flexibility:** Not all microgrids require the same regulatory relief. The need for ring-fencing or sandboxing waivers is assessed on a case-by-case basis, depending on asset ownership, market participation, and service delivery model.
- **Customer and community focus:** All models aim to improve reliability, resilience, and affordability for customers, with particular attention to vulnerable and remote communities.

Why this matters:

This approach ensures that Essential Energy can deploy the microgrid solution that best meets the needs of customers and delivers the most efficient solution to minimise costs in each context, without being locked into a single technical or regulatory model. It also means that the waiver application is targeted and proportionate, seeking only the relief necessary for each deployment.

Key regulatory principle (toolbox):

Essential Energy is not seeking waivers for individual microgrid models, locations, or contexts. Instead, the application requests a sandboxing and ring-fencing waiver framework that applies to all eligible microgrid deployments – regardless of technical configuration, ownership, or operational model.

- **Waivers as a regulatory toolbox:** The approved waivers should operate as a defined set of regulatory permissions that Essential Energy may apply to eligible microgrid deployments where the relevant regulatory trigger arises. This enables Essential Energy to use only the relief expressly approved for the particular deployment, without requiring a new waiver merely because the location, technology,



ownership structure or operating model differs, provided the deployment remains within the approved scope and guardrails.

- **Future-proofed flexibility:** The framework is intended to accommodate evolving technical, ownership and commercial models within the expressly approved waiver envelope. Where a proposed activity falls outside that envelope or requires relief from an additional NEL or NER provision, Essential Energy will engage with the AER and AEMO regarding the appropriate regulatory pathway before proceeding.
- **Proportionate relief:** Some microgrid models may not require ring-fencing or sandboxing waivers (e.g. battery-only systems with no market trading). The framework should allow Essential Energy to deploy these models without unnecessary regulatory burden, while retaining the option to access waivers when needed.

The use of waivers under this framework will be subject to transparent reporting, with details of each deployment and the application of regulatory relief provided to the AER as described in Section 3.6.

Strategic objective

The long-term goal is a regulatory solution that enables Essential Energy – and other Distribution Network Service Providers (DNSPs) – to deploy, operate, and innovate across all microgrid models – without the need for repeated, model-specific assessments or approvals. The waivers should provide a menu of options, empowering Essential Energy to deliver reliable, resilient, and affordable energy for all customers, in line with its corporate vision and strategic plan.

KEY FEATURES

ARENA or NSW Government funding and internal funding: The program is co-funded by the Australian Renewable Energy Agency (ARENA) and Essential Energy, with a focus on deploying microgrids in locations where customers face frequent, extended outages and where traditional network augmentation is not viable.

Customer and community benefit: Microgrids are targeted at communities such as Wilcannia, Sunset Strip, Tibooburra, White Cliffs and Bendick Murrel, where improved reliability, resilience, and energy access are critical. The program includes engagement with First Nations and other remote and isolated communities, reflecting Essential Energy's commitment to public interest outcomes.

Technology and ownership neutrality: The program is designed to be technology- and ownership-agnostic, supporting a range of asset configurations and commercial models.

Recent ARENA and government-funded programs also demonstrate the increasing maturity and diversity of microgrid deployment models across Australia. These include renewable-led microgrids, community resilience projects, grid-forming battery applications supporting extended islanding, and arrangements involving third-party ownership or operation. Collectively, these programs demonstrate that microgrids are evolving from pilot projects into a practical component of reliability and resilience planning for regional and remote communities.

1.3 Microgrids in Practice: Current Models and Early Deployments

Essential Energy's current microgrid projects are at an early stage, with no BAU renewables-based microgrid yet delivered due to regulatory barriers (see Section 3). However, pilot projects and community engagement activities are underway:

- **Ivanhoe:** Microgrid under development, including a 4MWh battery, 4MVA inverter, and backup diesel generator. Designed to supply the township and surrounding areas, with the battery providing up to 10 hours of average load and the generator topping up during extended outages.



- Tibooburra: Planned microgrid with 300–400kW solar PV, 4MWh BESS, temporary generator, and EV charging stations. The microgrid will supply power during grid outages, with community engagement shaping site selection and design.

These projects are designed to test the viability of microgrids as a BAU solution, generate evidence for regulatory reform, and deliver direct benefits to participating communities.

Essential Energy has been awarded grants by ARENA’s Regional Microgrid Program, under stream A focusing on Regional Australia Microgrid Pilots and stream B for First Nations Community, for the projects listed in Table 3

Table 3 - ARENA Microgrid Projects

COMMUNITY	BATTERY SIZE	SOLAR SIZE	AVERAGE ANNUAL OUTAGE HOURS SAVED	APPROXIMATE CUSTOMERS CONNECTED
Wilcannia	5 MW / 8 MWh	3.25 MWac	11.8	745
Sunset Strip	5 MW / 8 MWh	3.75 MWac	11.0	420
Bendick Murrell	5 MW / 5.6 MWh	2.9 MWac	7.3	760

- The proposed Far West NSW Microgrid and Energy Resilience Program is a grant-funded program to deploy localised solar and battery microgrids and community-scale resilience projects across remote communities in Far West New South Wales (NSW), including Tibooburra, Milparinka, Packsaddle and White Cliffs. The Program is strongly aligned with NSW Government priorities, including the findings of the Parliamentary Inquiry into the October 2024 Far West outages, the Net Zero Plan, the Electricity Infrastructure Roadmap and the Far West Regional Economic Development Strategy.

The preferred model at White Cliffs involves a third-party owned and operated microgrid, enabled by Essential Energy, which aligns with the flexible, technology-neutral approach sought under this application. Collectively, these projects illustrate the real-world application of the sandboxing framework, delivering tangible benefits and informing future regulatory settings.
- Under this model, Essential Energy will seek grant funding of \$14.1 million to bridge the gap between the cost of modern microgrid solutions and the level of investment that can be supported under existing regulatory frameworks. Approximately \$2.6M of the \$23.8 million program will be contributed by Essential Energy through its RAB, while a third-party investor/operator will be sought to fund the balance of the development.

WHY ISLANDABLE MICROGRIDS MATTER: PROPOSED TIBOOBURRA MICROGRID DEPLOYMENT

Only one road leads to Tibooburra. For more than 300 kilometres, a solitary powerline runs beside it, stretching across an unforgiving landscape of red earth, seemingly flat forever with an endless sky. It is a constant reminder of just how far this community sits from the services, infrastructure and support that most Australians take for granted.

Life in Tibooburra demands resilience. In fact, the people who call this remote corner of NSW home are the very definition of it. They withstand scorching summers, vast distances and the challenges that come with living at the edge of the grid. A trip to access specialised healthcare, essential supplies or major services can mean hours on the road. When severe weather strikes or infrastructure fails, there are few alternatives and little margin for error.

Yet this is a community that endures. Families and businesses continue to live, work and contribute to the region because they are deeply connected to the place and to one another. Their strength lies in self-reliance, adaptability and a shared determination to overcome whatever challenges come their way.

Providing Tibooburra with a resilient, islandable microgrid is about more than keeping the lights on. It is about strengthening the reliability and security of a community that has spent generations proving its resilience, and ensuring it can continue to thrive, no matter what conditions the outback delivers.

That challenge is not theoretical. Tibooburra sits on the fringe of the electricity network, supplied by a single 310km, three-phase 33kV feeder running from Mount Gipps. There are no alternative feeders and no redundant network connections. Every home, business and essential service in the township depends on that single line for its electricity supply.

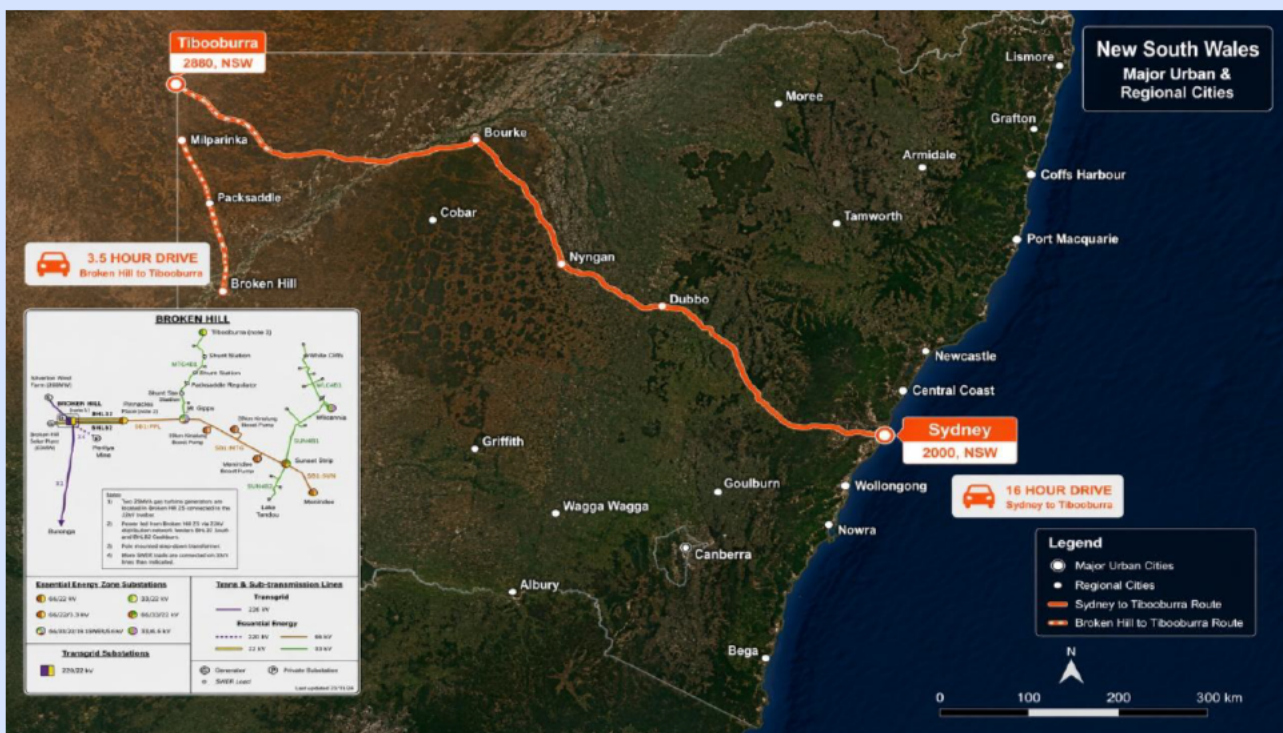


Figure 1: Tibooburra network context and approximate Broken Hill–Tibooburra route corridor.

Despite serving only around 160 customers, the community relies on a range of critical services that underpin daily life. These include a primary school, health clinic, police station, post office, community hall, Local Aboriginal Land Council, National Parks and Wildlife office, two general stores, accommodation providers, campgrounds and local hospitality businesses. Tibooburra is also part of the Unincorporated Far West, meaning many services typically provided by local government are instead coordinated and supported by the community itself.

When outages occur, the impacts are felt quickly and broadly. Power interruptions affect refrigeration resulting in food losses, disrupt the operation of local businesses, impact school activities and place additional pressure on health and emergency services. While a backup diesel generator is available to support the town during planned and unplanned outages, reliance on a single fuel where supply cannot be guaranteed highlights the challenges of living in such a remote location.

On average, the community experiences around seven outages each year, with an average duration of seven hours. For residents and businesses living at the end of a long network, these interruptions are more than an inconvenience. They reinforce the reality of distance and isolation.

A microgrid offers a practical solution designed specifically for communities such as Tibooburra. By enabling the town to operate independently from the main network during upstream outages, the proposed system is expected to provide electricity supply through up to 90 per cent of the outages historically experienced on the feeder. This would improve reliability, reduce outage durations and strengthen community resilience.

Importantly, the proposal is about investing in people as much as infrastructure. Community engagement has consistently highlighted the importance of reliable electricity, greater local involvement and keeping residents informed as plans develop. The project also creates opportunities to support First Nations participation and deliver benefits that extend beyond the network itself.

For a community that has always adapted to life at the end of a single powerline, a microgrid represents the next step in that story. Not replacing resilience, but reinforcing it. Giving Tibooburra the confidence that, no matter what happens further down the line, the community can continue their daily lives.

Tibooburra Microgrid video link <https://bit.ly/4fC419N>



Tibooburra Microgrid Project: Improving reliability and resilience for a Far West community

1.4 Role of Microgrids within Essential Energy's Distribution Function

1.4.1 MICROGRIDS AS A RESPONSE TO DISTRIBUTION NETWORK CHALLENGES

Essential Energy operates one of the largest and most geographically dispersed electricity distribution networks in Australia, characterised by long radial feeders, remote supply points, and communities located at the fringes of the interconnected grid. Many parts of the network are exposed to increasing reliability and resilience risks arising from extreme weather events, bushfire, flooding, and constrained access during outages.

In these contexts, maintaining reliable electricity supply is not simply a matter of asset age or maintenance condition. Rather, it reflects structural characteristics of the network footprint, including long restoration times following upstream faults and limited alternative supply paths.

Within this operating environment, microgrids are being assessed and developed as distribution-level solutions to address these challenges, alongside more traditional network options. Their role is to provide a localised capability to maintain supply to defined sections of the network during periods when connection to the broader system is unavailable or impractical. Microgrids do not represent a departure from Essential Energy's core role as a DNSP, but rather provide an additional means of delivering distribution services, particularly where conventional approaches are limited by geography, risk exposure or restoration timeframes. Their deployment is therefore driven by network need, not by market participation or generation objectives.

1.4.2 LIMITS OF TRADITIONAL DISTRIBUTION RESPONSES

Essential Energy has historically relied on a range of established planning and operational responses to manage reliability and resilience risks, including:

- network duplication or augmentation;
- targeted asset hardening;
- feeder automation and sectionalising;
- standalone power systems (SAPS) for individual customer connections; and
- deployment of portable generation during major outage events.

While these measures remain important components of the distribution toolkit, they are not universally suitable or cost-effective. In particular:

- network duplication can involve high capital costs relative to utilisation in remote or low-density areas;
- asset hardening does not always mitigate upstream or external disruption risks;
- SAPS solutions are well-suited to discrete customer connections but do not address township-level resilience; and
- portable generation is inherently reactive rather than preventative and does not provide enduring resilience benefits.

As a result, there are circumstances where no single traditional option provides a satisfactory balance of cost, reliability, resilience and customer outcomes.

1.4.3 MICROGRIDS AS FIT-FOR-PURPOSE DISTRIBUTION SOLUTIONS

Microgrids provide an alternative distribution-level response in circumstances where it is necessary to maintain supply to multiple customers during extended outages or planned isolation from the broader network.

From a distribution perspective, microgrids can function as:

- localised resilience assets capable of supporting defined sections of the network;
- modular solutions that can be scaled, adapted or relocated over time; and
- substitutes for, or complements to, conventional network augmentation in locations where traditional solutions are constrained or inefficient.

Importantly, microgrids do not represent a departure from Essential Energy's core role as a DNSP. Rather, they provide an additional means of delivering distribution services, particularly where conventional approaches are limited by geography, risk exposure or restoration timeframes.

Their deployment is therefore driven by network need, not by market participation or generation objectives.

1.4.4 TRANSITION FROM PILOTS TO BUSINESS-AS-USUAL PLANNING

Historically, microgrids within the Australian regulatory framework have tended to be treated as pilots or demonstration projects. However, Essential Energy is increasingly assessing microgrids as part of business-as-usual distribution planning and resilience assessments, reflecting:

- growing operational experience with hybrid network configurations;
- increased maturity of control, protection and storage technologies; and
- recognition that microgrids may represent the least-cost network-equivalent solution in certain locations.

Consistent with this shift, funding for microgrids has been considered and approved within Essential Energy's recent regulatory determination. However, despite recognition of microgrids within planning and funding processes, their deployment as business-as-usual solutions has been constrained by the current regulatory framework.

This misalignment between evolving distribution practice and existing regulatory arrangements sets the context for the regulatory problem identified in the following section. Section 2 therefore explains why regulatory relief is required to enable the delivery of islandable microgrids as business-as-usual distribution solutions, and why a sandboxing pathway is an appropriate transitional mechanism.

1.4.5 SETTING THE CONTEXT FOR REGULATORY REFORM

The emergence of microgrids as legitimate distribution network solutions highlights a misalignment between:

- the way modern distribution networks are increasingly planned and operated; and
- the regulatory arrangements governing asset ownership, operation, and interaction with energy markets.

The following section identifies the specific regulatory barriers that limit the practical deployment of microgrids within Essential Energy's distribution function, and explains why regulatory relief is required to enable their delivery as business-as-usual network solutions.

2. Regulatory Problem Statement

2.1 Framing: microgrids are BAU in intent, but trial-enabled in regulatory transition

Essential Energy is progressing islandable microgrids as an emerging business-as-usual distribution network solution in locations where conventional network responses may not be fit-for-purpose or cost-effective. However, the current regulatory framework has not yet evolved to accommodate the range of operational and commercial models required to deploy islandable microgrids at scale.

The microgrids now proposed go beyond the battery/diesel models previously considered, responding to the imperative for more sustainable, reliable, and community-aligned solutions. The AER's Energy Innovation Toolkit exists to address precisely this type of misalignment, by enabling time-limited trials under modified regulatory settings, and using trial outcomes as evidence to inform future regulatory change.

This project directly supports the objectives of the AER's Sandboxing/Innovation stream by presenting a genuine opportunity for regulatory innovation – not simply technical innovation. Unlike previous waivers, which have largely focused on overcoming technical barriers or enabling DNSP investment within existing frameworks, this application seeks to test and evidence new regulatory models for DNSP-led microgrids. It aims to generate learnings that will inform the evolution of regulatory settings for the sector as a whole, in line with the AER's stated purpose for the sandboxing regime.³

Accordingly, while islandable microgrids are BAU in planning intent; trial waivers are required for the regulatory transition. This application seeks regulatory relief that is sufficient to implement the BAU Microgrids Program under the current framework, while generating evidence to support durable, model-agnostic regulatory settings over time.⁴

This application also presents a distinct opportunity to advance regulatory innovation, consistent with the objectives of the AER's Energy Innovation Toolkit. The BAU Microgrids Program is not simply a technical trial of microgrid assets. It is a controlled test of how DNSP-led, distribution-purpose microgrids can be accommodated within a regulatory framework that was not designed for assets operating across both grid-connected and islanded states.

This is particularly relevant in the context of emerging T-SAPS reform. A T-SAPS framework may provide a necessary and useful enduring mechanism for recognising temporary islanding in market systems, including settlement treatment, market notifications and the treatment of affected connection points while islanded. However, it is not a complete substitute for the relief sought in this application. It does not, on its own, resolve the immediate barriers associated with DNSP ownership and operational control of generation and storage, ring-fencing constraints, or the ability to trial multiple ownership, delivery and operating models before enduring regulatory settings are settled.

The sandboxing pathway therefore performs a distinct role. It enables near-term deployment under controlled conditions, preserves AER oversight, and generates evidence that can inform – rather than pre-empt – any future T-SAPS framework or related rule change.

³ AER, Regulatory Sandboxing - Trial Projects Guidelines - Explanatory Statement - Final 2023

⁴ [Regulatory sandboxing - Energy Innovation Toolkit | Australian Energy Regulator \(AER\)](#)

2.2 Regulatory provisions requiring sandbox relief

2.2.1 PURPOSE OF THIS SUMMARY

This section provides a high-level summary of the (NEL), (NER) and associated regulatory instruments that constrain the delivery of Essential Energy's BAU Microgrids Program under the current framework.

It is intended to answer, at the outset of the application, the core regulatory questions relevant to the AER's assessment, namely:

- What conduct is proposed?
- Which provisions of the regulatory framework prevent that conduct?
- What regulatory relief is being sought, and what does it enable?

A detailed clause-by-clause analysis, based on external legal advice and previously provided to the AER, is included in Appendix A. This section does not seek to replicate that analysis. Rather, it signposts the key regulatory friction points and explains, at a functional level, why sandbox relief is required.

2.2.2 SUMMARY OF REGULATORY BARRIERS AND PROPOSED RELIEF

The BAU Microgrids Program involves the deployment of islandable microgrids that operate across two distinct operating states:

- grid-connected operation, as part of the interconnected distribution network; and
- temporary islanded operation, during upstream outages or planned isolation events, to preserve supply to customers.

The existing regulatory framework was not designed to accommodate assets and systems that transition between these states while remaining within the distribution network. The following provisions give rise to Category A regulatory barriers for which trial waiver relief is sought. Existing registration, exemption and administrative pathways may accommodate particular configurations, but do not provide a consistent solution across the range of eligible microgrid models contemplated by the trial.

Table 4 Summary of regulatory provisions requiring sandbox relief

REGULATORY AREA	SPECIFIC PROVISIONS FOR WHICH RELIEF IS SOUGHT	WHY THE PROVISION CONSTRAINS BAU MICROGRIDS	WHAT SANDBOX RELIEF ENABLES
DNSP ownership, control and operation of generation and integrated resource systems	NEL s 11(1); NER 2.1A.1(a)–(b)	NEL s 11(1) and NER 2.1A.1 prevent a person from owning, controlling or operating a connected generating system or integrated resource system unless appropriately registered or exempt. Islandable microgrids may require Essential Energy to own, control or operate generation and storage principally for distribution reliability and resilience purposes. Existing registration, exemption and intermediary pathways may accommodate some individual	A trial waiver from NEL s 11(1) and NER 2.1A.1(a)–(b) , to the extent necessary to permit Essential Energy to own, control or operate a generating system or integrated resource system forming part of an eligible microgrid without registration as a Generator or Integrated Resource Provider, where the relevant activity is undertaken principally for distribution reliability and resilience purposes

REGULATORY AREA	SPECIFIC PROVISIONS FOR WHICH RELIEF IS SOUGHT	WHY THE PROVISION CONSTRAINS BAU MICROGRIDS	WHAT SANDBOX RELIEF ENABLES
		configurations, but do not provide a consistent model-neutral framework across the range of eligible microgrid ownership and operating models.	and subject to the trial conditions and guardrails.
Power system performance requirements during temporary islanded operation	NER 5.2.3(b), together with S5.1.2.1, S5.1.3, S5.1.8, S5.1.9 and S5.1.10.2(c)–(d), only to the extent identified below	NER 5.2.3(b) requires an NSP to comply with the Schedule 5.1 power-system performance and quality-of-supply standards. Certain Schedule 5.1 requirements assume operation as part of the interconnected power system, including nationally defined contingency, frequency, stability and protection/control arrangements. During temporary islanding, the relevant section of network is intentionally electrically separated and must instead be operated under island-specific frequency, stability, protection and control arrangements.	Targeted relief during temporary islanded operation only, allowing the affected section of network to operate under pre-approved islanded-mode technical and operational protocols instead of those identified Schedule 5.1 requirements to the extent that direct application of the interconnected-system requirement is inconsistent with safe and effective islanded operation. Ordinary Schedule 5.1 requirements continue to apply except where expressly identified in the waiver.
Ring-fencing constraints — separate but related	AER Distribution Ring-fencing Guideline (Electricity Distribution) Version 4, cl 3.1(b) and cl 3.1(d)(i), to the extent necessary for eligible microgrid arrangements	Clause 3.1(b) prevents a DNSP from providing “other services” except through specified exceptions or a waiver. Clause 3.1(d)(i) permits third-party use of DNSP assets for other services in certain circumstances but expressly excludes new energy storage devices . Eligible microgrid models may require Essential Energy to own generation or storage principally for distribution reliability and resilience while permitting a competitively appointed third party to operate, orchestrate or make limited use of spare capacity.	Targeted relief permitting Essential Energy, within the approved microgrid framework, to undertake otherwise prohibited incidental “other services” associated with eligible microgrid assets and to grant an appropriately appointed third party rights to use an Essential Energy-owned new energy storage device for approved secondary activities. Any such activity must remain subordinate to the primary distribution reliability purpose and subject to the trial’s contestability, cost-allocation, revenue-treatment, non-discrimination, information and reporting safeguards.

Related Chapter 2 provisions

NER 2.1A.2, 2.1B, 2.2 and 2.9.3 form part of the existing registration, exemption, classification and intermediary framework and inform the need for and scope of the relief sought above. Essential Energy does **not** seek a trial waiver from those provisions. Where an eligible deployment can proceed satisfactorily under an existing registration or exemption pathway, that ordinary framework will continue to apply.



Table 5 Schedule 5.1 provisions relevant to temporary islanded operation

PROVISION	WHY IT MAY REQUIRE MODIFIED TREATMENT DURING ISLANDING	PROPOSED TREATMENT UNDER TRIAL
S5.1.2.1 — Credible contingency events	Requires NSP planning and operation using prescribed credible-contingency assumptions, including transfer of power from production units to loads. Those assumptions are framed for interconnected-system operation and may not reflect the deliberately separated topology and available resources within a temporary island.	Apply the approved islanded-mode contingency and operating protocol during the islanding period. Ordinary S5.1.2.1 treatment resumes on reconnection.
S5.1.3 — Frequency variations	Requires NSP equipment to remain in service within the system's extreme frequency excursion tolerance limits and links switching to AEMO operational requirements and emergency frequency control schemes. A small electrically separated microgrid necessarily controls its own frequency rather than relying on interconnected-system frequency control.	Permit island-specific frequency operating limits and control settings specified in the approved technical protocol, while preserving safety and equipment-protection requirements.
S5.1.8 — Stability	Expressly frames stability criteria around stable operation of the national grid , including synchronism, oscillatory damping and voltage stability following credible contingencies. Those criteria are conceptually different once the relevant distribution section has intentionally ceased to form part of the interconnected grid.	Substitute islanded-mode stability criteria demonstrated through engineering studies and operational protocols for the duration of islanded operation.
S5.1.9 — Protection systems and fault clearance times	Protection requirements and fault-clearance standards are based on interconnected-system fault levels, protection zones and stability assumptions. Islanding can materially alter fault levels, fault-current contribution and protection coordination, requiring different protection settings/modes.	Permit approved island-mode protection settings and fault-clearance arrangements during islanding, with normal protection settings restored or otherwise appropriately coordinated on reconnection.
S5.1.10.2(c)–(d) — DNSP load/generation control facilities	Requires DNSPs to apply frequency relay settings determined by AEMO and under-voltage settings notified by the TNSP. Those interconnected-system settings may not be suitable for a small temporary island operating under local frequency and voltage control.	Permit approved island-mode frequency/under-voltage settings while islanded, subject to engineering validation and safe transition back to interconnected settings on resynchronisation.

No relief is presently sought from Schedule 5.1 requirements that remain appropriate during islanded operation, including requirements relating to voltage quality, voltage fluctuations, harmonic distortion, voltage unbalance, equipment ratings and safe automatic reclosing, except if subsequent engineering analysis demonstrates that a specifically identified provision prevents safe implementation of an approved trial configuration.

Relationship to market-interface issues and future reform

The RACE2030 project has identified settlement, metering, tariff and related market-interface issues that may arise during temporary islanding. Essential Energy does **not presently identify these matters as Category A regulatory prohibitions requiring waiver relief**. Consistent with the approach in Sections 2.5 and 4.3, their materiality, frequency, duration and practical consequences will instead be monitored and assessed during the trial.

The Retailer Reliability Obligation (RRO) is similarly not identified as a provision requiring waiver relief under this application. Essential Energy's current understanding is that the RRO is unlikely to present a material barrier during temporary islanding in the circumstances contemplated by the trial. Any uncertainty regarding its application will be addressed through engagement with the AER and relevant market bodies rather than through an unspecified sandbox waiver.

Essential Energy also recognises that a T-SAPS rule change proposal is under development and may provide a more enduring framework for market recognition, settlement, metering and operational treatment during temporary islanding. Those reforms are therefore treated as a parallel and complementary pathway. If progressed during the waiver period, Essential Energy will review and, where appropriate, align trial protocols and operational arrangements with the resulting framework.

T-SAPS reform would not, however, necessarily resolve the Category A barriers addressed by this application, particularly the ownership, control and operation of generation or integrated resource systems under NEL s 11(1) and NER 2.1A.1, or the identified Schedule 5.1 requirements applicable during temporary islanded operation.

Accordingly, T-SAPS-related reform is treated in this application as a parallel and complementary pathway rather than a prerequisite for delivery. The sandboxing trial will generate evidence that may inform those reforms over time, without presuming their final form or timing.

2.2.3 HOW THIS SUMMARY IS USED IN THE APPLICATION

This summary table is intended to:

- provide early clarity to the AER on what regulatory relief is sought and why;
- demonstrate that the relief requested is targeted and proportionate; and
- frame the detailed barrier analysis, waiver mechanics, safeguards and learning objectives that follow.

To support the high-level summary set out above, Essential Energy has also developed a more detailed regulatory issues and options matrix, included in Appendix A.

The matrix provides a comprehensive inventory of regulatory friction points relevant to islandable microgrids, and is used in this application as a completeness reference only. It maps a broader set of NEL, NER and guideline considerations than can be practically presented in the body of the application, and informs the categorisation of issues into those requiring immediate waiver relief, those managed through trial design, and those best addressed through evidence-based reform over time.

2.2.4 HOW THE REGULATORY ISSUES MATRIX IS USED IN THIS APPLICATION

The regulatory issues matrix provided to the AER is used in this application as a completeness reference only – an inventory of regulatory friction points across registration categories, operational obligations, performance standards, service classification, ring-fencing, incentive schemes, metering and settlement.⁵

⁵ The regulatory issues and options matrix included in Appendix A was developed by Essential Energy, informed by external legal advice, and shared with the AER Innovation team during preparatory discussions on islandable

This matrix draws on a range of regulatory concepts, including T-SAPS analysis, but is not confined to a T-SAPS framework. In particular, it identifies regulatory issues that arise because islandable microgrids operate across both grid-connected and islanded modes, and because they involve DNSP ownership or control of assets for distribution reliability purposes.

Some elements of the matrix assume a conceptual approach in which islandable microgrids could, in future, be treated within a SAPS-like framework at the point in time they are islanded, while operating as part of the interconnected system at other times. This assumption has not yet been fully tested.

A key purpose of the sandboxing pathway is therefore to enable trials that can test and refine which regulatory settings are necessary and proportionate, and to generate evidence for any later rule change process (including T-SAPS-style reform), without locking in a single delivery model upfront.

2.3 Barrier taxonomy: what must be waived now vs what is managed through trial conditions (and future reform)

Consistent with the summary of regulatory provisions set out in Section 3.2, the regulatory barriers relevant to islandable microgrids fall into three categories:

- Category A — barriers requiring explicit waiver relief to proceed;
- Category B — issues managed through trial design, protocols and engagement; and
- Category C — longer-term reform candidates informed by trial evidence.

This taxonomy is used to distinguish between:

- regulatory constraints that prevent delivery under the current framework and therefore require sandbox or ring-fencing relief; and
- issues that can be managed, monitored or evidenced through the trial, without being waived upfront.

This application focuses on securing Category A relief to enable a controlled trial environment, while explicitly framing Category B and C matters as learning objectives and evidence outputs of the trial.

2.4 Category A: barriers that require waiver relief

2.4.1 OWNERSHIP, CONTROL AND OPERATION OF GENERATION AND STORAGE (REGISTRATION AND ROLE CONSTRAINTS)

Islandable microgrids may incorporate generating systems and integrated resource systems that engage the registration requirements in NEL s 11(1) and NER 2.1A.1 by reason of their ownership, control, operation, size, configuration or operating characteristics.

Essential Energy does not seek through this application to become a merchant generator or to participate directly in the wholesale electricity market for commercial purposes. The primary purpose of generation and storage forming part of an Essential Energy microgrid is to support the provision of distribution services, including maintaining reliability, resilience and continuity of supply during upstream outages and temporary islanding events.

microgrids and potential future regulatory reforms. It does not reflect a public consultation process or any settled regulatory position.

Existing registration, exemption and intermediary arrangements may accommodate some individual configurations. However, requiring each deployment to conform to those arrangements may constrain the ownership and operating models capable of being tested and may subject assets whose primary purpose is distribution reliability to registration, classification or associated operational requirements that are not appropriate to that purpose.

Sandbox relief is therefore sought from NEL s 11(1) and NER 2.1A.1 to the extent necessary to permit Essential Energy to own, control or operate generation or integrated resource systems forming part of eligible microgrids without registration as a Generator or Integrated Resource Provider, subject to the scope, safeguards and conditions of the trial.

The relief is intended to accommodate multiple ownership and operational models during the trial, including Essential Energy ownership and operation; Essential Energy ownership with third-party operation or market participation; third-party ownership and operation; and hybrid arrangements. The applicable model may vary between deployments.

This approach is consistent with RACE2030's recommendation that regulatory relief should be sufficiently flexible to accommodate evolving delivery models, including those involving third-party operators, and should avoid imposing unnecessary compliance burdens where risks are immaterial.⁶

Reliability priority

Where an eligible microgrid participates in market-facing activities while grid-connected, those activities must remain subordinate to the asset's primary distribution reliability and resilience purpose. Sufficient generation, storage capacity and operational capability must remain available to support the relevant community during an upstream outage or islanding event in accordance with the applicable operational protocol.

The waiver is intended to avoid regulatory arrangements that would require or result in the operation of microgrid resources in a manner that materially compromises this primary reliability function, including through classification or central dispatch arrangements where those arrangements would prevent Essential Energy from preserving the capacity required for local reliability and islanding.

Essential Energy acknowledges that registration does not of itself require a generating or bidirectional unit to participate in central dispatch and that the NER provides for non-scheduled classifications in appropriate circumstances. The concern addressed by the trial is therefore not registration or scheduling in the abstract, but ensuring that the applicable registration, classification and market arrangements do not constrain operation of an eligible microgrid in accordance with its primary distribution reliability purpose.

2.4.2 NETWORK PERFORMANCE STANDARDS AND MICROGRID OPERATION IN ISLANDED MODES

Islandable microgrids introduce operating conditions that differ, for limited periods, from those assumed under the NER for a continuously interconnected distribution network.

Certain Schedule 5.1 requirements identified in Table 5 – specifically **S5.1.2.1**, **S5.1.3**, **S5.1.8**, **S5.1.9** and **S5.1.10.2(c)–(d)** – were developed for operation as part of the interconnected power system. Their direct and unmodified application during temporary islanding may be inappropriate where the affected section is intentionally electrically separated and operating under island-specific contingency, frequency, stability, protection and control arrangements.

⁶ RACE2030, Community and Regulatory perspectives on Microgrids; interim report May 2026

The BAU Microgrids Program does not propose permanent or continuous autonomous operation. Islanding is expected to be temporary, infrequent and outage-driven, with systems engineered conservatively to prioritise safety, system stability and continuity of supply.

For the purposes of this application, the issue is therefore framed as one of regulatory clarity and proportionality, rather than technical infeasibility. Sandbox relief is therefore sought only from NER 5.2.3(b) and the identified Schedule 5.1 provisions, and only for the duration and circumstances in which the approved islanded-mode technical and operational protocols require different treatment.

2.4.3 RELIABILITY METRICS AND INCENTIVE INTERACTIONS (INCLUDING STPIS/DMIS EFFECTS)

Microgrid operation and islanding may have implications for network reliability reporting and incentive treatment, depending on how outages are recorded and processed.

These impacts are not treated as regulatory prohibitions requiring waiver relief. Rather, they are positioned as risk-managed trial design considerations, with impacts to be monitored, reported and evidenced through the trial.

Where reliability outcomes arise from islanding events or normal contingencies, they will continue to be addressed through existing incentive and accountability frameworks (including STPIS/DMIS), as applies to other distribution assets.

2.5 Category B: issues managed through trial design, protocols and engagement

Certain regulatory and operational issues do not require immediate waiver relief, but must be actively managed during the trial to ensure consumer protection, market integrity and operational safety. These issues fall into two broad categories:

- issues managed through deployment-specific design decisions, operating protocols and commercial arrangements; and
- issues that require structured oversight, engagement and governance through the sandboxing framework itself.

This distinction is important because different microgrid deployments may adopt different technical, ownership and operating models. The objective of the sandbox is not to predetermine a single solution, but to allow those approaches to be tested within a common governance framework.

Key Category B issues include:

- settlement, metering and market interface anomalies, including how affected connection points are treated during islanding events, whether ordinary market treatment is retained during islanding, the materiality of any resulting settlement or reconciliation impacts, and the implications for retailers, FRMPs and UFE allocation;⁷
- reliability reporting and incentive scheme impacts;
- customer protection obligations; and
- tariff and charging anomalies.

⁷ RACE2030's findings reinforce the importance of establishing materiality thresholds for these anomalies, to ensure that administrative effort is proportionate to the actual risk and impact during temporary islanding events.

These issues will be managed through robust trial protocols, engagement with AEMO and other market bodies, and transparent reporting. They are treated as explicit learning objectives, not as matters requiring resolution upfront. These are also the areas most likely to be affected by any future T-SAPS framework. Consistent with emerging T-SAPS thinking and findings from the RACE2030 project, Essential Energy considers that settlement, metering and related market impacts should be assessed having regard to their materiality. The trial will therefore seek to understand the scale, duration and practical significance of these impacts before assuming that structural regulatory changes are required.

To the extent that T-SAPS arrangements are finalised during the waiver period, Essential Energy would expect the trial protocols, reporting and operational arrangements to be reviewed and, where appropriate, aligned with the new framework. Until then, these matters remain appropriately managed through trial conditions, engagement with AEMO and the AER, and transparent reporting.

Essential Energy recognises that some consequences of temporary islanding may affect parties other than Essential Energy, including retailers, FRMPs, metering participants and AEMO. While these matters do not presently require waiver relief to enable deployment, they will be assessed as part of deployment planning and stakeholder engagement processes. Where a deployment gives rise to material implications for third-party participants, Essential Energy would engage with affected parties and the AER to determine whether additional protocols, consultation or reporting arrangements are appropriate.

2.6 Category C: longer-term reform candidates informed by trial evidence (including, but not limited to T-SAPS)

The trial is also intended to inform a range of deeper structural issues that may warrant longer-term regulatory reform, including:

- how T-SAPS-type arrangements should be defined and triggered under the NEL/NER;
- how registration categories should be rationalised to avoid dual-status complexity;
- how registration, metering and market participation requirements should apply to resources that operate exclusively to support temporary islanding and continuity-of-supply outcomes;
- how connection frameworks should apply to islandable configurations; and
- how ring-fencing settings should evolve to support oversight without repeated administrative burden.

These issues are not treated as preconditions for delivery under this waiver. Instead, consistent with the AER's sandboxing purpose, the trial-enabled approach allows evidence to be generated to inform the most durable, model-agnostic regulatory pathway over time. RACE2030 also highlights the need for enduring reforms to clarify the treatment of microgrids under the NER, including the development of a T-SAPS resource provider category and explicit guidance on the application (or exclusion) of the RRO for islanded customers.⁸

2.7 Why a Sandboxing Waiver? Alternate pathways considered

Having identified the regulatory barriers and categorised the issues requiring immediate relief, trial management, or future reform, Essential Energy carefully considered the available regulatory pathways to enable the BAU Microgrids Program. The rationale for selecting the sandboxing waiver is set out below.

In developing this application, Essential Energy considered three possible regulatory pathways to enable the BAU Microgrids Program:

⁸ RACE2030, Community and Regulatory perspectives on Microgrids; interim report May 2026

1. Proceed directly to a permanent Rule change

While a rule change could ultimately provide a durable, model-agnostic regulatory solution, the concepts underpinning islandable microgrids and T-SAPS are still in their relative infancy. They require in-field testing to validate operational, commercial, and consumer outcomes. Moreover, the rule change process is typically lengthy, with uncertain timelines and outcomes, and would not align with the delivery requirements of the ARENA-funded model within the current regulatory period. This pathway was therefore not considered viable for immediate implementation.

This conclusion is reinforced by the emerging T-SAPS rule change pathway. While that reform may ultimately provide part of the enduring framework for temporary islanding, it remains prospective and subject to rule-making, guidance and implementation processes. It therefore cannot provide the near-term regulatory certainty required for Essential Energy's current program, nor does it address all of the ownership, ring-fencing and dual-state operation issues that arise under the BAU Microgrids Program.

2. Trial Rule Change

A trial rule change could provide targeted relief for a defined period and scope, allowing Essential Energy and other DNSPs to test microgrid models and gather evidence for future reform. However, this approach still involves significant regulatory process and may lack the flexibility needed to iterate delivery models and respond to learnings during the trial. It also risks locking in specific design choices prematurely, before the evidence base exists.

3. Sandboxing Waiver (Innovation Toolkit)

The regulatory sandboxing waiver, as enabled by the AER's Energy Innovation Toolkit, offers a time-limited, flexible mechanism to trial multiple microgrid delivery models under controlled conditions. It allows Essential Energy to implement the ARENA-funded program within the current regulatory period, generate robust evidence across technical, commercial, and consumer dimensions, and inform the development of a lasting regulatory pathway. The sandboxing waiver is specifically designed to bridge the gap between BAU planning intent and enduring regulatory reform, without locking in a single model or requiring an immediate rule change.

Essential Energy has also considered the existing registration exemption and intermediary pathways under NER 2.1A.2 and 2.9.3. Those mechanisms may provide an appropriate solution for particular configurations and the proposed waiver does not prevent their use where appropriate. However, they do not provide the model-neutral trial framework required to test different ownership, operational and market-interface arrangements across multiple deployments, particularly where microgrids transition between grid-connected and temporary islanded states. The sandbox therefore provides the appropriate mechanism to test those arrangements while preserving the ability to use existing exemption pathways where they provide a sufficient solution.

3. Proposed Waiver Framework

3.1 Overview of the waivers sought

As set out in Section 2, Essential Energy has identified a discrete set of Category A regulatory barriers that prevent the delivery of islandable microgrids as business-as-usual distribution solutions under the current regulatory framework. These Category A barriers relate to:

- Essential Energy ownership, control and operation of generating systems and integrated resource systems under NEL s 11(1) and NER 2.1A.1(a)–(b);
- the application of the identified Schedule 5.1 power-system performance requirements during temporary islanded operation; and
- separately, ring-fencing constraints that arise for particular ownership, operation or third-party access models.

To address these barriers in a targeted and proportionate manner, Essential Energy seeks approval for a sandboxing waiver framework, supported by a ring-fencing waiver, to apply on a defined, time-limited basis.

The waivers sought are not requested for a single project, site or technical configuration. Rather, they are intended to operate as a flexible regulatory framework that can be applied to eligible microgrid deployments on a case-by-case basis, depending on their technical, ownership and operational characteristics. This approach reflects the deliberately modular and technology-neutral design of the BAU Microgrids Program.

Not all microgrid deployments will require access to all forms of regulatory relief. Some configurations (for example, battery-only microgrids with no market-facing activity) may not require any waiver at all, while others will require access to specific sandboxing or ring-fencing permissions. The proposed framework therefore operates as a menu of regulatory tools, enabling Essential Energy to apply the minimum relief necessary for each deployment without the need to seek bespoke approvals for each model or site.

The sandboxing waiver and the ring-fencing waiver are sought as complementary but distinct instruments. The sandboxing waiver addresses regulatory constraints arising from the application of the NEL and NER to islandable microgrids, while the ring-fencing waiver addresses competition and service-classification constraints that are not within the scope of the sandboxing framework. Together, they provide a coherent mechanism to enable controlled trial delivery while preserving consumer protections, market integrity and regulatory oversight.

The identification of specific provisions from which relief may be required does not mean that each provision will be displaced for every deployment. The waiver framework is intended to authorise relief from those provisions **to the extent necessary** for an eligible deployment that satisfies the scope and guardrails in Sections 3.4 and 3.5. Where a deployment can proceed under the ordinary NEL and NER framework, including through an available registration exemption, that framework will continue to apply.

3.2 Sandboxing waiver – scope and operation

The sandboxing waiver sought under this application is intended to enable Essential Energy to trial islandable microgrid configurations that cannot be implemented under the unmodified NER, notwithstanding that they are consistent with Essential Energy's role as a DNSP and are designed to deliver improved reliability and resilience outcomes for customers.

As identified in Section 2, the sandboxing waiver is directed at a defined set of Category A regulatory barriers, including the application of certain ownership, operational and performance-standard

requirements to microgrids that operate across both grid-connected and islanded states. The waiver is therefore scoped to permit conduct that is currently constrained by the regulatory framework, rather than to provide open-ended permission for new market activity.

In particular, the sandboxing waiver framework is intended to:

- enable islandable microgrids to operate in temporary islanded mode under defined conditions, where the direct application of identified network performance requirements would otherwise create regulatory uncertainty or disproportionate compliance risk;
- allow Essential Energy to trial multiple delivery and operational models within a controlled regulatory environment, without pre-empting or hard-coding a single enduring regulatory architecture; and
- support the collection of evidence on technical performance, customer outcomes and market interactions to inform future regulatory reform.

The sandboxing waiver is not intended to permit unconstrained generation, unconstrained trading activity, or participation in wholesale electricity markets for commercial purposes. Any generation, storage or market interaction enabled under the waiver will be bounded, purpose-limited and subordinate to the distribution reliability and resilience objectives of the BAU Microgrids Program.

Eligible microgrids are not intended to operate as unconstrained merchant generation and are not intended to participate in central dispatch where doing so would compromise their primary distribution reliability purpose. The applicable registration, exemption, classification and market arrangements will depend on the technical and operating characteristics of each deployment.

The waiver will operate subject to defined scope limits, conditions and safeguards, including requirements relating to operational protocols, consumer protections, transparency and reporting. These measures are intended to ensure that trial activity remains proportionate to its purpose and risk profile, and that the AER retains appropriate visibility over how the waiver is applied in practice.

Table 6: Summary specific provisions and relief sought

PROVISION	RELIEF SOUGHT
NEL s 11(1)	Relief to the extent necessary to permit Essential Energy to own, control or operate generating systems forming part of eligible microgrids without registration where the conduct is undertaken principally for the provision of distribution reliability and resilience.
NER 2.1A.1(a)–(b)	Corresponding relief from the obligation to register as a Generator or Integrated Resource Provider in respect of eligible generating systems or integrated resource systems covered by the trial.
NER 5.2.3(b), together with S5.1.2.1, S5.1.3, S5.1.8, S5.1.9 and S5.1.10.2(c)–(d)	Relief only during temporary islanded operation and only to the extent necessary to permit the affected section of network to operate under approved islanded-mode technical and operational protocols where direct application of the identified interconnected-system requirement would be inconsistent with safe and effective islanded operation. Ordinary Schedule 5.1 requirements continue to apply except where expressly identified.

Related provisions: NER 2.1A.2, 2.1B, 2.2, 2.9.3, S5.1.1(g) and 5.13B.1 are identified because they form part of, or inform, the existing registration, classification, intermediary and SAPS frameworks against which the trial operates. Essential Energy does not seek to disapply those provisions generally.

3.3 Ring-fencing waiver – scope and operation

In addition to sandboxing relief, Essential Energy seeks a ring-fencing waiver to support microgrid delivery models that cannot be accommodated within the Distribution Ring-fencing Guideline as currently drafted.

As identified in Section 2, ring-fencing constraints constitute a Category A barrier for certain islandable microgrid configurations, particularly where Essential Energy owns or controls generation or storage assets for distribution reliability and resilience purposes, and where third parties are engaged to operate, orchestrate or access those assets under defined arrangements.

Ring fencing obligations are not automatically displaced by the grant of sandboxing relief. Accordingly, Essential Energy seeks **separate but complementary relief under the AER Distribution Ring-fencing Guideline**, to the extent required for particular delivery models involving DNSP ownership or control of generation or storage, third-party operation, or incidental secondary use of microgrid capacity.

The ring-fencing waiver sought under this application is not intended to permit Essential Energy to provide unconstrained contestable services, to derive unregulated revenue unrelated to the distribution purpose of microgrids, or to engage in discriminatory or anti-competitive conduct. Rather, it is intended to allow restricted and transparent interactions between regulated distribution services and certain ancillary activities that are incidental to, and subordinate to, the primary network function of maintaining reliability and resilience in defined locations.

Permitted arrangements may include third-party operation, orchestration or market participation using spare microgrid capacity, including arrangements under which Essential Energy receives an arm's-length lease, access or other contractually agreed payment, provided that any secondary use remains subordinate to the asset's primary distribution purpose and complies with the applicable ring-fencing safeguards.

Consistent with the sandboxing approach, the ring-fencing waiver is sought as part of a framework, rather than as a one-off exemption for a particular project, site or commercial model. This approach avoids the need for repeated, site- or model-specific waiver requests as delivery evolves, while maintaining regulatory oversight of how the waiver is applied in practice.

The ring-fencing waiver will operate subject to defined structural, accounting and conduct safeguards, including separation between regulated and contestable activities where applicable, compliance with cost-allocation and accounting requirements, and transparency of arrangements involving third parties. These safeguards are intended to ensure that any competitive interaction remains incidental to the distribution purpose of microgrids and does not give rise to cross-subsidisation or market distortion.

The interaction between the sandboxing waiver and the ring-fencing waiver is intentional. Together, they provide a coherent and proportionate mechanism to enable controlled trial delivery of islandable microgrids, while preserving consumer protections, competitive neutrality and regulatory confidence.

Table 7 Specific Ring-fencing Guideline provisions and relief sought

GUIDELINE PROVISION	CONSTRAINT	RELIEF SOUGHT
cl 3.1(b)	A DNSP may provide distribution and transmission services but must not provide “other services”, except through the specified exceptions or waiver pathway.	Permit Essential Energy to undertake incidental other services associated with an eligible microgrid where those activities are subordinate to the primary distribution reliability/resilience purpose and subject to the trial guardrails.

GUIDELINE PROVISION	CONSTRAINT	RELIEF SOUGHT
cl 3.1(d)(i)	Permits third-party use of DNSP assets in certain circumstances but expressly excludes new energy storage devices .	Permit Essential Energy to grant an appropriately appointed third party rights to operate, orchestrate or make bounded secondary use of an EE-owned new energy storage device, subject to reliability priority, arm's-length arrangements and the waiver safeguards.
cl 4.2.1	Requires physical separation between offices used for direct control services and those used by a related electricity service provider for contestable electricity services, subject to existing exceptions including regional offices.	Contingent relief only where an eligible deployment is not covered by an existing exemption and integrated staffing/operations are reasonably necessary for delivery of the microgrid.
cl 4.2.2	Restricts the same staff from being involved in direct control services and contestable electricity services of a related electricity service provider, subject to existing exceptions including regional-office staff.	Contingent relief only to allow appropriately identified Essential Energy staff to undertake integrated operational functions where required for safe and efficient microgrid operation and no existing exemption applies.
cl 4.2.3	Requires separation of branding and restricts cross-promotion between direct control and contestable electricity services, subject to specified exceptions.	Contingent relief only to permit Essential Energy branding of an eligible microgrid as a distribution reliability/resilience project where ancillary contestable activity occurs and an existing exception is insufficient.

Essential Energy will not rely on waiver relief where the Guideline already provides an applicable exemption, including the regional-office exemptions under cl 4.2.1(b)(iii) and cl 4.2.2(b)(iii). The functional-separation limbs of the waiver are intended only as a backstop for eligible deployments that fall outside those existing exemptions.

Obligations continuing to apply

Essential Energy does not seek relief from cl 3.2 cost-allocation/accounting obligations, cl 4.1 non-discrimination obligations, or cl 4.3 information-access and disclosure obligations. Those provisions either cannot be waived under the Guideline or form important safeguards supporting the proposed arrangements.

3.4 Scope boundaries and application of the waiver framework

The sandboxing and ring-fencing waivers sought under this application are intended to operate within clearly defined scope boundaries, to ensure that regulatory relief is applied only where necessary to support the delivery of islandable microgrids as distribution-led reliability and resilience solutions.

TECHNOLOGY AND DELIVERY-MODEL NEUTRALITY

Eligibility for the waiver is determined by the purpose and characteristics of the deployment rather than a prescribed technology, asset size, ownership structure, operating model or commercial arrangement. An eligible deployment may comprise generation, storage or combinations of technologies and may use Essential Energy ownership, third-party ownership or operation, or hybrid arrangements, provided that the deployment satisfies the program guardrails and its primary purpose is distribution reliability or resilience.

This section sets out:



- the primary purpose of microgrids enabled under the waiver framework;
- the activities that are in scope, subject to compliance with waiver conditions; and
- the activities that are explicitly out of scope.

These scope boundaries are central to ensuring that the waiver framework remains targeted, proportionate and transparent, and that it does not enable activities beyond those necessary to address the Category A barriers identified in Section 2.

3.4.1 PRIMARY PURPOSE OF MICROGRIDS ENABLED UNDER THE WAIVER FRAMEWORK

All microgrid deployments enabled under this waiver framework must serve a primary distribution network purpose, namely the delivery of improved reliability and resilience of electricity supply to customers located at the fringe, edge or remote sections of Essential Energy's distribution network. This shift away from diesel-reliant models toward renewable and hybrid solutions is a direct response to operational experience, cost pressures, and the evolving expectations of government and the communities we serve.

Generation, storage and control systems within an islandable microgrid will be sized, configured and operated primarily to meet this distribution purpose, including to:

- maintain supply during unplanned outages or constrained network conditions;
- support planned isolation or network works where required; and
- improve community-level resilience in locations where conventional network solutions are not fit-for-purpose or cost-effective.

Any ancillary or secondary activity associated with microgrid operation must remain subordinate to this primary purpose and must not undermine Essential Energy's obligations as a Distribution Network Service Provider.

3.4.2 IN-SCOPE ACTIVITIES

Subject to compliance with the sandboxing and ring-fencing waiver conditions, the following activities are in scope under this application:

- the operation of islandable microgrids during defined islanding events, where operation is governed by predetermined technical and operational protocols;
- the use of generation and storage resources to maintain supply to local loads during outages, constrained supply conditions, or planned isolation;
- the reservation of appropriate reserve capacity and operational headroom, having regard to identified reliability and resilience requirements;
- engagement of third parties to operate or orchestrate microgrid assets, where such arrangements are necessary to support delivery and are consistent with ring-fencing waiver conditions;
- limited and incidental management of surplus energy or capacity, only where explicitly constrained by contractual and operational arrangements that preserve the primacy of the distribution-led resilience function; and
- trial-based testing of operational, technical and commercial arrangements, strictly within the bounds of the sandbox framework and subject to monitoring and reporting requirements.

These activities are intended to enable controlled trials that reflect real-world operating conditions, while maintaining clear limits on scale, duration and purpose. So that the waiver framework operates transparently and consistently across all deployments, Essential Energy has established a set of program

guardrails and application principles. These guardrails provide clear, enforceable boundaries for all microgrid activities under this waiver, directly addressing key regulatory, market, and consumer protection concerns identified by the AER. The following section sets out these guardrails and explains how each one mitigates specific risks and supports the objectives of the sandboxing framework.

3.5 Program Guardrails and Application Framework

To provide the AER with certainty and transparency – while enabling innovation and efficient delivery – Essential Energy’s Microgrid Program will operate within the following explicit guardrails. Each guardrail is designed to address specific regulatory, market, and consumer protection concerns identified by the AER in recent sandboxing and ring-fencing decisions. Each guardrail is applied in practice through established planning, investment, procurement and reporting processes, with the practical application of the framework described below.

3.5.1 GUARDRAIL 1: PURPOSE AND SIZING CONSTRAINT

All microgrid deployments are driven by clearly identified distribution network needs, including reliability, resilience and power quality constraints. Microgrids are not deployed as market-facing assets, but as distribution solutions, and their design, configuration and capacity reflect that purpose.

In practice, system sizing is derived from the underlying network need and is developed through established planning processes. This includes consideration of the least-cost alternative solution, such as diesel generation or other network investments, which provides a practical reference point for determining the appropriate scale of deployment in each location. It also establishes the value of the investment in the network solution that can be funded through the RAB.

This provides for consistent discipline across sites with different characteristics and operating conditions, while maintaining a common basis for design and investment decisions.

This guardrail addresses concerns regarding potential over-investment or market distortion by constraining the scale and function of microgrids to those required to deliver regulated network outcomes. It also provides a clear basis for distinguishing between infrastructure that is appropriately funded through the RAB and any additional capability that may support other functions.

How this operates in practice

In practice, system sizing and configuration are determined through network planning processes that define the underlying need and assess feasible solutions. The resulting design parameters reflect this assessment, with the scale of deployment aligned to the network requirement identified for each location.

3.5.2 GUARDRAIL 2: RAB BOUNDARY AND REVENUE TREATMENT

Microgrid assets comprise both regulated and non-regulated elements. The portion of each asset attributed to the RAB is limited to that required to deliver the identified network service, with any additional capacity or functionality supported through alternative funding or commercial arrangements.

This distinction is embedded within Essential Energy’s cost allocation and investment processes, and is documented at the project level. It reflects the underlying principle that customers should fund only those components of an asset that are required to deliver regulated services.

In relation to revenue, Essential Energy recognises the importance of maintaining clear alignment with the Shared Asset Guidelines. Where RAB-funded assets give rise to net revenues, the treatment of those revenues is considered in a manner that reflects the proportion of the asset funded by customers and is transparent through established reporting processes.



This approach responds directly to concerns regarding cross-subsidisation and double recovery. It provides a principled basis for separating regulated and non-regulated services, while allowing flexibility in how non-RAB components are funded and managed.

This approach is consistent in principle with the AER's treatment of net positive generation revenues for regulated SAPS, where revenues associated with assets funded through the RAB are reflected in customer outcomes. In this context, Essential Energy proposes to apply a similar approach, with any net revenues attributable to the RAB-funded component of microgrid assets reflected proportionally and transparently through established regulatory processes.

How this operates in practice

The allocation of costs between RAB and non-RAB components is determined as part of project development and approval processes and reflected in supporting documentation. Where assets give rise to revenues, the relationship between those revenues and the RAB-funded component is observable through reporting and regulatory proposal materials over time, including the basis on which any customer benefit is reflected.

3.5.3 GUARDRAIL 3: CONTESTABILITY AND DELIVERY MODEL

The program does not prescribe a preferred ownership model. Ownership and operational arrangements will be determined according to the delivery model that best promotes efficient implementation and long-term customer outcomes. During the early stages of the program, integrated ownership and operational responsibility may be adopted where appropriate to reduce contractual, technical and operational complexity while novel islandable microgrid arrangements are being established.

This staged approach reflects prudent risk management rather than a preference for DNSP ownership. The initial deployments involve multiple regulatory, technical and operational innovations that have not previously been implemented within the National Electricity Market. Introducing additional ownership interfaces at the same time would increase delivery risk, reduce accountability and make it more difficult to isolate the effectiveness of the regulatory settings being tested through the sandbox. As operational experience is gained, additional ownership models – including third-party ownership and operation – can be progressively introduced where they deliver superior customer outcomes.

In some locations, Essential Energy's existing statutory planning powers, established land access arrangements, environmental approval processes and procurement frameworks may also enable more timely and efficient delivery of network infrastructure than would otherwise be achievable. These advantages relate to the efficient delivery of regulated network assets rather than any commercial preference for DNSP ownership, and should be considered alongside other ownership models when determining the approach that best serves customers.

The proposed White Cliffs deployment demonstrates this progressive approach, with third-party ownership and operation expected to be explored after earlier deployments have generated operational experience and reduced implementation uncertainty.

Contestability is preserved through the procurement of all contestable components, including generation and storage equipment, construction activities and ASP works. These activities are undertaken through established competitive processes and reflect Essential Energy's broader approach to engaging the market.

This delineation between integrated asset operation and contestable supply maintains opportunities for third-party participation while avoiding fragmentation of ownership and operational responsibility that would introduce complexity and risk in the trial phase of BAU implementation.

This guardrail responds to concerns regarding market participation and potential crowding out of competitive providers by maintaining a clear and active role for the market in the delivery of microgrid components.



How this operates in practice

Delivery of microgrid components is undertaken through established procurement frameworks, with contestable elements sourced through competitive processes. The application of these processes across deployments is visible through reporting of procurement approaches and outcomes.

3.5.4 GUARDRAIL 4: TRANSPARENCY, REPORTING, AND REGULATORY VISIBILITY

Transparency is provided through established reporting and regulatory processes that give the AER visibility of how the waiver framework is being applied across different locations and over time. Rather than relying on project-by-project engagement, the application of the framework is observable through the aggregation of deployment, investment and operational information within these processes.

This approach reflects the nature of the program as a scalable distribution solution, where individual deployments vary in their technical characteristics but are implemented within a consistent set of constraints. The reporting framework therefore focuses on how those constraints are applied in practice, including the identification of network need, the basis for system sizing, the treatment of costs and revenues, and the role of third parties in delivery. The allocation reflects the underlying network service requirement identified through planning processes and is subject to standard internal governance and documentation.

In combination with regulatory reset processes and ongoing engagement, this provides a clear line of sight over investment decisions and market interaction. It allows patterns and variations in application to be observed over time, including across different locations and deployment types.

This guardrail responds to the AER's requirement for transparency and oversight by providing a structured and repeatable view of how the framework operates in practice. It avoids reliance on up-front specification, while maintaining visibility of outcomes and supporting an evidence-based approach to regulatory engagement.

Community and stakeholder engagement

Community and stakeholder engagement is undertaken on a site-by-site basis as individual microgrid opportunities progress through project development. Engagement is directed to the circumstances of the affected community and proposed deployment, including the identified network need, potential location and configuration, community impacts and preferences, and implementation considerations.

Engagement undertaken to date has already informed project selection. Early candidate locations including Tea Gardens have not progressed following further project development, while the proposed Bendemeer deployment has been withdrawn following community engagement and the absence of sufficient community support. This experience demonstrates why individual locations cannot appropriately be fixed as a parameter of the waiver and why community engagement forms part of the eligibility and deployment framework.

Engagement remains ongoing for current and future candidate sites and may result in further locations being modified, substituted or not proceeding. Essential Energy is also subject to community engagement and knowledge-sharing obligations under its ARENA funding arrangements, including formal reporting of community insights. As those processes are at an early stage, final engagement outcomes are not yet available. Relevant engagement outcomes will be reported as the projects progress.

How this operates in practice

Application of the framework is observable through annual sandboxing and ring-fencing reporting and through regulatory proposal processes, which provide a consolidated view of deployments, cost allocation and market interaction across the program.

3.5.5 GUARDRAIL 5: ELIGIBILITY AND DEPLOYMENT FRAMEWORK

Application of the waiver framework occurs through Essential Energy's established network planning and investment processes, with microgrid deployments brought forward where they represent an appropriate response to an identified distribution network need. Eligibility is therefore determined primarily by the **network circumstances and customer outcomes to be addressed**, rather than by predetermined demographic characteristics, customer numbers or named locations.

An eligible Category A deployment must:

- be located within Essential Energy's distribution network area;
- respond to a clear and documented distribution reliability, resilience or supply-security need;
- involve network circumstances for which temporary islanding provides a credible means of maintaining or improving supply, including circumstances such as long radial supply, limited network redundancy, extended restoration risk, constrained access following network events, exposure to severe weather or other conditions that materially affect continuity of supply;
- provide an identifiable customer outcome, principally through avoiding or reducing the duration or consequence of supply interruptions, improving resilience during network contingencies or planned isolation, or providing a more efficient means of addressing the identified network need than an available conventional network response;
- satisfy the purpose, sizing, RAB boundary, contestability, technical, operational and consumer-protection guardrails applying under this waiver framework; and
- be subject to appropriate community and stakeholder engagement as part of project development.

Customer numbers, population, load size or other demographic characteristics are not themselves eligibility parameters. These factors may inform the design and sizing of an individual microgrid, but the relevant test is whether the deployment addresses an identified distribution network need and delivers an appropriate reliability or resilience outcome for the customers affected by that need.

Trial deployment cap

Essential Energy is proposing that sandboxing and associated ring-fencing relief will apply to a maximum of **[10] Category A microgrid deployments** during the waiver period.

For the purpose of this cap, a Category A deployment is a microgrid project that relies on one or more of the regulatory waivers granted under this application. Microgrid projects that can proceed entirely under the ordinary regulatory framework without reliance on the sandboxing or ring-fencing relief do not count toward the cap.

The deployment cap does **not** constitute a list of approved or fixed locations. The particular sites identified elsewhere in this application represent current candidate, funded or planned projects and may change during the five-year waiver period.

Essential Energy may substitute one eligible location for another without seeking a variation to the waiver where a proposed deployment does not proceed, including because of:

- community or stakeholder consultation;
- changes in network need or planning priorities;
- engineering or technical feasibility;
- land, environmental or planning constraints;

- procurement outcomes;
- funding availability or conditions; or
- other project-development considerations.

A substituted location must independently satisfy the eligibility and location parameters above and all other applicable trial guardrails. **Substitution does not increase the approved Category A deployment cap.**

Government-supported additional deployments

During the waiver period, additional eligible microgrid opportunities may arise through NSW or Commonwealth Government funding programs, policy initiatives or requests directed at addressing identified distribution reliability or resilience needs.

Where such an initiative would result in the number of Category A deployments exceeding the approved cap, Essential Energy proposes that additional deployments may be included within the waiver framework **without requiring a variation**, provided that:

- the deployment arises directly from a government funding program, policy initiative or request;
- it independently satisfies all eligibility, location and guardrail requirements applying under the waiver;
- it remains within the substantive regulatory relief already approved — that is, it does not require waiver of any additional NEL, NER or Ring-fencing Guideline provision; and
- Essential Energy notifies the AER of the additional deployment and the basis on which it satisfies these conditions.

Any proposed increase in the number of Category A deployments that does not satisfy these conditions would be discussed with the AER to determine whether a formal variation is required.

How this operates in practice

Each proposed deployment is assessed through Essential Energy's established network planning and investment processes against the same eligibility framework. The relevant question is not whether one community has the same number or type of customers as another, but whether the location presents a **comparable distribution need capable of being addressed through the regulatory permissions being tested under the trial**.

This allows the trial to test the same regulatory framework across differing real-world network contexts while preserving a clear quantitative boundary on its scale. The AER will have visibility of deployments, substitutions and any government-supported additions through the reporting arrangements in section 3.7.

3.5.6 GUARDRAIL 6: TRANSITION AND EXIT PATHWAYS

The program is expected to deliver assets with operating lives that extend beyond the duration of the sandboxing waiver. At the same time, the waiver framework is transitional in nature and is intended to support deployment and learning while longer-term regulatory arrangements continue to develop.

Within this context, the treatment of assets over time will be informed by both operational experience and the evolution of the regulatory framework. This includes consideration of how microgrids are characterised within the broader system, the interaction with service classification and cost recovery frameworks, and the role of market participants in supporting or operating different components.

A range of potential pathways may be relevant depending on the nature of the assets and the regulatory environment at the time. These include continued operation under revised or updated regulatory settings, application of alternative service classification approaches, or the involvement of third parties in ownership or operation where appropriate.

The purpose of this guardrail is not to prescribe a single outcome, but to recognise that the transition of these assets will require regulatory consideration over time. By acknowledging this upfront, the framework supports ongoing engagement and allows the evidence generated through deployment and reporting to inform future pathways.

How this operates in practice

Over time, the treatment of assets is informed by operational experience and evolving regulatory settings, with potential pathways considered as the evidence base develops. The outcomes that emerge reflect both the characteristics of individual deployments and the regulatory environment at that time. See section 3.8 for further detail.

These guardrails operate collectively and are applied to each deployment as an integrated framework, rather than as discrete requirements, such that compliance with one element does not override or displace the intent of the others. They are applied through Essential Energy's existing planning, investment, delivery and reporting processes. These processes provide a consistent basis for applying the waiver framework across locations with differing technical and operational conditions.

In combination, they provide visibility of how deployments are undertaken over time, including investment decisions, cost allocation and interaction with the market, and support ongoing engagement with the AER as the evidence base develops.

3.6 Activities outside the scope of the waiver framework

For clarity, the following activities are explicitly out of scope of the sandboxing and ring-fencing waiver framework:

- unconstrained generation, being generation that is dispatched, scheduled, or operated continuously or opportunistically in a manner independent of a defined distribution reliability or resilience purpose;
- unconstrained trading activity, including participation in wholesale electricity or related markets for the primary purpose of price arbitrage or revenue maximisation;
- operation of microgrids as permanent or fully autonomous alternatives to the interconnected distribution network; and
- any activity that would require Essential Energy or its delivery partners to be treated as a scheduled or semi-scheduled market participant under the NER.

The waiver framework is not intended to support open-ended market participation, nor to pre-empt longer-term market or rule-change decisions regarding the regulatory treatment of islandable microgrids.

3.6.1 SECONDARY ACTIVITIES AND THE PRINCIPLE OF SUBORDINATION

Where generation, storage or market-facing activity occurs as part of a microgrid deployment, such activity must remain secondary and subordinate to the primary purpose of maintaining network reliability and resilience.

In practice, this means that:

- operational and contractual arrangements will be designed and implemented to prioritise predefined reliability and resilience requirements, including through capacity reservation and the ability to curtail or suspend secondary activities where required to support network outcomes;
- contractual arrangements with third parties will include obligations to prioritise network support outcomes over any secondary use of capacity; and

- any permitted market-related activity will operate within clearly defined limits and must not compromise reserve margins, response capability, or Essential Energy's ability to meet its distribution obligations.

Where unplanned outages or performance shortfalls occur notwithstanding these arrangements, the resulting reliability outcomes will be dealt with through established reliability and incentive frameworks (including STPIS), as applies to other distribution assets. Such outcomes do not constitute a failure to comply with the waiver conditions, nor do they alter the hierarchy of purpose established under this application.

3.6.2 RELATIONSHIP TO FUTURE REFORM PATHWAYS

By clearly defining what is in scope and out of scope, the waiver framework enables Essential Energy to proceed with near-term delivery of the BAU Microgrids Program, while preserving regulatory optionality.

Evidence generated under the trial may inform future consideration of broader reforms (including T-SAPS-style frameworks or other rule changes). However, the granting of this waiver does not assume, require or prejudice the form of any enduring regulatory solution.

The waiver framework is therefore expressly transitional in nature. It is designed to enable controlled delivery and learning under the current regulatory framework, rather than to pre-empt or substitute for future rule-making processes.

3.7 Conditions, Safeguards and Reporting

3.7.1 OVERVIEW

The sandboxing and ring-fencing waivers sought under this application are intended to operate within a controlled and transparent framework, supported by defined conditions, safeguards and reporting arrangements.

These measures are designed to:

- manage risks associated with trial operation;
- protect customers and the integrity of the energy market; and
- provide the AER with appropriate visibility of how the waivers are applied in practice.

The conditions and safeguards described below reflect the transitional nature of the waiver framework and are proportionate to the scope and scale of the activities proposed.

3.7.2 SCOPE CONTROLS AND ELIGIBILITY CRITERIA

The application of the sandboxing and ring-fencing waivers will be limited to eligible microgrid deployments that meet defined criteria, including:

- a clear and documented distribution-led reliability or resilience objective;
- operation within the technical and operational parameters described in this application;
- consistency with the in-scope and out-of-scope boundaries set out in Section 3.4; and
- alignment with the intent of the Microgrids Program as a business-as-usual distribution solution.

Not all microgrid deployments will require access to all waivers. For example, microgrids that operate predominantly as islanded systems with minimal interaction with energy markets (and which are

functionally closer to large SAPS-type arrangements) may require access to a narrower subset of regulatory relief than islandable microgrids that operate across both grid-connected and islanded states over time.

The framework allows Essential Energy to apply only the regulatory relief expressly approved under the waiver and only where the corresponding regulatory trigger arises, based on the characteristics of each deployment.

3.7.3 OPERATIONAL SAFEGUARDS

Operational safeguards will be implemented to manage risks associated with islanding events and trial operation, including:

- pre-defined technical and operational protocols governing islanding, reconnection and normal operation;
- conservative system design and operating limits appropriate to the scale and purpose of each microgrid; and
- operational decision-making that prioritises safety, system stability and continuity of supply.

These safeguards recognise that islanding events may involve unplanned outages and system contingencies, and are intended to manage such events consistently with established distribution network practices.

3.7.4 CONSUMER PROTECTIONS

Consumer protections remain paramount under the waiver framework. Microgrid deployments enabled under this application will continue to operate within existing consumer protection arrangements, including:

- life-support customer identification and management;
- complaints handling and escalation processes; and
- retailer and ombudsman arrangements, as applicable.

Participation in trial activity will not diminish customer rights or protections. Where trial-specific arrangements are required, these will be implemented in a manner consistent with existing consumer protection principles.

3.7.5 TREATMENT OF INCIDENTAL REVENUE FROM RAB-FUNDED MICROGRID ASSETS (PRINCIPLE)

In some circumstances, islandable microgrid assets deployed under the BAU Microgrids Program may be wholly or partly funded through the Regulatory Asset Base (RAB), where this represents the prudent and efficient means of delivering distribution reliability and resilience outcomes.

Where this occurs, any market-related activity enabled under the waiver framework would be incidental and secondary to the primary distribution purpose of the assets. In such cases, Essential Energy does not seek to retain windfall commercial benefit from trading activity that arises solely as a consequence of the waivers.

In this context, the treatment of any revenues associated with microgrid assets will reflect the distinction between RAB-funded and non-RAB components. To the extent that assets funded through the RAB give rise to net revenues, those revenues would be assessed on a net basis and reflected proportionally, having regard to the share of the asset funded through the RAB. This approach is consistent in principle with the AER's existing treatment of net positive generation revenues for regulated Stand-Alone Power Systems (SAPS), where revenues associated with RAB-funded assets are reflected in customer outcomes through

defined regulatory processes. Essential Energy proposes to apply a similar approach in the context of islandable microgrids, with the relationship between asset funding and any associated revenues observable through established reporting and regulatory proposal processes.

3.7.6 RING-FENCING AND FINANCIAL SAFEGUARDS

The ring-fencing waiver will operate subject to safeguards that preserve the core objectives of the ring-fencing framework, including:

- transparency of arrangements involving third parties;
- appropriate separation between regulated distribution services and any contestable activities; and
- compliance with cost-allocation, accounting and reporting requirements.

These safeguards are intended to prevent cross-subsidisation and discrimination, while allowing the flexibility required to trial emerging microgrid delivery models.

3.7.7 MONITORING, REPORTING AND TRANSPARENCY

Essential Energy will provide the AER with regular reporting on the application and operation of the waivers, proportionate to the scale and risk of the trial.

Reporting will include, as appropriate:

- the number and type of microgrid deployments utilising the waiver framework;
- the nature of the waivers applied to each deployment;
- including identification of each deployment counted toward the approved trial deployment cap, any substitution of an eligible location, and any additional deployment admitted under the government-funded/program pathway described in Guardrail 5;
- operational learnings arising from islanding events; and
- any material issues identified in relation to customer outcomes, system performance or market interactions.

These reporting arrangements are intended to support regulatory oversight and shared learning, rather than to impose unnecessary administrative burden. Essential Energy notes that the BAU Microgrids Program is subject to an extensive knowledge-sharing and reporting framework under the executed ARENA Regional Microgrids Program Funding Agreement. Those arrangements include delivery of public technical and regulatory insights reports, public community insights reports, a final project knowledge-sharing report, provision of project data, participation in industry events and workshops, site visits, project evaluation activities, and ongoing reporting of lessons learned and project outcomes.

Importantly, compliance with these obligations is linked to project milestone achievement and funding payments and is supported by audit, evaluation and information-sharing provisions. As a result, the Project is already subject to a structured and enforceable framework designed to ensure that learnings are captured, documented and disseminated across industry.

Accordingly, Essential Energy proposes that any reporting requirements associated with the sandboxing and ring-fencing waivers should, where practicable, leverage and align with existing ARENA reporting processes to avoid duplication and unnecessary administrative burden, whilst still providing the AER with appropriate visibility of trial outcomes and regulatory learnings.

3.7.8 INTERACTION WITH INCENTIVE AND ACCOUNTABILITY FRAMEWORKS

Where unplanned outages or performance shortfalls occur, the resulting outcomes will continue to be addressed through existing incentive and accountability mechanisms (including STPIS), as applies to other distribution assets.

The application of these mechanisms does not alter the permissions granted under the sandboxing or ring-fencing waivers, nor does it convert reliability outcomes into compliance breaches under the waiver framework. This distinction preserves the appropriate separation between financial incentives and regulatory permissions.

3.7.9 REVIEW AND ADAPTATION

Given the evolving nature of microgrid technologies and delivery models, the waiver framework is intended to be adaptive.

Learnings generated through the trial may inform refinements to operational practices, safeguards or reporting arrangements over time, subject to engagement with the AER. This adaptive approach supports the broader objective of using sandboxing as a mechanism to inform durable, long-term regulatory settings.

3.8 Duration, review and sunset

The sandboxing and ring-fencing waivers sought under this application are expressly transitional in nature. They are intended to enable controlled delivery and learning under the current regulatory framework, rather than to establish permanent regulatory arrangements.

This section sets out the proposed duration, review arrangements, and sunset pathway applicable to the waiver framework.

3.8.1 DURATION OF THE SANDBOXING AND RING-FENCING WAIVERS

The sandboxing waiver sought under this application is requested for the maximum period permitted under the regulatory sandboxing framework (up to five years from the date of grant). Any continuation beyond that period would be subject to a separate application for extension, supported by evidence generated during the trial, and would be at the discretion of the AER.

Based on indicative timing, if the sandboxing waiver is granted in late 2026, the initial waiver period would extend until late 2031, unless earlier withdrawn or varied by the AER. Essential Energy acknowledges that the sandboxing framework is expressly time-limited and that the waiver cannot operate beyond the maximum duration permitted under the relevant provisions, except where a formal extension is sought and approved.

The ring-fencing waiver sought under this application is requested for a duration aligned to the sandboxing waiver period. Essential Energy recognises that ring-fencing waivers may be granted for a shorter or longer period at the discretion of the AER and is open to the AER determining an appropriate duration consistent with the objectives and risk profile of the trial.

3.8.2 REVIEW AND REGULATORY ENGAGEMENT

Essential Energy will engage with the AER throughout the duration of the waiver period, including through the monitoring and reporting arrangements described in Section 3.7.

This engagement is intended to support:

- ongoing regulatory visibility over how the waivers are applied in practice;
- assessment of whether the relief remains necessary and proportionate as delivery progresses;



- consideration of learnings emerging from ARENA knowledge-sharing outputs and whether any refinements to reporting, safeguards or transition arrangements may be warranted; and
- informed consideration of whether any changes to scope, conditions or duration are appropriate over time.

This review-based approach reflects the intent of the sandboxing framework as an evidence-generating mechanism, rather than a static or permanent regulatory solution.

3.8.3 SUNSET AND TRANSITION CONSIDERATIONS

The waiver framework is explicitly time-bound and transitional.

At the conclusion of the trial period, or earlier if appropriate, Essential Energy anticipates transitioning microgrid deployments to the most appropriate enduring regulatory arrangements available at that time. These may include:

- operation under existing regulatory frameworks without the need for ongoing waiver relief; or
- operation under revised or new regulatory arrangements informed by trial outcomes (including, but not limited to, future T-SAPS-style or related reforms if progressed).

If a T-SAPS framework is finalised during the waiver period, Essential Energy would actively engage with the AER and AEMO regarding the interaction between the waiver framework and the new arrangements. This may include consideration of whether particular deployments should transition into the T-SAPS framework, whether specific aspects of the waiver framework remain necessary, and whether operational, settlement or reporting arrangements should be aligned with the new framework. This is consistent with the transitional nature of the sandboxing pathway and reflects Essential Energy's intention that the trial should inform, and where appropriate evolve alongside, enduring reform.

3.8.4 PURPOSE OF THE SUNSET FRAMEWORK

By combining a defined duration, ongoing review, and a clear sunset pathway, the waiver framework:

- aligns with the statutory limits of the regulatory sandboxing regime;
- provides certainty regarding the timing and scope of the trial period; and
- reinforces that the sandboxing waiver is a means to support near-term delivery and learning, not an alternative to enduring regulatory solutions.

This approach is consistent with the objectives of the AER's regulatory sandboxing framework, which is intended to facilitate innovation where the regulatory framework has not yet fully evolved, while preserving the integrity of the broader energy market.

4. Trial Objectives, Learning Outcomes and Public Benefit

4.1 Purpose of the trial

The purpose of the sandboxing trial is to enable Essential Energy to test, observe and evaluate the deployment of islandable microgrids as business-as-usual distribution network solutions, in circumstances where the existing regulatory framework has not yet evolved to accommodate their operation at scale.

The trial is intended to generate practical, in-field evidence across technical, operational, commercial and consumer dimensions, and to inform the development of durable, model-agnostic regulatory settings over time. It is not intended to predetermine the form of any future rule change or regulatory framework.

Consistent with the AER's Energy Innovation Toolkit, the trial focuses on enabling delivery under controlled conditions, while ensuring that consumer protections, market integrity and regulatory oversight are preserved.

4.2 Trial objectives

The key objectives of the trial are to:

- demonstrate the role of islandable microgrids as distribution-level reliability and resilience solutions, particularly in fringe-of-grid, remote or high-risk locations where conventional network responses may be constrained or uneconomic;
- test multiple delivery, ownership and operational models within a controlled regulatory framework, including different combinations of asset ownership, third-party participation and operational arrangements, without locking in a single enduring model;
- identify which regulatory barriers materially affect delivery and operation, and which issues can be effectively managed through protocols, safeguards or existing frameworks; and
- generate evidence to inform future regulatory decision-making, including consideration of whether, and how, existing frameworks may need to evolve to accommodate islandable microgrids over time.

4.3 Learning outcomes – Category B issues (trial-managed matters)

The trial will generate evidence in relation to Category B issues, which do not require immediate waiver relief but must be actively managed during trial operation to ensure consumer protection, market integrity and operational safety.

These learning outcomes include:

- **Operational and settlement interfaces**
Observations on how islanding events interact with existing metering, settlement and market systems, including the materiality, frequency and duration of any settlement or reconciliation anomalies. including whether retention of ordinary market treatment during islanding periods provides a simpler and more proportionate outcome than alternative approaches in particular deployment contexts.
- **Reliability reporting and incentive interactions**
Practical experience with how islanding events are reflected in reliability metrics and incentive

frameworks (including STPIS), and whether current arrangements appropriately capture the customer and network outcomes delivered by microgrids.

- **Consumer protections in islanded operation**
Insights into the effectiveness of existing consumer protection arrangements (including life-support identification, complaints handling and retailer interfaces) in the context of islandable microgrids.
- **Operational protocols and safeguards**
Evidence on the effectiveness of technical and operational protocols governing islanding, reconnection and contingency management under real-world conditions, including the interaction between DNSP-operated, third-party-operated and hybrid operating models and how responsibilities are allocated during transitions between connected and islanded operation. This naturally includes responsibility for islanding activation, resynchronisation, reconnection and restoration activities
- **Evidence on how DNSP-led microgrids interact with the principles underpinning emerging T-SAPS frameworks**, including activation criteria, operational treatment, settlement consequences, treatment of affected connection points, metering arrangements and transition back to normal interconnected operation.

These learning outcomes are intended to inform refinements to operational practice and regulatory guidance, rather than to require resolution of all issues upfront.

4.4 Learning outcomes – Category C issues (future reform candidates)

The trial is also intended to inform Category C issues, which are structural in nature and best addressed through evidence-based reform rather than assumption.

These include:

- **Regulatory characterisation of islandable microgrids**
Whether existing regulatory concepts adequately reflect systems that operate across both grid-connected and islanded states, or whether modified or new classifications may be warranted over time.
- **Registration, metering and role clarity**
Insights into whether existing registration categories, registration thresholds and metering requirements remain proportionate for resources that operate solely to support temporary islanding or continuity-of-supply outcomes. This includes consideration of whether alternative approaches may be appropriate for generation or storage assets that operate exclusively within an islanded section and do not participate in normal market activities.
- **Service classification and ring-fencing settings**
Evidence on how different microgrid configurations interact with service classification and ring-fencing frameworks, including the effectiveness of waiver-based approaches compared with more enduring solutions.
- **Boundary between network services and market participation**
Learnings on how secondary activities can be bounded and subordinated to distribution purposes without creating undue complexity, compliance risk or competitive distortion.

These outcomes are intended to support informed consideration of future reforms, without presuming their form, timing or necessity.

4.5 Public interest benefits

The trial is expected to deliver public interest benefits, including:



- improved reliability and resilience outcomes for customers in remote, fringe-of-grid and high-risk communities;
- reduced reliance on temporary and reactive supply measures during extended outage events;
- more efficient utilisation of network and non-network assets, where microgrids represent a least-cost network-equivalent solution; and
- improved regulatory understanding of emerging distribution-level solutions, supporting better-informed decision-making over time.

By enabling learning under controlled conditions, the sandboxing framework supports innovation without compromising consumer protections or market integrity, and contributes to the long-term interests of electricity consumers.

4.6 Knowledge sharing and regulatory contribution

Essential Energy recognises that the value of the trial extends well beyond the specific microgrid deployments undertaken under the BAU Microgrids Program. The trial is therefore intended not merely to determine whether particular Essential Energy projects can proceed, but to identify which regulatory settings, safeguards and delivery models are capable of broader application to islandable microgrids across the NEM. By testing common regulatory issues across different locations, ownership structures and operating models, the trial will help distinguish site-specific issues from systemic barriers and generate evidence capable of informing future regulatory arrangements for other DNSPs and market participants.

Consistent with the objectives of the AER's Energy Innovation Toolkit, and separately with the knowledge-sharing requirements established under the Australian Renewable Energy Agency's (ARENA) Regional Microgrids Program, the Project is subject to a comprehensive framework for capturing, analysing and disseminating project learnings.

Under the ARENA funding arrangements, Essential Energy is required to deliver a range of formal knowledge-sharing outputs, including public technical and regulatory insights reports, public community insights reports, a final project knowledge-sharing report, participation in industry events and workshops, provision of project data, and engagement activities designed to facilitate knowledge transfer across industry, government and community stakeholders.

Importantly, these obligations extend beyond technical performance. They explicitly require consideration of regulatory, commercial, governance, consumer and community outcomes, including regulatory sandbox learnings, the commercial feasibility of DNSP-led microgrids, deployment models, customer outcomes, community participation, and barriers to broader deployment.

The knowledge-sharing framework has been designed to support audiences including the AER, AEMO, AEMC, government agencies, network businesses, retailers, technology providers, First Nations stakeholders and the broader energy sector. This creates an established pathway through which learnings generated under the sandboxing trial can be shared and applied beyond the Project itself.

A particular area of focus will be the interaction between the trial and emerging regulatory reforms. Essential Energy recognises that the proposed T-SAPS framework seeks to address a number of market-facing and operational issues associated with temporary islanding. The sandboxing trial provides a valuable opportunity to generate practical evidence on how those concepts operate under real-world conditions, including ownership models, operating models, settlement treatment, participant impacts, transition arrangements and operational responsibilities. This includes testing assumptions underpinning emerging T-SAPS arrangements under real-world operating conditions before those arrangements are implemented at broader scale.

To the extent that T-SAPS or similar reforms progress during the life of the trial, Essential Energy intends to share relevant learnings with the AER, AEMO and other stakeholders to support implementation and refinement of those frameworks.

Essential Energy considers that these existing ARENA obligations provide a robust and proportionate mechanism for knowledge dissemination and regulatory learning. The sandboxing trial therefore builds upon an established knowledge-sharing framework, reducing the need for separate or duplicative reporting obligations while ensuring that lessons learned are available to support future regulatory development.

Table 5: Knowledge-sharing outputs already committed under ARENA

DELIVERABLE	PURPOSE
Technical & Regulatory Insights Report	Public reporting on regulatory sandboxing outcomes, deployment lessons, technical learnings and reform implications
Community Insights Report	Public reporting on community participation, governance, consumer outcomes and First Nations engagement
Final Knowledge Sharing Report	Consolidated lessons learned, deployment barriers, opportunities and recommendations
Industry Events and Workshops	Dissemination of learnings through presentations, workshops and industry forums
Project Data Collection	Provision of technical, reliability, cost, emissions and customer outcome data
Site Visits and Demonstrations	Direct observation and discussion of project outcomes with stakeholders

These outputs are mandatory requirements of the ARENA funding program and are supported by milestone-linked reporting, evaluation and audit arrangements.

Appendix A: Regulatory barriers to islandable microgrids - issues mapping⁹

The issues mapping in this appendix has been cross-checked against the RACE2030 interim findings to ensure completeness and sector alignment. Where RACE2030 has identified additional or emerging barriers – such as the need for materiality thresholds or clarification of third-party roles – these have been incorporated into the waiver framework proposed in this application

ISSUE	CURRENT NEL / NER POSITION	PROPOSED NEL / NER AMENDMENTS TO REMEDY ISSUES
Triggering the application of the existing regulated SAPS regime to T-SAPS	The NEL only impose obligations and a settlement framework for “<i>regulated SAPS</i>”. A ‘regulated SAPS’ is informed by the following definitions under the NEL and Regulations (as made in NSW) (underlined for relevance): • a ‘SAPS’ is “<i>a system that (a) generates and distributes electricity and (b) <u>does not form part of the interconnected national electricity system</u></i>”,¹⁰ and • a ‘regulated SAPS’ is “<i>a SAPS consisting of a distribution system, <u>owned, controlled or operated</u>, or proposed to be owned, controlled or operated,</i>	The following amendments could be made to the NEL to introduce a separate ‘T-SAPS’ concept within the existing definition of SAPS (underline showing proposed amendments): ‘SAPS’ is: – <i>a system that (i) generates and distributes electricity and (ii) does not form part of the interconnected national electricity system; <u>or</u></i> – <i><u>a T-SAPS</u></i> <i>‘T-SAPS’ means “a system that (a) maintains and distributes a supply of electricity from one or more local electricity supply resources, including an integrated resource system or generating system and (b) <u>has been temporarily</u></i>

⁹ Notation Key: **W**: specific provision from which waiver relief is sought; **R**: related provision relevant to interpretation or operation of the waiver; **M**: matter managed through trial protocols/conditions; no waiver sought

¹⁰ *National Electricity (NSW) Law*, s 6B(6).

ISSUE	CURRENT NEL / NER POSITION	PROPOSED NEL / NER AMENDMENTS TO REMEDY ISSUES
	<i>by Ausgrid, Essential Energy or Endeavour Energy</i> ¹¹ .	<i>disconnected from the interconnected national electricity system to maintain security of supply.”</i>
NER registrations required for owning / controlling generation or storage - W	A person that owns, controls or operates a generating system (including production units) or integrated resource system (including production units that also consume electricity) (IRS) must be registered as, or exempt from the requirement to register as, either a Generator or Integrated Resource Provider (IRP) (cls 2.1A.1 and 2.1A.2). A person required to register as a Generator or IRP can apply for an exemption from that requirement based on another person being registered instead as their intermediary (where, from a technical perspective, that person can be treated the same for the purposes of the NER)(cl 2.9.3). Alternatively, a person that supplies, or intends to supply, electricity from one or more production units to a stand-alone distribution system in a ‘regulated SAPS’ must register as a SAPS Resource Provider (r 2.3C.1(a)-	The benefit of this approach is that it would cause the NER provisions related to regulated SAPS to automatically apply to T-SAPS, with T-SAPS becoming a type of regulated SAPS. However, to the extent that certain technical requirements (or otherwise) should apply differently to T-SAPS, as opposed to SAPS, then distinctions can be made in the NER as needed (which is discussed further below). The AER, for the purposes of the Proposed Rule Change, has indicated that it intends for islandable microgrids to only be T-SAPS when ‘islanded’. From a NER registrations / exemption perspective, this would appear to technically require DNSPs to hold both a: • SAPS Resource Provider / Market SAPS Resource Provider registration for when any generation / BESS assets they own or control are supplying and selling electricity in a T-SAPS; and • Generator or IRP registration or exemption for when any generation / BESS assets they own, or control, are connected to the grid (and therefore not in a T-SAPS). To address this, the AER should consider whether it is preferable for: • DNSPs, under the existing NER regime, to be expected to register as a SAPS Resource Provider / Market SAPS Resource Provider and then, to extent that a third-party is involved in the orchestration / operation of their generation / BESS assets, apply for a Generator or IRP exemption based on the existing

¹¹ *National Electricity (NSW) Regulation 2022 (Regulations)*, r 5A.

ISSUE	CURRENT NEL / NER POSITION	PROPOSED NEL / NER AMENDMENTS TO REMEDY ISSUES
	(b)) (rather than as a Generator or IRP for those production units). A person that engages in selling electricity directly to the market (which includes the market for the sale and purchase of SAPS energy) at any connection point in a regulated SAPS must also register as a Market SAPS Resource Provider (and classifying their production units accordingly (cl 2.3C.1(c)-(d)).	intermediary exemption under the NER (assuming no standing exemption is available because of the assets size); or a new registration category for a T-SAPS Resource Provider to be introduced that, like the existing SAPS Resource Provider registration, covers production units that are, <i>or from time to time could be</i>, in a T-SAPS (explicitly removing the requirement to otherwise register as a conventional Generator or IRP).
Market rules for SAPS - R	The market procedures for the wholesale trading of electricity apply to regulated SAPS according to r 3.21. There is a specific formula given for determining the 'SAPS trading amount' ($TA + ME \times SAPSSP$) for a 'SAPS energy transaction' that occurs in relation to 'SAPS energy' (being the electricity flowing at a connection point in a regulated SAPS) (cl 3.21.3).	The market rules for regulated SAPS being adopted for T-SAPS do not raise any obvious concerns. However, the AER should consider if there is a need to make it express in the NER that when generation / BESS assets owned or operated by DNSPs are not in a T-SAPS the usual market rules under the NER and spot price apply to those assets.
Power system security - R	The power system security obligations that apply to Registered Participants / NSP under chapter 4 of the NER do not apply to or in respect of regulated SAPS (cl 4.1.2).	Various rules under Chapter 4 could create issues for DNSPs in a T-SAPS context (particularly around operating distribution systems according to power system stability guidelines, reporting around circumstances that impact power system security, complying with performance standards to reduce power system security effects etc.) It is therefore sensible for T-SAPS, like regulated SAPS, to be carved out from the application of Chapter 4 obligations when 'islanded'. However, the AER should consider if there is a need to make it express in Chapter 4 of the NER that the usual power system security system obligations would apply to DNSPs when T-SAPS are grid connected. In particular, because the obligation for Registered Participants to ensure their plant (including Generation / IRS) meet or exceed applicable performance standards (r 4.15) falls under Chapter 4.

ISSUE	CURRENT NEL / NER POSITION	PROPOSED NEL / NER AMENDMENTS TO REMEDY ISSUES
Connection processes - R	Neither the connection processes under r 5.3 and r 5.3A (or related technical connection requirements under Sch 5.3) nor the post-Connection Agreement matters under 5.6 to 5.9 apply to or in respect of connections to regulated SAPS (cl 5.1.3). This means that any Registered Participants, load or non-registered DER providers looking to connect to a regulated SAPS must use Chapter 5A processes (cls 5.1.2(d) and 5A.A.2).	To allow T-SAPS to be deployed flexibly to address reliability challenges on networks, the AER should consider carve outs to make clear that the connection processes under both Chapter 5 and 5A of the NER can apply to connections to T-SAPS (as relevant). In particular, larger generation / storage that are, or could be, connected to T-SAPS would need assurances that Chapter 5 connections will be available (and ultimately GPS registration etc. for the 99% of the time that they are not ‘islanded’).
Prohibition against converting the distribution network to a SAPS for new connections - R	A DNSP cannot establish a ‘new connection’ by converting a part of its network to a regulated SAPS or establishing a new regulated SAPS (cl 5A.A.5).	Again, to allow T-SAPS to be deployed flexibly to address reliability challenges on networks, the AER should consider carve outs to this prohibition for T-SAPS. This would give DNSPs the flexibility to consider converting parts of their network to T-SAPS for the purpose of accommodating new connections (particularly where those new connections have some bearing on reliability). For example, where new community-level batteries could be connected for reliability, which would then allow the network section serving that community to be a T-SAPS during outages. However, it is appreciated that this is a broader policy question.
Performance standards of the network - W/R W – NER 5.2.3(b), together with S5.1.2.1, S5.1.3, S5.1.8, S5.1.9 and S5.1.10.2(c)–(d).	NER 5.2.3(b) requires an NSP to comply with the power system performance and quality-of-supply standards in Schedule 5.1. For temporary islanded operation, the provisions presently identified as requiring modified treatment are: • S5.1.2.1 – credible contingency events; • S5.1.3 – frequency variations; • S5.1.8 – stability;	Trial waiver sought: During temporary islanded operation, relief is sought from NER 5.2.3(b), together with S5.1.2.1, S5.1.3, S5.1.8, S5.1.9 and S5.1.10.2(c)–(d), only to the extent necessary to permit operation under approved island-mode technical and operational protocols. The approved protocols would provide island-specific contingency, frequency, stability, protection and control arrangements appropriate to the temporary islanded operating state. Ordinary Schedule 5.1 requirements would continue to apply during grid-connected operation and, while islanded, wherever they remain technically appropriate.

ISSUE	CURRENT NEL / NER POSITION	PROPOSED NEL / NER AMENDMENTS TO REMEDY ISSUES
R – S5.1.1(g) and NER 5.13B.1.	- S5.1.9 – protection systems and fault clearance times; and - S5.1.10.2(c)–(d) – DNSP load/generation control facilities. These provisions are framed for operation as part of the interconnected power system and may not be appropriate without modification while a section of Essential Energy’s network is intentionally operating as a temporary island. By comparison, Schedule 5.1 does not apply to a DNSP in relation to a regulated SAPS (S5.1.1(g)). A DNSP must instead comply with its SAPS performance and supply standards under NER 5.13B.1. These provisions are relevant comparators only; no waiver is sought from S5.1.1(g) or 5.13B.1.	No relief is presently sought from Schedule 5.1 requirements relating to voltage quality, voltage fluctuations, harmonic distortion, voltage unbalance, equipment ratings or safe automatic reclosing.
Service classifications / revenue - M	Regulated SAPS are classified as ‘standard control services’ with activities / expenditure related to providing or arranging for the provision of services or facilities (including generation / IRS) required to supply to a distribution customer within a regulated SAPS, being an input used to provide such standard control services (cl 6.2.1A(b)–(d)(1)). However, the production of electricity for supply within a regulated SAPS is not a distribution service – it remains a generation service (cl 6.2.1A(d)(2)). Given regulated SAPS are then used to provide both distribution and non-distribution services the AER’s	The AER should consider, in the context of the Proposed Rule Change, consequential amendments to its Shared Asset Guidelines to carve out T-SAPS from the current cost reduction approach and method for regulated SAPS. This is because: - the regulatory burden and cost to DNSPs of determining the settled net positive generation revenue earned for the limited time a T-SAPS is expected to be ‘islanded’ outweighs the actual generation revenue that is likely to be returned to customers; and - the case for commercialising T-SAPS, by appointing third parties to orchestrate / operate generation and BESS assets within a T-SAPS, is weakened. If these third parties cannot recover generation revenue from their operation of generation / BESS

ISSUE	CURRENT NEL / NER POSITION	PROPOSED NEL / NER AMENDMENTS TO REMEDY ISSUES
	Shared Asset Guidelines apply (cl 6.4.4).¹² Those guidelines provide that all regulated SAPS settled net positive generation revenue earned by a DNSP should be reduced (s 4).	when that T-SAPS is ‘islanded’, this will reduce incentives for third parties to take up the ‘orchestrator’ / ‘operator’ role. To the extent that the AER has concerns around carving-out T-SAPS from the current cost reduction approach and method for regulated SAPS entirely, it should <i>at least</i>: clarify in the Shared Asset Guideline that when T-SAPS are grid connected, the obligation to reduce settled net positive generation revenue does not apply. From a commercialisation perspective, this will give comfort that, for most of the time, revenue recovery from generation / BESS within T-SAPS will be as usual; and consider if amendments could be made to the Shared Asset Guideline to allow for, as an example, settled net positive generation revenue derived from generation / BESS within T-SAPS when ‘islanded’ to be remitted to the third party ‘orchestrators’ / ‘operators’ of those assets (to the extent such third parties have been appointed). This would still prevent DNSPs from recovering both distribution and generation revenue from T-SAPS when ‘islanded’ but would retain the commercial incentives for third party ‘orchestrators’ / ‘operators’.
Incentive schemes - M	The AER must develop a Service Target Performance Incentive Scheme (STIPS) (cl 6.6.2). In developing and implementing STIPS, the AER must consider the possible effects of the scheme on incentives for the implementation of ‘SAPS options’. The AER must also develop a Demand Management Incentive Scheme (DMIS) (cl 6.6.3). The objective of DMIS is to incentivise DNSPs to undertake efficient	Given the AER’s current versions of STIPS and DMIS do not appear to have been updated for earlier regulated SAPS reforms, the Proposed Rule Change provides a useful opportunity for the AER to ensure these are fit for purpose for both SAPS and T-SAPS options. In particular, for T-SAPS options, the AER should consider whether consequential amendments to STIPS is needed to ensure that the connecting / disconnecting of T-SAPS from the grid does not have

¹² See: <https://www.aer.gov.au/industry/registers/resources/guidelines/shared-asset-guidelines/2025-guideline-saps-review>

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	expenditure on (among other things) ‘SAPS options’ relating to demand management, and the AER, in developing and applying DMIS, must (among other things) consider that DNSPs should be rewarded for implementing ‘SAPS options’ that deliver net cost savings to retail customers, and the need to balance incentives between network options and ‘SAPS options’. Relevantly, a ‘SAPS option’ is a means by which an identified need can be fully or partly addressed by converting a part of the distribution network forming part of the interconnected national electricity to a regulated SAPS. However, it appears that neither the current STIPS or DMIS, as made by the AER, have been updated for SAPS options or for the introduction of the regulated SAPS regime generally.¹³	adverse consequences for service target performance (such that DNSPs are not disincentivised from implementing them).
Metering, including implications for distribution charges – R/M	Metering installations in regulated SAPS are captured within the metering services required to be provided by Metering Data Providers and the access to energy data that Metering Coordinators are allowed to facilitate under Chapter 7 of the NER. AEMO must also maintain metrology procedures that (among other things) include procedures for <i>“the method to be used by a Metering Data Provider to determine the calculated metering data for a market connection point for a market generating unit or market bidirectional unit in a regulated SAPS, that will result in</i>	The AER (with AEMO) should consider if AEMO’s current metrology procedures for regulated SAPS are also appropriate for T-SAPS when ‘islanded’ or if Chapter 7 of the NER should be amended to require AEMO to include any specific procedures for T-SAPS in its metrology procedures (e.g. to enable settlement when storage / generation continues to supply during ‘islanding’). Though any specific metrology procedures for T-SAPS should not have the effect of requiring additional (or more burdensome) metering for ‘islanded’ periods. Again, the AER should also consider if there is a need to clarify in Chapter 7 of the NER or elsewhere that the metrology procedures

¹³ See: [Service target performance incentive scheme - 2018 amendment | Australian Energy Regulator \(AER\)](#) and [Demand management incentive scheme and innovation allowance mechanism | Australian Energy Regulator \(AER\)](#).

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	<i>the allocation of electrical energy losses and unaccounted for energy in the regulated SAPS to the market generating units or market bidirectional units in the regulated SAPS on a reasonable basis” (cl 7.16.3).</i> AEMO’s current metrology procedures reflect this requirement.¹⁴ AEMO’s metrology procedures are then used for determining the distribution charges imposed on Distribution Customers (cl 6.20.1).	relevant to regulated SAPS would only apply to T-SAPS when ‘islanded’, and usual metrology procedures would apply at all other times.
Ring-fencing restrictions - R	DNSPs must comply with the AER’s Distribution Ring-fencing Guidelines (RF Guidelines) (cl 6.17.1). The current RF Guidelines¹⁵ provide that a DNSP: • <i>can</i> supply ‘other services’ (i.e. generation services) as a SAPS Resource Provider, provided that the revenue the DNSP receives as a SAPS Resource Provider in a regulatory year does not exceed the generation revenue cap. For Essential Energy, the generation revenue cap is 0.2% of its annual revenue requirement for that regulatory year; • <i>cannot</i> grant another legal entity the right to use its new energy storage devices (i.e. BESS); and • <i>must</i> maintain a register that identifies, for each regulated SAPS used by the DNSP to provide other services, its location, size, the premises it serves, the revenue earned from providing the other	Ring-fencing waivers As the AER would be aware, DNSPs will need the AER to grant a ring-fencing waiver before they can: • where a SAPS Resource Provider registration is also available in relation to generation / BESS assets within a T-SAPS, provide ‘other services’ in relation to those assets during the times they are not in a T-SAPS (i.e. when grid connected); and • rent out any BESS assets within a T-SAPS to third party ‘orchestrators’ / ‘operators’ to operate. To avoid this waiver requirement (and reduce the regulatory burden on DNSPs in establishing T-SAPS), the AER should consider if clarifications can be made in the RF Guideline to allow generation / BESS assets owned by DNSPs in (or potentially in) a T-SAPS to supply ‘other services’ (regardless of if grid connected or not) and to be rented out to third-party operators. This would effectively create a ring-fencing exemption pathway from DNSPS (removing the need to apply for waivers).

¹⁴ See: <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/market-operations/retail-and-metering/metrology-procedures-and-unmetered-loads>.

¹⁵ See: <https://www.aer.gov.au/industry/networks/ring-fencing/ring-fencing-guideline-electricity-distribution-2025/final-decision>.

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	services and if a third party has been asked to provide the other services.	Otherwise, if the AER is not minded to provide such an exemption pathway, DNSPs would be assisted, particularly from a commercialisation perspective, by the AER clarifying whether or not it intends to initiate a class waiver to address these ring-fencing issues as part of facilitating the Proposed Rule Change. Absent an exemption pathway, class waiver or individual waivers being forthcoming, DNSPs will need an alternative pathway to overcome these ring-fencing issues. <u>Inclusion of T-SAPS in regulated SAPS registers</u> The current requirement for DNSPs to maintain a register of regulated SAPS should also extend to T-SAPS (though this is unlikely to require the AER to make any consequential amendments to the current RF Guideline). This is a sensible way for the AER to maintain oversight of the T-SAPS that a DNSPs deploys, without introducing any further regulatory barrier to deployment.

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