EVOENERGY NON-NETWORK OPTIONS REPORT FOR GUNGAHLIN FEEDER RIT-D

NON-NETWORK OPTIONS REPORT FOR THE GUNGAHLIN UNDER THE REGULATORY INVESTMENT TEST-DISTRIBUTION (RIT-D)

Consultation period commences: 25/07/2025
Consultation period closes: 17/10/2025

VERSION CONTROL

VERSION	DETAILS	APPROVED
1.0	Draft	N/A
2.0	Final	Rebecca Beasley Planning and Future Networks Manager

DOCUMENT CONTROL

DOCUMENT OWNER	PUBLISH DATE	REVIEW DATE
Strategy & Operations	25 Jul 2025	N/A

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Note

Printed versions of this document are “uncontrolled copies” - the latest version is available on the Evoenergy Website[1]

[1] https://www.evoenergy.com.au/Your-Energy/Demand-Management/Engagement-opportunities

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About Evoenergy

Evoenergy owns and operates electricity and gas networks and is licensed by the Independent Competition and Regulatory Commission (ICRC) to provide distribution, and connection services in the ACT. Evoenergy is a Distribution Network Service Provider (DNSP) registered with the Australian Energy Market Operator (AEMO). We are a regulated service provider subject to commonwealth and jurisdictional laws and statutory instruments including National Electricity Law (NEL), National Electricity Rules (NER), Utilities Act 2000, Utilities (Technical Regulation) Act 2014, industry codes, technical codes, and regulations. Our "poles and wires" network is supplied predominantly by power imported from interstate. Evoenergy's primary focus is on the provision of a safe, reliable, and quality electricity supply. We are asset management certified for compliance with ISO 55001 Asset Management Standard. Safety and risk management are key considerations of our business decisions. Risk management is integrated with investment decisions and considers the life cycle of assets and least cost solutions.

Background

This Non-Network Options Report (NNOR) has been prepared to inform non-network providers that may be able to provide services to defer or avoid a network augmentation project. The NER requires a Regulatory Investment Test for Distribution (RIT-D) be completed for augmentation capex projects with a value greater than $7 million in 2025. The RIT-D requires a NNOR where an initial assessment has identified potentially credible non-network options that may defer or avoid the augmentation project being considered.

Gungahlin is the northernmost district of Canberra and is divided into sixteen suburbs constructed gradually since 1991. The district is predominantly residential, supporting a population of >87,000 people based on the 2021 census. The town centre is located in the suburb of Gungahlin and contains a mix of medium and high-density residential dwellings, retail and office space. The town centre is also the origin point of the Canberra light rail system. The district includes the light industrial suburb of Mitchell.

Electricity is distributed to the Gungahlin region predominantly from the Gold Creek Zone Substation (ZSS) located in Ngunnawal. The number of dwellings in the district has steadily risen in recent years due to greenfield land releases, high-density mixed-use developments, coupled with a range of commercial developments. Load growth in the Gungahlin district is forecast to continue primarily due to additional greenfield residential development, mixed-use urban infill, expansion of light commercial/industrial facilities, government land release programs and decarbonisation of the transport sector, specifically EV charging loads.

Identified Need

The 11kV distribution network in Gungahlin is forecast to exceed its thermal capacity in its normal operating state by 2026, with the gap between demand forecast and existing feeder capacity anticipated to arise from winter in FY2025/26. Evoenergy has identified capacity limitations on nine (9) 11 kV distribution feeders into the Gungahlin district with firm and thermal ratings forecasted to be exceeded on most feeders in the coming years based on a 50% Probability of Exceedance (50POE) probabilistic assessment. The identified need was published in Evoenergy's Annual Planning Report[2].

Preferred Network Option

The preferred network option to address these network limitations is the construction of three (3) additional 11 kV feeders from the Gold Creek ZSS to three (3) switching stations. The new feeders will address the constraints and be capable of meeting the anticipated additional demand for Gungahlin and the surrounding area.

The scope of these projects includes constructing new 11 kV underground feeders supplied from the Gold Creek ZSS, and installing two new switching stations (SWs). This will involve constructing new conduit banks along the identified trench routes, the laying of cable for those feeders and required work within the substations to establish the new feeder connections. This identified network option has an estimated capital cost exceeding the $7 million threshold under the NER and the proposed investment is therefore subject to a RIT-D.

Non-Network Options

[2] Evoenergy Annual Planning Report 2024: Evoenergy_Annual_Planning_Report_2024.pdf

Several potential non-network options have been identified, including batteries, Virtual Power Plants (VPPs) and demand management. From a technical perspective, the ability of these non-network options to address the identified need and become a preferred option will be a function of their power demand reduction, duration (peak shifting capability), reliability and response times.

Economically, the non-network option must provide a higher Net Present Value (NPV) over the full lifecycle compared to an equivalent level of service provided by the preferred network option. This will include valuing the capital expenditure deferral of the network upgrade in the NPV model. Non-network options will also need to meet the applicable delivery timings.

Next Steps

Evoenergy is seeking proposals from any non-network provider that is able to provide services which meet or partially meet the identified network need. Submissions will be required to provide detail about the type, scale and cost of non-network solutions offered by providers.

Submissions can be lodged via email to: RIT@evoenergy.com.au

Submissions must be received by 5pm, 17 of October 2025.

Evoenergy will review each non-network option proposal and may seek further information from the non-network provider to better understand the design of the proposed solution and its impacts on the network and other network users.

An overview of the timeline, from the publication of this NNOR to when the preferred option is required to be operational, is provided in **Table 1**.

TABLE 1: TIMELINE FROM NNOR PUBLICATION

ACTIVITIES	DATES
Publish NNOR and request for submissions	25 Jul 2025
Consultation period for non-network providers to provide submissions	25 Jul 2025 to 17 Oct 2025
Public briefing session during consultation period (details to be confirmed)	Aug 2025
Evoenergy review of submissions received (non-network proposals)	Oct 2025
Publish Draft Project Assessment Report (DPAR)	Nov 2025
Consultation period for DPAR	Nov 2025 to Dec 2025
Publish Final Project Assessment Report (FPAR)	Dec 2025
Preferred option operational	Nov 2026

1. INTRODUCTION

1.1 Scope and Purpose

This document is a Non-Network Options Report (NNOR) requesting stakeholders' submissions for credible options to address the identified need in Evoenergy's network. Under the Regulatory Investment Test for Distribution (RIT-D) process, Evoenergy is required to consider all credible network and non-network options to meet future electricity demand. The RIT-D process involves the following key stages:

Stage 1: Screen for non-network options and publish a NNOR (this report)

Stage 2: Undertake consultation on non-network options

Stage 3: Assess credible options

Stage 4: Publish draft and final project assessment reports

This report is the first stage of the consultation process in the application of the RIT-D on credible options to address the identified need for this study area. The report includes background information about the limitations in this area, highlights the identified need, outlines credible network options, provides the requirements that a non-network proponent would need to meet and specifies the process for interested stakeholder submissions.

Evoenergy has developed this NNOR in accordance with the requirements of Clause 5.17.4 of the National Electricity Rules (NER). The information contained within this report should enable third parties to provide informed submissions to supply non-network solutions to Evoenergy to defer and/or avoid the requirement for a significant network augmentation.

1.2 Evoenergy's Obligations

Under Clause 5.17.4 of the NER, Evoenergy has obligations relating to this NNOR, including:

- Publish the NNOR in a timely manner having regard to the ability of parties to identify the scope for, and develop, alternative potential credible options or variants to the potential credible options.
- Notify persons registered on its industry engagement register of the report's publication.
- Provide interested parties at least three months in which to make submissions on the NNOR from the date that the RIT-D proponent publishes the report.

Further, under the Australian Energy Regulator (AER) RIT-D guidelines,[3] Evoenergy will also pay particular attention when considering the risk, value of optionality and expenditure timing of non-network options. In particular, modelling, forecasts and assumptions should be consistent, open and transparent to help effectively explore non-network options.

1.3 General Terms and Conditions

1. By issuing this NNOR, Evoenergy is under no obligation whatsoever to discuss, select or enter into any agreement with any proponent who may submit a proposal.
2. Proponents will be responsible for all costs associated with the preparation and assessment of providing a proposal in response to this NNOR including but not limited to any site visits and responding to further information requests made by Evoenergy in order to assist Evoenergy in its assessment of the proposal.
3. When evaluating a proposal, Evoenergy will act in accordance with the NER and AER RIT-D Guidelines.
4. Evoenergy will follow the process as described in Evoenergy's Demand Side Engagement Strategy (DSES).[4]
5. Evoenergy may combine all or parts of separate proposals for the purposes of evaluation where this may lead to a more efficient outcome than the separate proposal or option. Proponents should indicate in

[3] Australian Energy Regulator, AER - RIT-D application guidelines – v6 2024, available at: AER - Regulatory Investment Test for Distribution application guidelines - 2024 - Version 6 | Australian Energy Regulator (AER) [accessed 22/05/2025]

[4] Evoenergy, Demand side engagement strategy (DSES), v3 2020, available at: https://www.evoenergy.com.au/-/media/Project/Evoenergy/EVO/Documents/Demand-management/Demand-side-engagement-strategy.pdf

their proposal whether they wish to have their proposals or options considered in isolation or in combination with other proponents' proposals.

6. Evoenergy will publicly announce the outcome of the evaluation process. This announcement will be published on Evoenergy's website and unless otherwise agreed in writing at the commencement of the assessment process, all details of proposals including cost information will be treated as public information.

1.4 Further Information

Further information to assist non-network providers wishing to present alternative potential credible options, including details of how to submit a non-network proposal for consideration by Evoenergy, is provided towards the end of this NNOR (Section 6).

1.5 Structure of Report

The rest of this NNOR is structured into the following sections:

Section 2: Provides background information on the network location and the associated infrastructure.
Section 3: Describes the identified need that is to be addressed, and applicable service standards.
Section 4: Summarises the planning methodology and assumptions used in Evoenergy's assessment.
Section 5: Details the credible network options and potentially credible non-network options.
Section 6: Presents the submission guidelines for non-network providers.

2. BACKGROUND

2.1 Existing Network

2.1.1 Geographic Overview

Gungahlin is the northernmost district of Canberra and is divided into sixteen suburbs constructed since 1991. The district is predominantly residential, supporting a growing population of more than 87,000 people based on the 2021 census. The town centre is located in the suburb of Gungahlin and contains a mix of medium and high-density residential dwellings, retail and office spaces. The town centre is also the origin point of the Canberra light rail system, and surrounding suburbs are predominately low to medium density residential areas. The district includes the light industrial suburb of Mitchell. The Gungahlin district can be seen in Figure 1

Electricity is distributed to Gungahlin from the 132/11 kV Gold Creek Zone Substation located in the suburb of Ngunnawal. The substation was commissioned in 1994 with two 57 MVA power transformers. The zone substation supplies an extensive 11 kV network throughout the Gungahlin area and surrounds which is predominantly via underground conduits that supply high density commercial and residential loads. Nine (9) 11 kV feeders are forecast to exceed capacity ratings over the coming years.

A geographic diagram marking the location of the Gold Creek Zone Substation and the existing 11 kV networks is shown in **Figure 1**. The map of Evoenergy's ZSS locations is publicly accessible from Evoenergy's Rosetta Data Portal.[5]

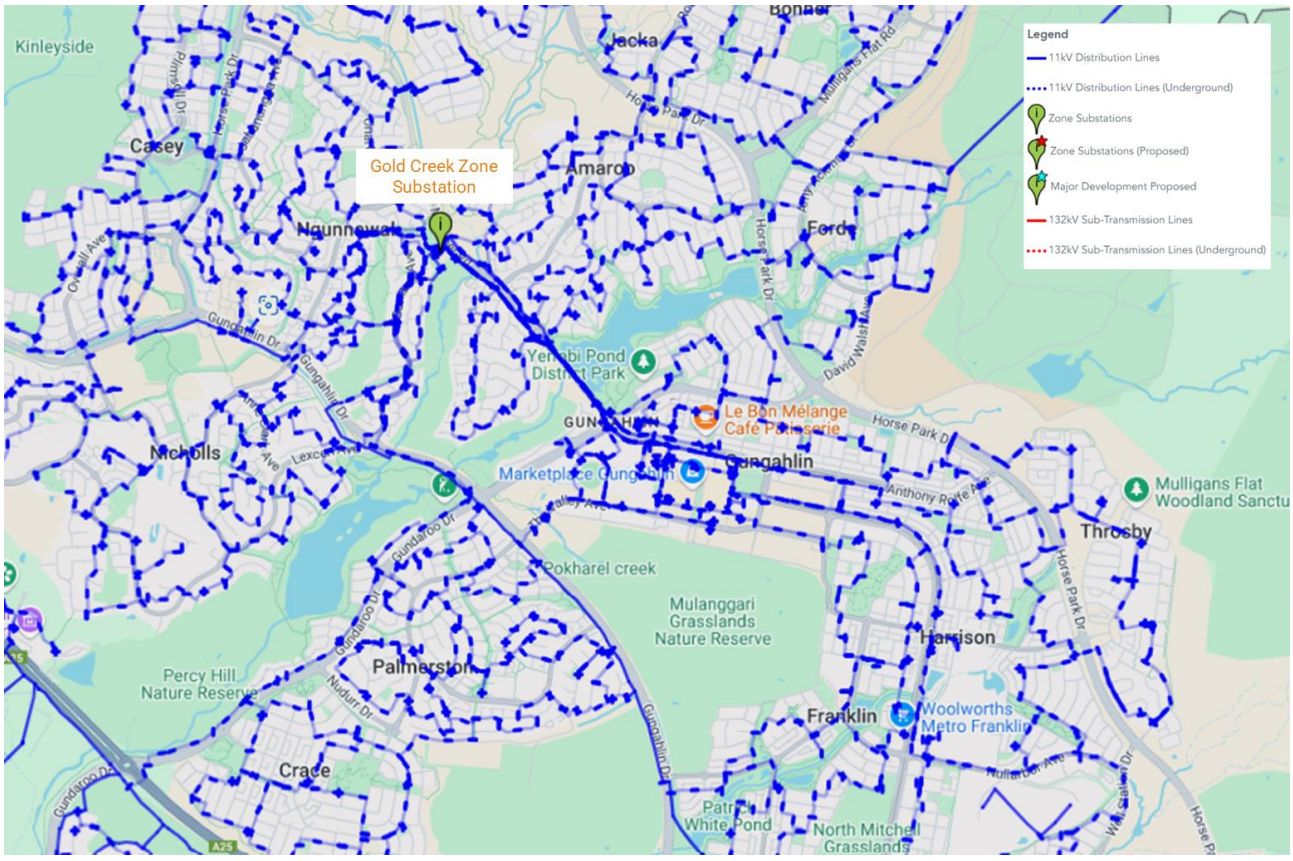

FIGURE 1: GEOGRAPHIC OVERVIEW OF THE AREA, SHOWING THE GOLD CREEK ZSS AND 11KV NETWORK

2.1.2 11 kV Feeders

Evoenergy's 11 kV feeders are typically interconnected through multiple normally open ties. Under contingency conditions, selected open points are closed to enable load transfers and supply restoration.

[5] Evoenergy's Rosetta Data Portal is available from the following weblink: https://apr.evoenergy.com.au/

Each 11 kV feeder in Evoenergy's network is assigned a thermal rating and a firm rating. The ratings are assigned for Summer and Winter operating conditions. The thermal rating accounts for the feeder installation method (e.g. directly buried, or overhead), cable configuration, conductor type and thermal capacity.

The firm capacity depends on feeder grouping and configuration including feeder ties. The typical firm rating assumes one feeder of a group of four feeders is out of service. The feeder firm capacity is based on the ability to restore supply through switching after a credible contingency event.

The 11 kV feeders included in the RIT-D study are presented in **Table 2** along with the Summer and Winter firm and thermal rating, and recent demand characteristics such as maximum demand and the season, peak day type and time the maximum demand has occurred in the recent past.

TABLE 2: 11 KV FEEDER CAPACITY RATINGS AND HISTORICAL MAX DEMAND CHARACTERISTICS

11 KV FEEDER	SUMMER RATING (MVA/MW)		WINTER RATING (MVA/MW)		MAX DEMAND (MVA/MW)	PEAK SEASON	PEAK DAY	TIME
	FIRM	THERMAL	FIRM	THERMAL				
Valley	5.2	6.9	5.6	7.5	**2.5**	Winter	7/06	19:00
Gribble	4.9	6.5	5.3	7.1	**2.2**	Winter	3/06	9:00
Riley	5.5	7.3	6.2	8.2	**6.0**	Winter	7/06	18:00
Gungahlin	5.0	6.7	5.6	7.5	**4.0**	Winter	14/06	9:00
Nona	4.5	6.0	4.5	6.0	**4.7**	Winter	7/06	18:00
West Street	5.5	7.3	6.2	8.2	**6.3**	Winter	14/06	18:00
Hamer	5.2	6.9	5.6	7.5	**7.6**	Winter	7/06	18:00
Anthony Rolfe	5.0	6.7	5.4	7.3	**6.7**	Winter	14/06	18:00
Flemington	5.2	6.9	5.6	7.5	**3.7**	Winter	21/09	7:00

2.2 Load Profiles

2.2.1 Annual Load Profiles

The aggregated load profile for the nine (9) feeders supplying the Gungahlin district is shown in **Figure 2**. The aggregated load profile is shown for illustration purposes only as solutions for network constraints need to be solved on an individual feeder basis[6].

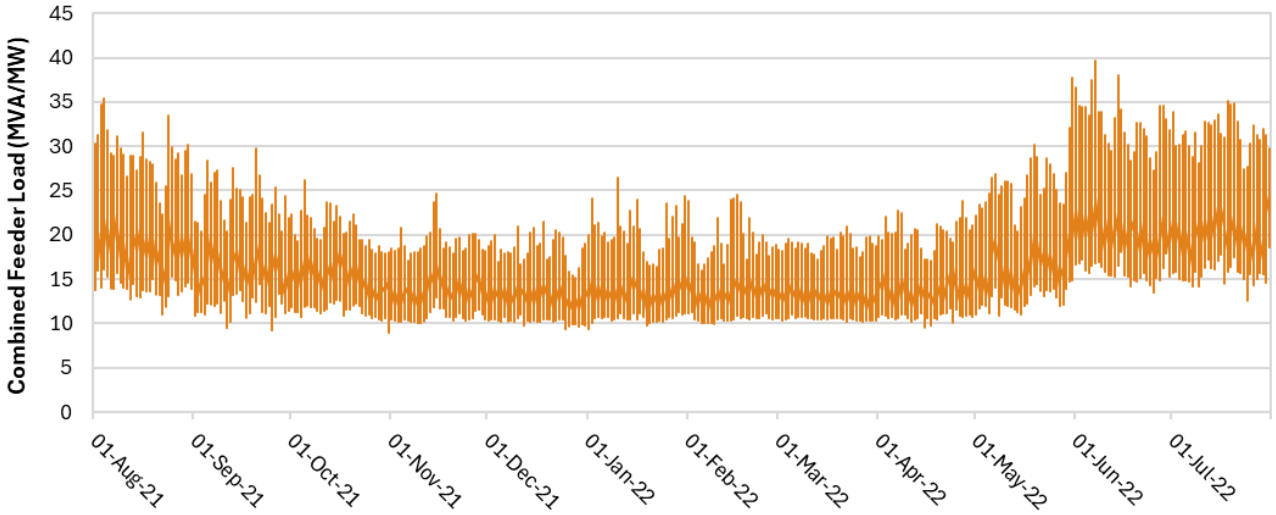

FIGURE 2: AGGREGATED 2021-2022 HISTORICAL LOAD PROFILE ACROSS 11KV FEEDERS

2.2.2 Peak Day Load Profiles

The demand profile plotted for each individual feeder is plotted in **Figure 3** for the day when the maximum demand occurred (the chart legend shows the feeder's name and day of maximum demand).

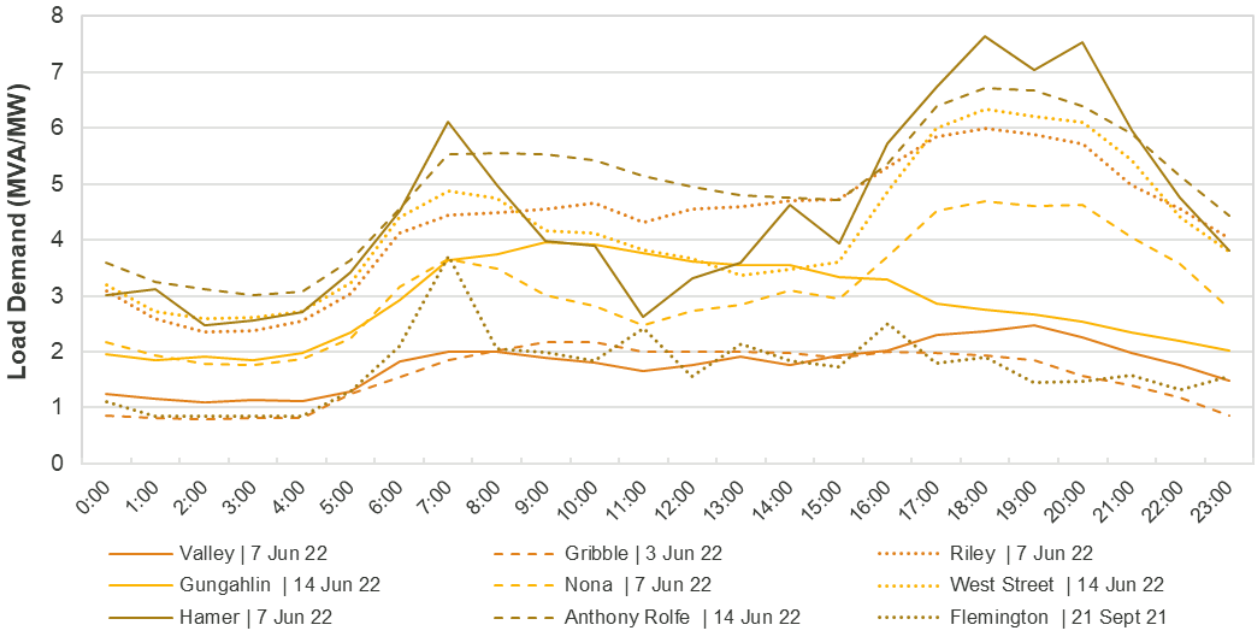

FIGURE 3: DEMAND PROFILE FOR EACH 11 KV FEEDER ON DAY-MONTH OF MAXIMUM DEMAND OCCURANCE

[6] Load profile details available at: https://www.evoenergy.com.au/Your-Energy/Demand-Management/Engagement-opportunities

2.2.3 Historical Load Duration Curves

Figure 4 shows the load duration curves for the nine (9) feeders supplying the Gungahlin district. This is based on the historical 12-month period.

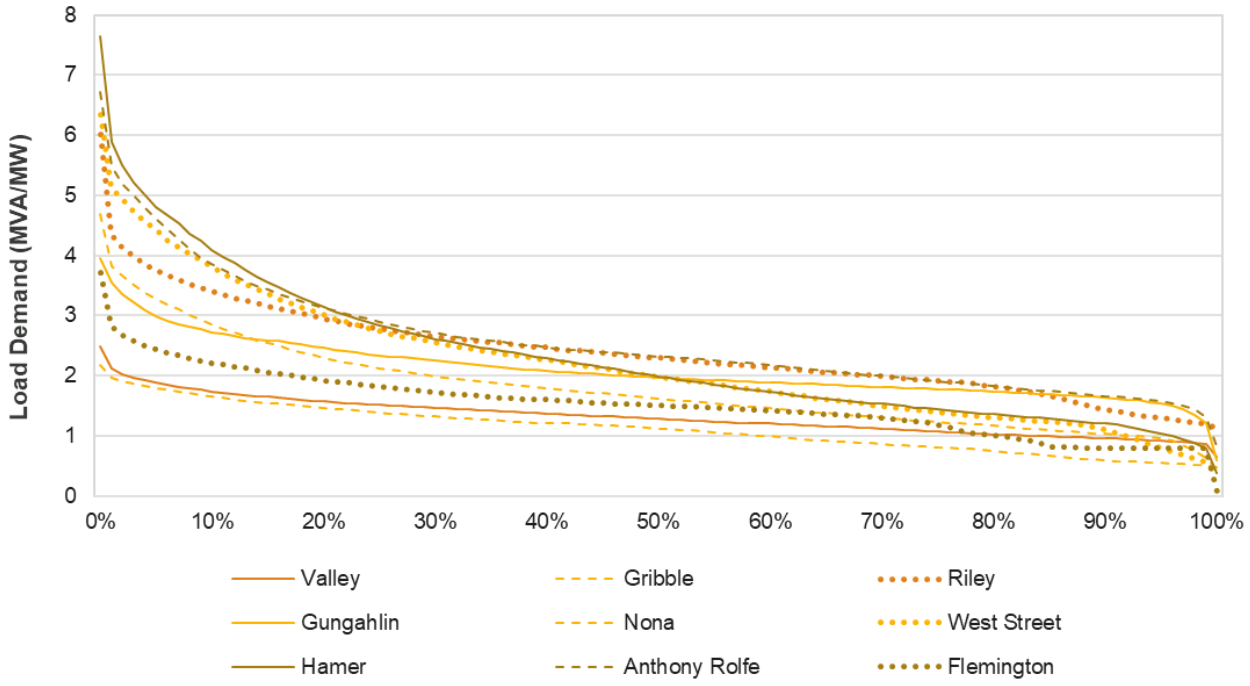

FIGURE 4: HISTORICAL 11KV FEEDER LOAD DURATION CURVES

2.2.4 Seasonal Load Curves

Figure 5 below shows the average daily summer and winter load profile for the Gungahlin district feeders.

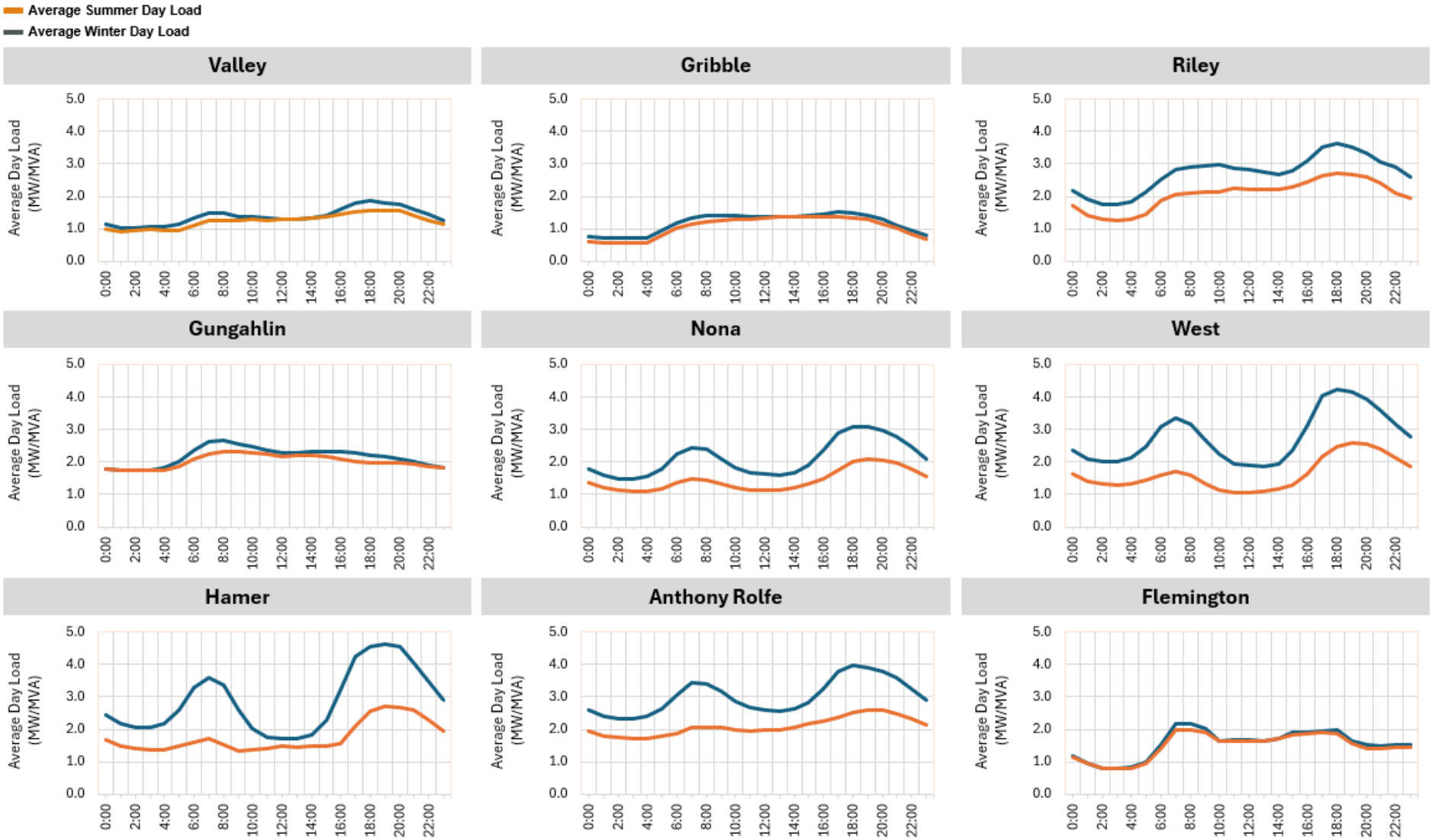

FIGURE 5: DAILY AVERAGE LOAD PROFILE OF WINTER AND SUMMER FOR GUNGAHLIN

3. IDENTIFIED NEED

3.1 Overview

In the assessment of network needs for 11 kV feeders, Evoenergy employs probabilistic methods to analyse the risk cost to customers of capacity constraints and evaluate alternative solutions (options) to address the specific network need.

Demand growth in the study area is forecast to exceed the firm capacity of nine (9) of the existing 11 kV feeders that supply the Gungahlin area with increasing occurrence in both Summer and Winter.

There are two key drivers for demand growth causing forecast capacity limitations with the Gungahlin 11 kV distribution network which include:

1. Major new customer loads
2. The proliferation of electric vehicle (EV) charging and general demand growth

The specific network needs associated with main driver are presented in detail in the section below.

3.2 Geographic Overlay

Over the next ten years, new high-density residential developments and government land release programs are planned for the Gungahlin area. The associated single-point customer loads are expected to be geographically located with the Gungahlin district. **Figure 6** shows the approximate load growth areas (orange circles) mapped to the two network constraint groups for the 11kV feeders (refer to section 3.3 on feeder groups).

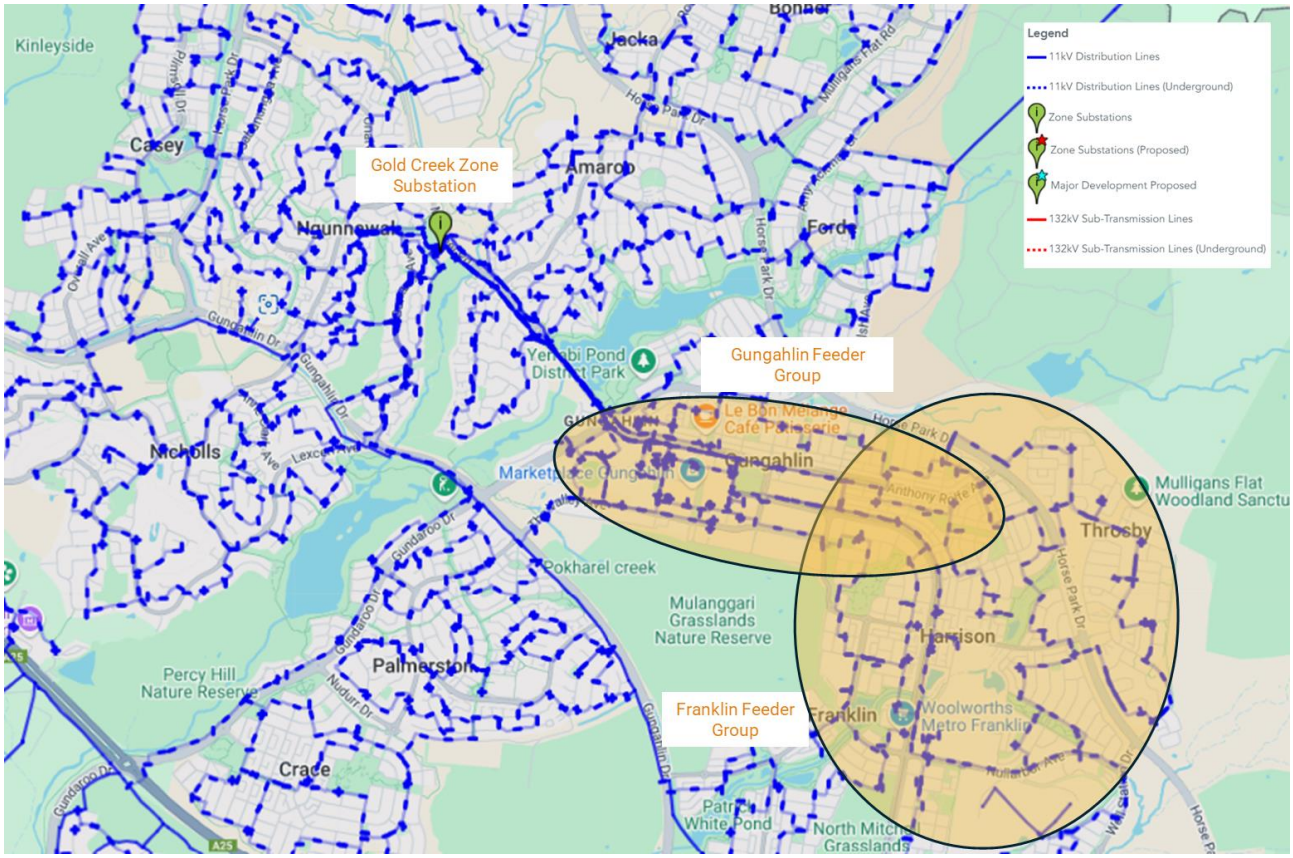

FIGURE 6: GEOGRAPHIC LOCATION OF GOLD CREEK ZONE SUBSTATION AND NEW MAJOR CUSTOMER LOADS

The Gungahlin feeder group represents new major single-point customer loads associated with specific developments. The Franklin Feeder Group shows the constrained 11kV feeder area associated with demand growth from different major single-point customer loads as well as EV charging infrastructure uptake in the medium density suburban areas of the Gungahlin region.

3.3 11 kV Feeder Groups

The Gungahlin district's electricity is distributed by nine (9) feeders that are supplied by Gold Creek Zone Substation, these feeders have been grouped as per **Table 3**. The feeders have been grouped based on the demand growth driver and load transfers that would occur to manage constraints as part of a 'no investment' option (base case). Analysis was performed to develop individual load forecasts for the impacted feeders within each group. For feeders that are impacted by multiple growth drivers, these feeders appear in both feeder groups (Nona, Hamer and Anthony Rolfe). The analysis for Franklin feeder group was completed assuming the preferred network option identified with the Gungahlin feeder group has already been implemented to alleviate the forecasted constraints in the Gungahlin feeder group.

It is important to note that while Evoenergy will accept non-network proposals for any feeders, for a non-network solution to be considered a credible option for a single feeder group, the non-network solution must address the capacity constraints within a given year for all feeders within the feeder group. This is necessary to provide a more economical alternative to the identified preferred network option, through deferring or avoiding the need for the corresponding network option.

TABLE 3: LOAD CENTRE AND 11 KV FEEDER LIMITS (MVA)

FEEDER GROUPS	11 KV FEEDER	SUMMER RATING (MVA/MW)		WINTER RATING (MVA/MW)	
		FIRM	THERMAL	FIRM	THERMAL
Gungahlin	Valley	5.2	6.9	5.6	7.5
	Gribble	4.9	6.5	5.3	7.1
	Riley	5.5	7.3	6.2	8.2
	Gungahlin	5.0	6.7	5.6	7.5
	Nona	4.5	6.0	4.5	6.0
	West Street	5.5	7.3	6.2	8.2
	Hamer	5.2	6.9	5.6	7.5
	Anthony Rolfe	5.0	6.7	5.4	7.3
	Flemington	5.2	6.9	5.6	7.5
Franklin	Nona	4.5	6.0	4.5	6.0
	Hamer	5.1	6.9	5.6	7.5
	Anthony Rolfe	5.0	6.7	5.4	7.2

3.3.1 Demand Forecast and Capacity Limits

Evoenergy's existing network supplying the area will be unable to service the expected load growth during the 2024-29 regulatory period, even with optimised load allocations among the existing 11 kV feeder network. If no action is taken, the gap between the forecast demand and existing feeder capacity is expected to arise from 2026 as shown in **Table 4**. The maximum firm and thermal capacities of each feeder is shown for Summer and Winter. Capacity limits are expected to be breached without intervention:

- Yellow denotes load above the firm rating
- Red denotes load above the thermal rating

While thermal constraints are forecasted to occur as early as 2026, Evoenergy will manage these constraints on a case-by-case basis as part of operations in advance of the delivery of the preferred option which will need to be available no later than November 2026.

Table 4: Forecast demand for affected 11 kV feeders due to new major customer loads (MW)

	11KV FEEDERS	2026		2027		2028		2029	
		Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
GUNGAHLIN	Valley	7.7	8.0	8.0	8.3	8.4	8.7	8.4	8.7
	Gribble	5.6	5.7	5.6	5.7	5.6	5.7	5.6	5.7
	Riley	5.2	7.9	6.6	9.7	6.6	9.7	6.6	9.7
	Gungahlin	6.5	6.9	6.5	6.9	6.5	6.9	6.5	6.9
	Nona	4.2	5.5	4.2	5.5	4.2	5.5	4.2	5.5
	West Street	4.7	7.1	4.7	7.1	4.7	7.1	4.7	7.1
	Hamer	5.5	8.7	5.5	8.7	5.5	8.7	5.8	9.1
	Anthony Rolfe	4.8	8.2	4.8	8.2	4.8	8.2	4.8	8.2
	Flemington	6.2	6.9	6.2	6.9	6.2	6.9	6.2	6.9
FRANKLIN	Nona	4.5	5.6	4.5	5.6	4.5	5.7	4.6	5.8
	Hamer	5.7	8.6	5.7	8.6	5.8	8.6	6.3	9.1
	Anthony Rolfe	4.5	7.3	4.6	7.4	4.6	7.4	4.7	7.5

	Above Firm
	Above Thermal

3.3.2 Unserved Energy

Unserved Energy (USE) provides an economic indicator of the reliability impact associated with network constraints, helping to optimise and prioritise investment in feeder augmentation. Augmentation decisions consider the economic cost of USE compared to the cost of augmentation. A cost-benefit analysis ensures investments are economically justified and proportional to the economic impact of unreliability.

Table 5 provides the expected amount and value of USE based on all energy above thermal ratings, and a proportion of energy above firm ratings utilising assumed feeder outage statistics (i.e., probability of unavailability). This represents all energy at risk after all possible load transfers under system intact conditions. All USE must be met by the network or non-network solution to be considered credible. As noted previously, Evoenergy is managing forecast thermal constraints and resulting USE on a case-by-case basis in advance of the delivery of the preferred option.

TABLE 5: ANNUAL UNSERVED ENERGY (MWH)

11KV FEEDERS		USE EXCEEDING	2026	2027	2028	2029
GUNGAHLIN	Valley	Firm	0.1	0.1	0.1	0.1
		Thermal	5.5	17.4	59.0	59.0
	Gribble	Firm	0.0	0.0	0.0	0.0
		Thermal	0.0	0.0	0.0	0.0
	Riley	Firm	0.0	0.0	0.0	0.0
		Thermal	0.0	9.9	9.9	9.9
	Gungahlin	Firm	0.0	0.0	0.0	0.0
		Thermal	0.0	0.0	0.0	0.0
	Nona	Firm	0.0	0.0	0.0	0.0
		Thermal	0.0	0.0	0.0	0.0
	West	Firm	0.0	0.0	0.0	0.0
		Thermal	0.0	0.0	0.0	0.0
	Hamer	Firm	0.0	0.0	0.0	0.0
		Thermal	9.1	9.1	9.1	19.5
	Anthony Rolfe	Firm	0.0	0.0	0.0	0.0
		Thermal	7.2	7.2	7.2	7.2
	Flemington	Firm	0.0	0.0	0.0	0.0
		Thermal	0.0	0.0	0.0	0.0
	Total USE (MWh)		21.9	43.8	85.4	95.8
FRANKLIN	Anthony Rolfe	Firm	0.01	0.01	0.01	0.01
		Thermal	0.06	0.14	0.24	0.42
	Nona	Firm	0.00	0.00	0.00	0.00
		Thermal	0.00	0.00	0.00	0.00
	Hamer	Firm	0.01	0.01	0.02	0.02
		Thermal	7.54	7.96	8.55	20.36
	Total USE (MWh)		7.63	8.12	8.82	20.81

3.3.3 Minimum Energy Capacity Requirements

Table 6 shows the minimum energy capacity (MWh) required to reduce the expected amount of unserved energy associated with capacity constraints during the peak day of that year. Table 5 illustrates that the annual energy exceeding safe limits is projected to increase out to 2029, along with the corresponding rise in the minimum daily energy required to mitigate those peaks shown in Table 6. Additionally, the frequency of days exceeding the constraint also increases over this period, resulting in the minimum daily energy requirement increasing at a slower rate than the total annual energy that must be delivered.

TABLE 6: ENERGY CAPACITY REQUIRED TO DEFER NETWORK OPTION (MWH)

11KV FEEDERS		2026	2027	2028	2029
GUNGAHLIN	Valley	1.79	3.11	5.55	5.55
	Gribble	0.00	0.00	0.00	0.00
	Riley	0.00	5.62	5.62	5.62
	Gungahlin	0.00	0.00	0.00	0.00
	Nona	0.00	0.00	0.00	0.00
	West	0.00	0.00	0.00	0.00
	Hamer	2.75	2.75	2.75	4.34
	Anthony Rolfe	2.80	2.80	2.80	2.80
	Flemington	0.00	0.00	0.00	0.00
	Feeder Capacity Required (MWh)	**7.34**	**14.28**	**16.72**	**18.31**
FRANKLIN	Anthony Rolfe	0.06	0.14	0.23	0.34
	Nona	0.00	0.00	0.00	0.00
	Hamer	2.37	2.48	2.62	4.39
	Feeder Capacity Required (MWh)	**2.43**	**2.62**	**2.85**	**4.73**

3.3.4 Operating Profile

To support the Gungahlin demand growth area with reliable and secure supply, a non-network option would be required to provide network support from November 2026 at the latest during peak demand days when thermal limitations are reached, or during a contingency event such as loss of a feeder. The identified network option will be in place by the November 2026 summer peak demand period if no credible non-network options are identified. The typical load profiles of each feeder can be found in section 2.2 as an overview and the accompanying data pack on the Evoenergy website.

3.4 Applicable Service Standards

3.4.1 Overview

Evoenergy is obligated to provide a high level of supply certainty to our customers, these obligations are stipulated through mandated codes and standards. To meet these standards, Evoenergy continually reviews future network requirements and anticipated customer needs, to ensure that all expected electricity demand can be supplied within the stipulated requirements for safety, reliability, and quality. A failure to meet any or some of these standards would result in negative impacts for customers and fines payable by Evoenergy.

As described in the identified need, without action to support the anticipated growth in electricity demand in Gungahlin and the surrounding area would likely result in Evoenergy breaching its requirements under the service standards it must meet. Any non-network option proposal will be required to ensure that Evoenergy does not breach any of the standards. Service standards applicable to the identified need as per this NNOR include the following:

Utilities Act 2000 (ACT):

- General obligation to provide safe, reliable, efficient services to all parts of the Evoenergy supply network.
- Compliance with other relevant industry and technical codes, e.g.: Consumer Protection Code

Evoenergy's Utility License (Under the Utilities Act 2000):

- Minimise network losses (Schedule 1, Clause 2)
- Adherence to planning and operating requirements for transmission services (66 kV and above)
- Incorporate reliability requirements for the transmission-distribution interface (e.g. 132 kV substations)

Electricity Distribution (Supply Standards) Code:

- Performance standards for nominal voltages, voltage variations and normal operating conditions, voltage fluctuations and flicker, harmonic voltage distortion, voltage unbalance and maximum allowable voltage dips per year.
- Reliability targets for Evoenergy's overall network are as per the Electricity Distribution Supply Standards Code and are targets over the entirety of Evoenergy's network (see below).

3.4.2 Contribution To Power System Reliability

Any proposed services must be capable of reliably meeting electricity demand under a range of conditions and must meet all the relevant NER requirements related to grid connection (if that is required as part of the solution).

Evoenergy has obligations under the NER, the Electricity Distributions (supply standards) Code and connection agreements to ensure supply reliability is maintained to customers as per **Table 7**. Failure to meet these obligations may give rise to liability. Proponents of non-network solutions must also be willing to accept any liability that may arise from its contribution to a reliability of supply failure.

TABLE 7: ELECTRICITY DISTRIBUTION STANDARDS CODE ANNUAL RELIABILITY TARGETS

PARAMETER	TARGET	UNITS
Average outage duration (SAIDI)	91.0	Minutes
Average outage frequency (SAIFI)	1.2	Number
Average outage time (CAIDI)	74.6	Minutes

Service Target Performance Incentive Scheme (STPIS) targets set by the AER incentivise performance relating to unplanned interruptions. Evoenergy's STIPS targets for the current regulatory control period are provided in **Table 8** for different network supply categories. Non-network options should have adequate availability levels to contribute to maintaining reliability performance within these target requirements.

TABLE 8: AER 2024-29 STPIS TARGETS FOR RELIABILITY

PARAMETER	SAIDI TARGET FOR UNPLANNED OUTAGES (MINUTES)	SAIFI TARGET FOR UNPLANED OUTAGES (NUMBER)	EQUIVALENT SERVICE AVAILABILITY (% OF TIME)
Urban	34.398	0.551	99.9938%
Short Rural	52.141	0.754	99.9933%
Whole Network (weighted average)	37.691	0.589	99.9936%

3.4.3 Contribution To Power System Fault Levels

Non-network solutions are not required to address any existing issues in relation to fault levels as part of this RIT-D.

4. PLANNING METHODOLOGY AND ASSUMPTIONS

This section outlines the methodology and assumptions that will be used by Evoenergy to assess all credible network and non-network options that address the identified need. Submissions received for non-network solutions to defer the network option will be assessed against planning and economic criteria outlined in this report.

4.1 Planning Methodology

Evoenergy screens for potential constraints based onload forecasts exceeding firm or thermal ratings of 11kV feeders. This is followed by a probabilistic assessment considering value of customer reliability to inform an assessment of risk, an efficient investment option to address the risk, and the timing of the investment or operational response.

4.2 Economic Assessment Timeframe

Evoenergy's planning considers scheduled new customer connections and forecast load growth for 2026–2029. Due to the uncertainty in long-term forecasts, a 4-year study horizon is used. Non-network options that defer network investments may also delay future stages, however Evoenergy cannot commit to upfront costs for uncertain future deferral benefits.

4.3 Electrical Demand

The following summarises Evoenergy’s planning assumptions relating to electrical demand.

4.3.1 Scenarios

Evoenergy plans its distribution network with 50% Probability of Exceedance (POE) demand forecasts. Maximum demand forecasts include new block loads from annual developments, using approved and pending developer applications to estimate new connections in Gungahlin and the surrounding areas as well as EV load projects developed at the suburb level.

4.3.2 Load Profile

When evaluating the financial costs and USE implications of non-network submissions, Evoenergy will use historical feeder load profiles. These profiles reflect customer electricity usage in the area and are reasonable for forecasting, as new developments are expected to mirror existing load patterns. Details of the feeder load profiles for the proposed network options are provided as an additional attachment found on Evoenergy’s website.[7]

4.4 Load Transfer Capability and Supply Restoration

All feeders have been assessed to address the identified constraints via load transfer, with limitations on capabilities for load transfer and restoration following network failures. The maximum demand forecast for Gungahlin and the surrounding areas incorporates all feasible load transfers to prevent exceeding power rating limits in the existing 11 kV network. Evoenergy will manage thermal constraints forecast for 2026 onwards on a case-by-case basis through operational management.

Given the existing constraints and the lack of additional load transfer options, additional capacity or significant demand reduction will be required.

4.5 Value of Customer Reliability

Evoenergy will apply a Value of Customer Reliability (VCR) of $40.91/kWh of USE. This value is based on the AER’s 2024 VCR Annual Adjustment Summary, using the following:

- ACT residential VCR of $50.70/kWh ($2024) and commercial VCR of $34.39/kWh ($2024).
- A residential weighting of 50%.

[7] Available at: https://www.evoenergy.com.au/Your-Energy/Demand-Management/Engagement-opportunities

- A commercial weighting of 50%.

This aligns with Evoenergy's Risk Value Framework and the regional characteristics.

As Evoenergy's assessment is in real terms, VCR values remain constant over the assessment period.

4.6 Cost Estimates

Evoenergy estimated capital costs for the preferred network option has an accuracy of ±30%. Estimates will be refined during the RIT-D assessment phase. Operating costs for new distribution assets were assumed as 1% of capital costs. Non-network providers are to include their own operating cost estimates in their submissions.

4.7 Non-Network Option Evaluation Criteria

The following criteria will be used to assess economic and technical equivalence to network options.

TABLE 9: NON-NETWORK OPTION ASSESSMENT CRITERIA

EVALUATION CRITERIA	DESCRIPTION	ASSESSMENT METRICS
Demand Reduction (MVA)	The proposed non-network option must provide sufficient demand reduction to alleviate emerging thermal capacity constraints below identified feeder ratings.	• Magnitude of demand reduction (MVA) required to alleviate forecast demand limit breaches in Table 4.
Timing and Availability	Demand reduction must be achieved by at least November 2026 and should address emerging constraints across critical seasons in each year.	• Required year of availability (year of completion date of preferred network option). • Seasonal availability to meet demand limits as per Table 4.
Dispatch Duration	The non-network solution must be capable of reducing demand to within the required ratings over the required period.	• Continuous dispatch available energy (MWh). • Alignment with peak demand period of the load profiles as per Figure 3.
Dispatch Timing and Response	The non-network solution must respond within a sufficient period following a contingency or triggering event to ensure it effectively alleviates constraints, compared to the nominal equivalent network option.	• USE with VCR applied.
Reliability and Availability	The option must demonstrate a level of availability and reliability that is equivalent to or exceeds the proposed network option.	• Expected probability of availability (per hour) as per Table 7 and Table 8.
Cost and Value	The economics of the non-network option must be favourable compared to the nominal network option.	• Total cost of ownership (capex + opex). • NPV of costs versus benefits. • Benefit to cost ratio.

5. OPTIONS TO ADDRESS IDENTIFIED NEED

Evoenergy has identified network and non-network options to address the identified need in the Gungahlin area as described below.

5.1 Base Case: Utilise Existing Network Capacity

This option would involve load-shifting through re-configuration of the existing 11 kV feeder network. This is not considered a credible option due to demand still exceeding both firm and thermal limits from 2026 following 11 kV transfers and network configuration.

5.2 Option 1: Construct New 11 kV Feeders (Preferred Network Option)

Install and commission three (3) new underground 11 kV feeders from the Gold Creek ZSS and transfer loads to these new feeders to alleviate network constraints.

Option 1 is currently the preferred network option, the installation of three (3) new 11 kV feeder to supply demand growth and new connections in Gungahlin and surrounding area. The efficiency gains made by the combined delivery of these feeders, provides the highest value compared to other network options considered.

On completion of the construction works, the forecast constraints on the existing 11 kV network will have been resolved, and sufficient capacity provided to enable planned development, and future demand growth. The preferred option is expected to provide the greatest reliability and benefit for customers and ensure Evoenergy meets its reliability obligations and targets.

The new 11 kV feeders for construction are detailed below in **Table 10**. The new feeders will be commissioned by November 2026, in advance of the summer peak. Evoenergy is managing the identified constraints before November 2026 on a case-by-case basis in advance of the delivery of the preferred option.

The project price estimates below incorporate anticipated cost savings achieved through the co-delivery of multiple feeders, including shared construction activities such as common trenching and conduits. These efficiencies reduce overall expenditure compared to delivering each feeder independently, improving the economics of the preferred option.

TABLE 10: NEW 11 KV FEEDERS AS PART OF THE PREFERRED NETWORK OPTION

FEEDER GROUP	FROM	TO	FEEDER CABLE LENGTH	COMPLETED BY	INITIAL CAPITAL COST	OPERATING COST
Gungahlin	Gold Creek Zone Substation	Corner of Anthony Rolf Ave & Hamer St	4km	November 2026	$6.45m	$0.06m/yr
	Gold Creek Zone Substation	Corner of Anthony Rolf Ave & Hamer St	4km	November 2026		
Franklin	Gold Creek Zone Substation	Corner of Anchorage St and Brumby St Harrison	5.7km	November 2026	$6.87m	$0.07m/yr

5.3 Option 2: Large Battery Energy Storage Systems

This option involves one or more large batteries located within the Gungahlin area and surrounds, located such that peak demand on the limiting 11 kV feeder sections can be shifted to remove the constraints. Batteries must be appropriately sized in capacity and duration to affect the required peak

shift. Table 11 provides an estimate of the required battery sizing for each forecast year to enable a sufficient peak demand shift.

TABLE 11: NON-NETWORK OPTION TECHNICAL SPECIFICATION AGAINST PROPOSED FEEDER REQUIREMENTS

NON-NETWORK OPTIONS		2026	2027	2028	2029
Gungahlin	Energy Required (MWh)	7.34	14.28	16.72	18.31
	Power Required (MW)	2.5	4.3	4.8	5.2
	Storage (Hrs)	2.94	3.32	3.48	3.52
Franklin	Energy Required (MWh)	2.43	2.62	2.86	4.73
	Power Required (MW)	1.1	1.2	1.2	1.7
	Storage (Hrs)	2.21	2.18	2.38	2.78

5.4 Option 3: Virtual Power Plant Scheme

Distributed residential or commercial 'behind-the-meter' batteries or other Distributed Energy Resources connected to the low voltage network and aggregated via a Virtual Power Plant (VPP) scheme may also address the identified need. Such an arrangement must enable a demand response sufficient to enact the required peak shifting necessary to reduce the identified 11 kV constraints.

5.5 Option 4: Demand Management

This option involves customer aggregated voluntary demand reduction or curtailment to a magnitude and duration necessary to address the identified need. Potential methods may include direct load control, interruptible load and energy efficiency.

5.6 Option 5: Hybrid Network/Non-Network Option

Option 5 is a combination of network/non-network options to address the identified need.

Partial options for a non-network option would defer investment in one or more of the identified feeders, in conjunction with network solutions to alleviate the remaining constraints.

Proposed hybrid solutions will be assessed on a NPV basis considering the construction efficiencies (for example, common conduits) planned for the network option and must therefore demonstrate favourable economics accordingly.

6. INFORMATION FOR NON-NETWORK PROVIDERS

6.1 General

Non-network providers must:

- Take responsibility for identifying and acquiring land to locate any non-network option (if required)
- Meet the timelines provided by Evoenergy in investment timing requirements
- Pay for connection costs as per the Evoenergy's connection policy[8]
- Meet the technical requirements of non-network options outlined in **Table 11** of this report.
- If selected as the preferred option, submit a Special Connection Request if applicable to their solution and proceed through Evoenergy's usual connections processes.
- If selected to deliver the non-network solution, agree to Evoenergy's commercial terms and conditions and stipulated performance targets.

6.2 Investment Timing Requirements

Evoenergy's forecast for the anticipated load growth in Gungahlin and the surrounding indicates the identified network solution is to be operational by November 2026. Potential non-network solutions must enable Evoenergy to defer the preferred network option by at least one year, with full non-network solution availability from November 2026.

Where the non-network solution involves batteries or embedded generators, delivery timeframes should account for connection approval process timelines as per the National Electricity Rules.

Evoenergy will follow standard processes for approving connections and is not able to offer expedited approval timelines for submissions responding to this report.

6.3 Capacity and Connection Location

Capacity requirements have been outlined in **Table 11** of this report. Proposals should also detail the proposed connection points to enable evaluation of the identified feeder constraints.

6.4 Deferred Augmentation Charge

The available funds for deferral are determined by the financial benefits to Evoenergy of deferring network capital expenditure. This is made up of two components, avoided financing costs and avoided depreciation of capital assets.

The financing costs can be calculated using the Weighted Average Cost of Capital (WACC) approved by the AER in the 2024-2029 regulatory period. The value of reduced depreciation of the assets during the deferral period is based on the 50-year lifetime Evoenergy uses for distribution lines.

[8] Available here: https://evoenergy.com.au/-/media/Project/Evoenergy/EVO/Documents/Connection/2024-29-Connection-Policy.pdf

6.5 Submissions

This section provides non-network providers with an invitation for submissions, guidance on how to make submissions, and supporting information. Submissions are intended to provide non-network providers and interested parties with an opportunity to propose how they could address the identified need through alternative potential credible options.

6.5.1 Invitation for Submissions

Evoenergy is seeking submission from interested providers of credible non-network options that either partially or completely address the identified need outlined within this NNOR.

All submissions should completely and comprehensively address the required information listed in the below section and include information listed within Evoenergy's Demand Side Engagement Strategy.[9]

Where information is required by a non-network provider in addition to that provided in this report and accompanying attachments, it is recommended that non-network providers contact Evoenergy as early as possible to allow adequate time for response.

Requests for additional information will be anonymised and published with Evoenergy's response on the Evoenergy website. Initial responses will be provided within 10 business days. Non-network providers are encouraged to regularly check the website as it will be updated with frequently asked questions (FAQs) during the submission period.

All requests for additional information and lodgement of submissions should be directed to:

Email: RIT@Evoenergy.com.au

The period for additional information closes on 12 September 2025 at 5 pm

Submissions must be lodged by 17 October 2025 at 5 pm

All submissions will be published on the Evoenergy website unless otherwise requested. Please indicate if you do not wish to have your submission published in part or in full.

6.5.2 Information From Non-Network Providers

Each submission must provide sufficient information and detail for Evoenergy to determine that the proposed non-network solution is feasible. To be considered feasible, any non-network solution must be technically feasible, commercially feasible and able to be implemented in sufficient time for deferral of the network investment. In the absence of any viable solutions, the first instalment of the preferred network solution is to be commissioned before November 2026.

Evoenergy is seeking proposals that provide sufficient detail about the type and likely scale of non-network solutions offered by market providers. Respondents are not required to provide detailed costing of proposed solutions in response to this report, however, proposals should include as much information as possible.

Non-network providers must make a submission using the RIT inbox.[10] This includes the following information as a minimum:

1. Non-network provider name and contact details,
2. Overview of the proposal and the extent to which it addresses the identified need and technical description, including but not limited to:
    a. Location(s), site plan, and specifically if the non-network solution is contained within the target area,
    b. Size of the peak load reduction (including any standards/methodologies relied upon to determine the load reductions) or additional supply capacity (temporary or permanently connected generators) offered

[9] Evoenergy Demand Side Engagement Strategy, 2020 (v3), available here: Demand management and https://www.evoenergy.com.au/-/media/Project/Evoenergy/EVO/Documents/Demand-management/Demand-side-engagement-strategy.pdf

[10] RIT@Evoenergy.com.au

c. Electrical layout schematics/single line diagram (if applicable),
d. Network connection requirements (if applicable),
e. Contribution to power system security or reliability,
f. Contribution to power system fault levels and load flow and stability studies (if applicable),
g. Operating profile,
h. How each of these matters is consistent with applicable technical standards, and
i. A backup plan in the event of a battery failure (if applicable).

4. Implementation timeline, estimated lifespan and key milestones,
5. Measurement and verification procedures,
6. Proposed operational and contractual commitments, including financier commitments,
7. Planning application information (where required),
8. List of services and prices to be provided which may include:
    a. Availability payment (payment which guarantees availability of the non-network option regardless of whether it is required or not)
    b. Demand reduction in terms of maximum power ($/kVA) and/or energy delivered ($/kWh); or
    c. Total cost to provide services to meet identified need
    d. Other more detailed/complex service offerings and price schedules
9. Required notice time for availability (and any impact on prices for services where this notice time is not provided),
10. Potential risks associated with the proposal and a comparison with the risks associated with the deferred network augmentation option, and any actions that can be taken to mitigate these risks. This assessment should address the risk of not meeting the demand requirement and the compensation arrangements that would apply in such circumstances, and
11. Testimonials.

Non-network providers may be invited to present their proposals to Evoenergy as part of the evaluation process. If a non-network solution is identified as the preferred option, the proponent will need to submit a Special Connection Request if applicable to their solution and proceed through Evoenergy's usual connections processes.

Evoenergy will review each non-network option proposal and may seek further information from the non-network provider to better understand the design of the proposed solution and its impacts on the network and other network users.

6.6 Next Steps

Following the publication of the NNOR, non-network providers will have a period of 3 months to collate the information required and provide submissions to Evoenergy for non-network solutions to achieve or partially achieve the identified need.

The RIT-D process from this point involves the following upcoming activities:

1. A public briefing session is held for non-network providers' and to answer questions.
2. Submissions close for non-network providers to submit non-network option proposals.
3. Consultation with the preferred non-network provider(s) is undertaken.
4. A draft project assessment report is released for public consultation.
5. A final project assessment report is published and issued to the AER.
6. Contracts with non-network provider(s) are confirmed (where applicable), or a network option is progressed.

Evoenergy strongly recommends that non-network providers also commence engaging in the connection process early, to optimise alignment of timing with the identified need as well as with processing times.

6.7 Timeline

An overview of the timeline, from the publication of this NNOR to when the preferred option is required to be operational, is provided in **Table 12** below.

TABLE 12: TIMELINE FROM NNOR PUBLICATION

ACTIVITIES	DATES
Publish NNOR and request for submissions	25 Jul 2025
Consultation period for non-network providers to provide submissions	25 Jul 2025 to 17 Oct 2025
Public briefing session during consultation period (details to be confirmed)	Aug 2025
Evoenergy review of submissions received (non-network proposals)	Oct 2025
Publish Draft Project Assessment Report (DPAR)	Nov 2025
Consultation period for DPAR	Nov 2025 to Dec 2025
Publish Final Project Assessment Report (FPAR)	Dec 2025
Preferred option operational	Nov 2026

APPENDIX A – DEFINITIONS AND ABBREVIATIONS

TABLE 13: DEFINITIONS

Term	Definition
ACT government – Electrical Inspectorate	The ACT Government Electrical Inspectorate is the inspecting authority in the ACT and is responsible for inspecting and approving the consumer's electrical installation
Continuous rating	Substation rating capable of continuous reliable operation (24/7)
Demand response	A change from normal mode of load operation induced by a signal triggered by a network constraint or other constraint, to reduce demand for energy or market ancillary services within a region
Embedded generating system	A system comprising of multiple embedded generating units (e.g. solar PV system with a battery storage system)
Embedded generating unit	A generating unit connected within a distribution network and not having direct access to the transmission network
Emergency rating	Substation rating above nameplate ratings capable of reliable operation for short duration. Operating assets at this rating accelerates loss of asset life thus exposure to these conditions is limited
Evoenergy	Evoenergy is the ACT's principal Distribution Network Service Provider (DNSP) and is responsible for the distribution of electricity to all customers within the ACT
Firm delivery capacity	Maximum allowable output or load of a network or facility under single contingency conditions, including any short-term overload capacity having regard to external factors that may affect the capacity of the network or facility[11]
Frequency control and ancillary services	Services used by the energy market operator to maintain the frequency of the system within the normal operating band, which functions to provide a fast injection or reduction of energy to manage supply and demand, respectively
High Voltage (HV)	Any voltage greater than 1 kV AC
Load centre	Regions on the electricity distribution network close to load/centres of demand
Low Voltage (LV)	The mains voltages as most commonly used in any given network by domestic and light industrial and commercial consumers (typically 230 V)
Network	Evoenergy's distribution network
Non-network provider	A person who provides non-network solutions; proposing to become a generator (the relevant owner, operator or controller of the generating unit (or their agent))
RIT-D proponent	The Network Service Provider applying the regulatory investment test for distribution to a RIT-D project to address an identified need[12]
Thermal constraint	A thermal limitation on the capability of a network, load or generating unit such that it is unacceptable to either transfer, consume or generate the level of electrical power that would occur if the limitation was removed
Utilities Technical Regulation Team	The ACT Government team responsible for the technical administration of utility requirements and administration of the Utilities (Technical Regulation) Act 2014
Value of Unserved Energy	A quantified measure of the resource availability to continuously serve all loads at all delivery points while satisfying all planning criteria, results involve analysing all hours of a particular year and calculations are presented as units of currency
Weighted average cost of capital	Relevant weighted average cost of capital for a network service provider for a regulatory control period, being the return on capital for that network service provider for that regulatory control period calculated in accordance with National Electricity Rules

[11] As per definition from National Electricity Rules for *firm delivery capacity*
[12] As per definition from National Electricity Rules *for RIT-D proponent*

TABLE 14: ABBREVIATIONS

AC	Alternating Current
ACT	Australian Capital Territory
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AS	Australian Standard
AS/NZS	A jointly developed Australian and New Zealand Standard
CAIDI	Customer Average Interruption Duration Index
CBD	Central Business District
CEC	Clean Energy Council
CPI	Consumer Price Index
DER	Distributed Energy Resource
DNSP	Distribution Network Service Provider
DSE-RIP	Demand Side Engagement Register of Interested Parties
EV	Electric Vehicle
FCAS	Frequency Control Ancillary Services
FAQ	Frequently Asked Question
FY	Financial Year
HV	High Voltage
LV	Low Voltage
MW	Megawatt
NEM	National Electricity Market
NER	National Electricity Rules
NNOR	Non-network options report
NPC	Net Present Cost
ODAF	Oil Directed, Air Forced
ODAN	Oil Directed, Air Natural
ONAN	Oil Natural, Air Natural
PoE	Probability of Exceedance
PV	Photovoltaics
RIT-D	Regulatory Investment Test for Distribution
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
STPIS	Service Target Performance Incentive Scheme
USE	Unserved Energy
UTR	Utilities Technical Regulator
V	Volt
VA	Volt-Ampere
VAr	Volt-ampere-reactive
VCR	Value of Customer Reliability
W	Watt
WACC	Weighted Average Cost of Capital
ZSS	Zone Substation