Appendix 1.14: Network Reliability Strategy

Regulatory proposal for the ACT electricity distribution network 2024–29

NETWORK RELIABILITY STRATEGY

APPROACH TO THE MANAGEMENT OF NETWORK RELIABILITY

This strategy outlines our approach to the management of network reliability at Evoenergy. This includes our responsibilities, challenges, and opportunities, and how they relate to business strategy and the asset management system.

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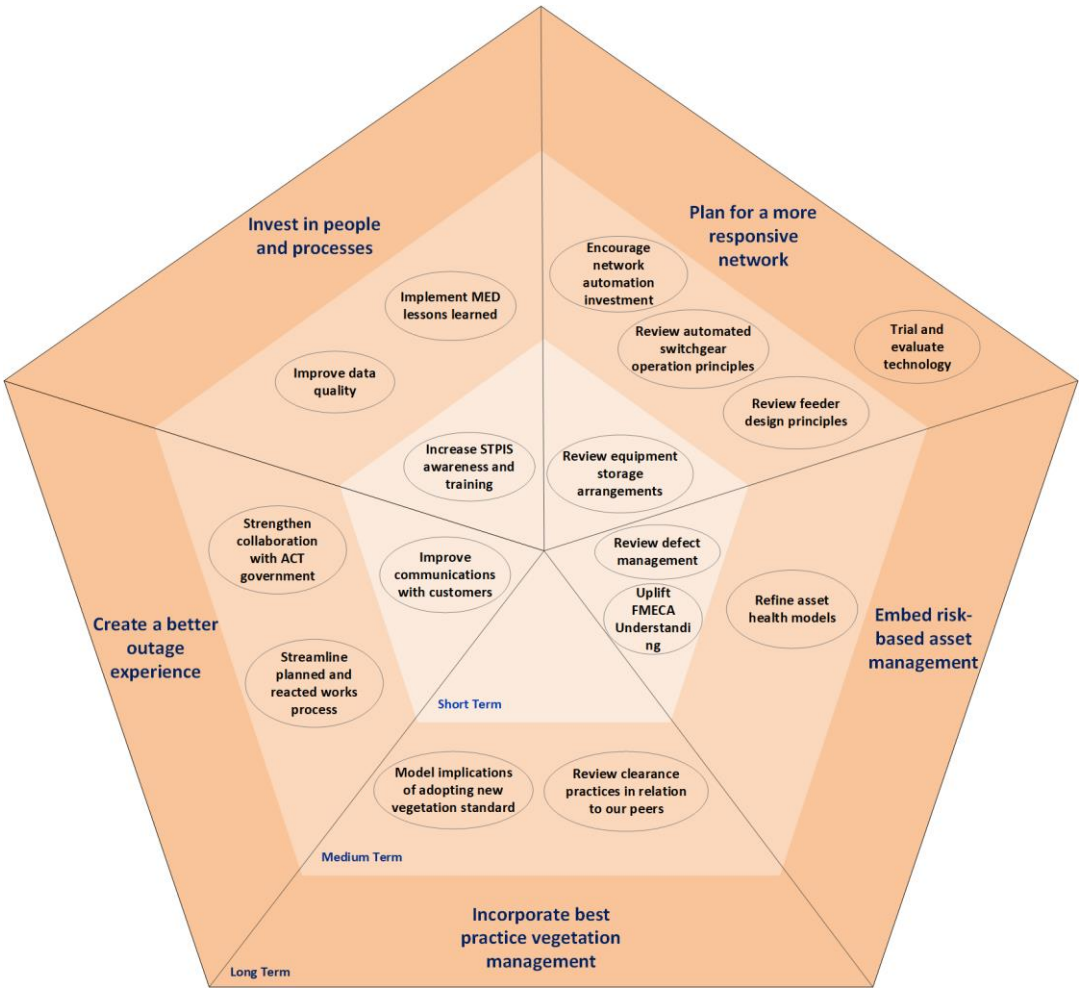
EXECUTIVE SUMMARY

This is a major update to Evoenergy's Reliability Strategy. A substantial focus of this iteration of the Network Reliability Strategy is to re-establish control over revenue at risk through the STPIS mechanism.

OBJECTIVES	KEY CHALLENGES	GUIDING PRINCIPLES
• Maintain network reliability performance • Maintain zero non-compliance against license conditions • Elevate STPIS awareness & value-based decision making	• Asset failure is consistently the largest contributor to unplanned outages • Vegetation and weather incidents have a substantial and highly variable impact on reliability performance. • Human error has been high this year, leading to avoidable reliability consequences • Availability of trustworthy and detailed incident cause information is inadequate for key risk management decisions. • There is a long lead time for completing reliability projects, which carries a high opportunity cost. • Many defects remain on the network for extended time periods, reducing incident response flexibility.	• Invest in people and process • Plan for a more responsive network • Embed risk-based asset management • Incorporate best practice vegetation management • Create a better outage experience

Actions consistent with the above guiding policies are defined in the short, medium, and long term



INTRODUCTION

Establishing expectations about the intent and content of this strategy and how it fits into our broader asset management system architecture.

1. SCOPE

Network reliability is a performance category that encompasses the frequency and duration of outages experienced by customers. The Network Reliability Strategy considers a broad range of factors that influence the management of network reliability to provide value for our customers. Topics that will be explored in more detail within the strategy include performance relating to:

- Unplanned outages
- Planned outages
- The Service Target Performance Incentive Scheme (STPIS), excluding call centre activities
- Major event days (MEDs)

Network reliability is related to other topics that are given limited attention in this strategy, because their primary management occurs elsewhere in the business, as summarised in Table 1.

TABLE 1 EXCLUDED TOPICS

EXCLUDED TOPIC	COMMENT
Call centre activities	Whilst some call centre activities are contributors to STPIS, they are not directly related to management of the frequency or duration of outages. This component of STPIS will likely be moved into the AER Customer Service Incentive Scheme from FY24. This topic is managed through Evoenergy strategy initiative, Elevate Customer.
System security	Power system security as defined in the NER Chapter 4, including the maintenance of a satisfactory operating state following the occurrence of any credible contingency event or protected event, is addressed through separate operational and planning artefacts.
Resilience	A separate Sustainability Strategy incorporating resilience will be developed through the Environmental and Technical Regulation team.
Power quality	A separate Quality of Supply Strategy is developed and maintained through the Planning & Future Networks team.
Access pricing and incentive arrangements	The reliable export of residential DER is not considered to be in-scope for the Reliability Strategy. It is instead considered in the short term under Quality of Supply, and in the medium-long term under the Distribution System Operator transition and associated strategy.

2. FOCUS FOR THIS VERSION

A substantial focus of this iteration of the Network Reliability Strategy is to re-establish control over revenue at risk through the STPIS mechanism. STPIS performance for financial year 2022 (FY22) was the worst since inception of the Scheme in FY16. The strategy unpacks why this occurred and outlines how it should be approached in future.

3. DOCUMENT HIERARCHY

The asset management system and its structure is undergoing review[1]. An interim document hierarchy during this revision period is shown in Figure 1. The Network Reliability Strategy is classified as an operational strategy under this hierarchy.

FIGURE 1 ASSET MANAGEMENT SYSTEM DOCUMENT HIERARCHY (UNDER DEVELOPMENT). NETWORK RELIABILITY STRATEGY IS CLASSIFIED AS AN OPERATIONAL STRATEGY.

[1] Point of contact: Manager - Environmental & Technical Regulatory Compliance

BACKGROUND AND CONTEXT

Background on key reliability concepts, and context on the external and internal operating environment for Evoenergy.

4. BACKGROUND ON NETWORK RELIABILITY

Many of the following definitions and concepts are adapted from the AER Distribution Reliability Measures Guideline[2].

4.1 Defining network reliability

Reliability in the electrical power system refers to the extent to which customers have a continuous supply of electricity. That is, the system has enough capacity and availability to produce and transport electrical energy to meet consumer demand. Supply interruptions can originate anywhere in the power system causing outages to customers, from generation, energy storage, transmission networks across states or local distribution networks.

Network reliability in the context of this strategy refers to outages to customers which originate from Evoenergy's distribution network. These outages are categorised as:

- **Planned** meaning customers are notified by the distribution network service provider in advance their electricity supply will be turned off to allow safe access to maintain the network, or
- **Unplanned** meaning supply is interrupted without notice due to a fault in the power system such as an underground cable failing or vegetation coming in contact with an overhead powerline.

In the National Electricity Market (NEM), 94% of outages customers experience originate from distribution network matters.

4.2 Effects of network reliability

Network reliability can have a range of impacts depending on whether an outage is planned (and advanced notice can be given) or unplanned, the type of customer affected, how frequently outages occur and the duration of these outages.

Values of customer reliability (VCR) are developed by the AER to reflect the value different types of customers place on a reliable electricity supply[3]. Unreliable electricity supply can have direct costs, such as lost business revenues and decreased productivity, or indirect costs such as reductions in safety, comfort, and convenience. VCR plays a pivotal role in network planning, by linking customer value with reliability in a manner that enables rational economic decision-making. Table 2 discusses some of the customer types and considerations that the AER uses in its development of VCR.

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[2] Australian Energy Regulator 2018, *Distribution reliability measures guideline 2018*, Available at: <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/distribution-reliability-measures-guideline-2018>

[3] Australian Energy Regulator 2019, *Values of Customer Reliabiltiy Review Factcheet – December 2019*, available at: <https://www.aer.gov.au/system/files/AER%20-%20Values%20of%20Customer%20Reliability%20Review%20-%20Factsheet%20-%20December%202019.pdf>

TABLE 2 – CUSTOMER TYPES AND CONSIDERATIONS

CUSTOMER TYPE	CONSIDERATIONS
Residential	Residential customers rely on electricity for a range of daily activities, including powering appliances and electronics, climate control, lighting, water heating, transport, entertainment and cooking. Major factors that the AER uses to segment residential customers and their reliability preferences around the country are the climate and level of remoteness of a location. A subset of residential customers relies on electricity for life support. Special considerations must be applied to manage risks associated with outages for these customers.
Business < 10MVA (small to medium business)	Small to medium sized business customers generally value reliability higher than residential customers. Outages can impact on their ability to operate commercially and provide goods and services to the community. Sectors that the AER divides these customers by in relation to their reliability preferences are agricultural, commercial, and industrial (with increasing respective values placed on reliability). Evoenergy additionally considers feedback from local customers regarding prioritisation of supply restoration in the event of widespread outages. Examples include community preference for restoration of emergency services such as hospitals, fire, and police.
Business > 10MVA (very large business)	The value that very large businesses place on reliability can be derived from direct costs that are incurred as a result of an outage. The AER segments these customers into services, metals, mines, and industrial (with increasing respective values placed on reliability). There is substantial variation in the value placed on reliability between groups.

4.3 Measuring network reliability performance

Distribution network reliability performance is measured in aggregate for the whole network, (all customers and distribution lines) as well as segmented by feeders of different types. The four feeder types defined in the AER Distribution Reliability Measures Guideline broadly group together parts of the network that share similar characteristics regarding electricity usage and customer density, as summarised in Table 3. These characteristics also explain why feeder types have distinct reliability performance expectations, with more stringent expectations for higher density areas where there are higher levels of interconnection and redundancy, and shorter distances over which faults can occur.

TABLE 3 - DISTRIBUTION NETWORK FEEDER TYPES

FEEDER TYPE	DESCRIPTION
CBD Feeder	A feeder in the CBD area of State or Territory capital that has been determined by the relevant participating jurisdiction as supplying electricity to predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas.
Urban Feeder	A feeder which is not a CBD feeder and has a 3-year average maximum demand over the 3-year average feeder route length greater than 0.3 MVA/km.
Short Rural Feeder	A feeder with a total feeder route length less than 200 km, which is not a CBD feeder or urban feeder.
Long Rural Feeder	A feeder that is not a CBD feeder, urban feeder or short rural feeder. Evoenergy's network does not have any long rural feeders.

Distribution network reliability performance is measured for planned, unplanned and total outages by the following metrics.

TABLE 4 – DISTRIBUTION NETWORK RELIABILITY PERFORMANCE METRICS

METRIC	DESCRIPTION
SAIDI	**SAIDI or System Average Interruption Duration Index**, means the sum of the durations of all the Sustained Interruptions (in minutes), divided by the Customer Base. Momentary Interruptions (of three minutes or less) are excluded from the calculation of unplanned SAIDI.
SAIFI	**SAIFI or System Average Interruption Frequency Index**, means the total number of Sustained Interruptions, divided by the Customer Base. Momentary Interruptions (of three minutes or less) are excluded from the calculation of unplanned SAIFI.
CAIDI	**CAIDI or Customer Average Interruption Duration Index** in respect of a relevant period, means the total duration of all the Sustained Interruptions (in minutes) divided by the total number of Sustained Interruptions that have occurred during the relevant period, which is equivalent to dividing the SAIDI by the SAIFI measures. This measure represents the average time to restore supply to customers after a supply interruption event.
MAIFI	**MAIFI or Momentary Average Interruption Frequency Index**, means the total number of Momentary Interruptions, divided by the Customer Base, provided that Momentary Interruptions that occur within the first three minutes of a Sustained Interruption are excluded from the calculation.
MAIFIe	**MAIFIe or Momentary Average Interruption Frequency Index event**, means the total number of Momentary Interruption Events divided by the Customer Base for the relevant period, provided that Momentary Interruptions that occur within the first three minutes of a Sustained Interruption are excluded from the calculation.

Major Event Days (MEDs) are statistically anomalous days from a reliability perspective, corresponding to large events such as particularly intense storms. For many types of reporting, MEDs are excluded from the calculation of metrics described in Table 4. Despite this, customers experience the reliability impacts regardless of how widespread or anomalous the event. Susceptibility of the network to major events has strong links to network resilience, for which Evoenergy will be developing a separate strategy.

5. CONTEXT

5.1 National

The AER collects national data from DNSPs in the NEM relating to SAIDI and SAIFI performance through economic benchmarking RIN responses[4]. Data for the 2006-2021 period is displayed in Figure 2 (noting that smaller numbers indicate better performance), with Evoenergy highlighted in orange. For most DNSPs, reliability indicators have started relatively high (poor) and improved over time. For Evoenergy and CitiPower, reliability indicators have started relatively low (good) and remained somewhat steady.

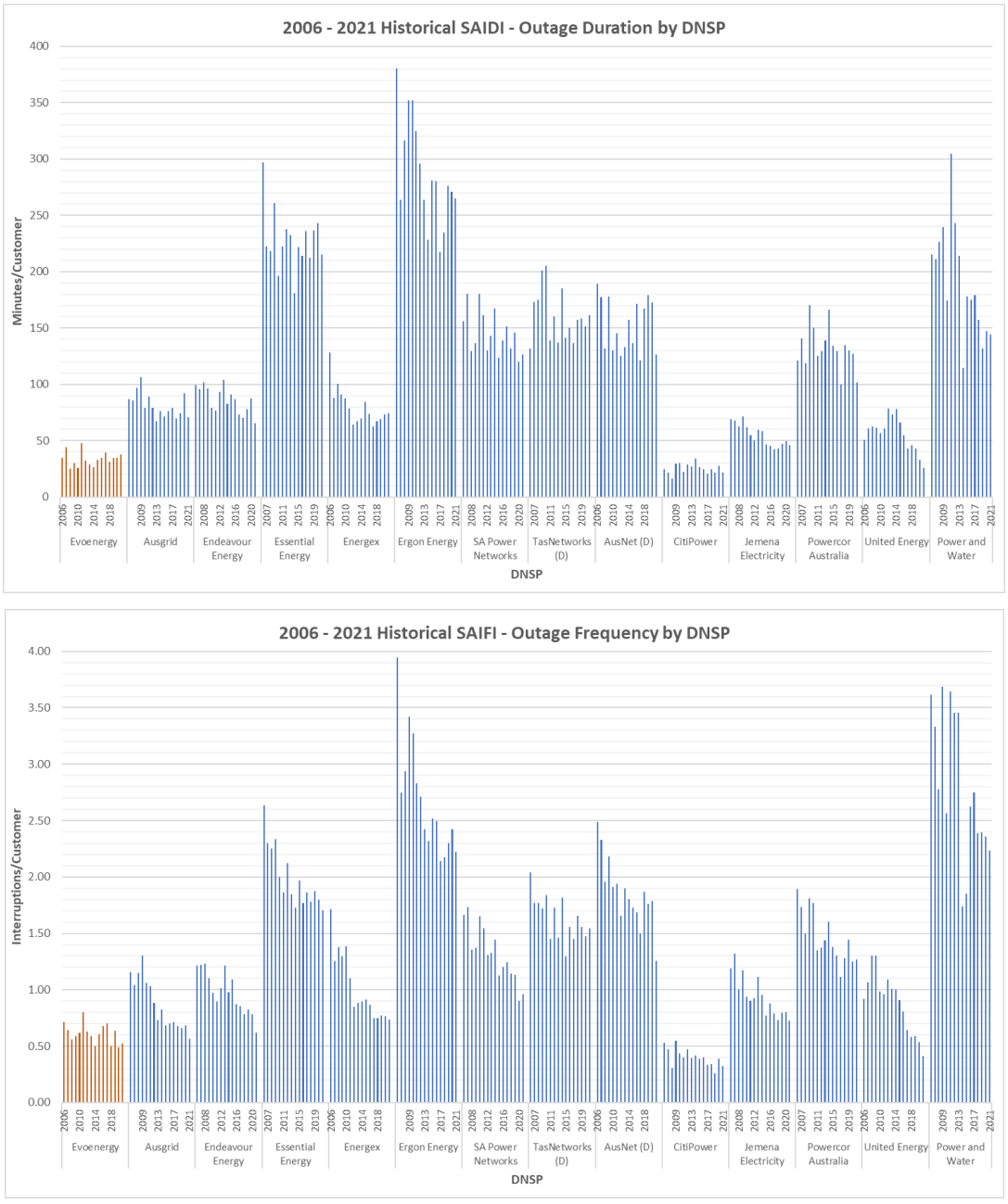

FIGURE 2 RELIABILTIY PERFORMANCE DATA FOR DNSPS IN THE NEM - 2006-2021 (DATA FROM AER 2022)

[4] Australian Energy Regulator 2022, *Electricity DNSP operational performance data - 2006-2021*, Available at <https://www.aer.gov.au/networks-pipelines/electricity-network-performance-report-2022>

DNSPs across the NEM are collaborating to understand how networks should approach the task of preparing for and responding to shocks. This begins with a definition of resilience as “the ability to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard”, as outlined in the 2022 Collaboration Paper on Network Resilience[5]. Clearly there is a relationship between resilience and reliability, with a particular focus on the worst days and events that often end up removed from statistics through MED classification. As the discussion paper notes, “the frequency and magnitude of these [natural hazard] events are increasing due to climate change”, exacerbating the difference between raw and normalised reliability measures (i.e., before and after exclusions) and hence weakening the coupling to customer experience. Several controls are identified that can support network resilience, as summarised in Figure 3. Importantly, these same controls can support network reliability, so where there are alignment opportunities these can be pursued with the combined benefit in mind.

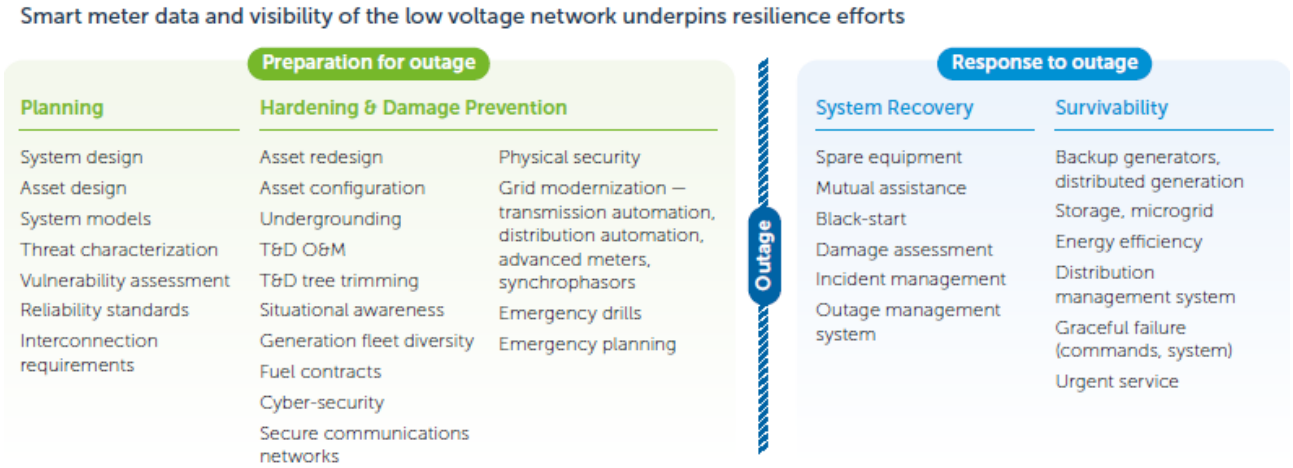

FIGURE 3 CONTROLS FOR IMPROVING NETWORK RESILIENCE (2022 COLLABORATION PAPER ON NETWORK RESILIENCE)

The Australian Energy Market Operator (AEMO) regularly publishes its Integrated System Plan, a biennial whole-of-system plan that provides an integrated roadmap for the efficient development of the NEM over the next 20 years and beyond. Substantial modelling and consultation are undertaken to predict likely scenarios regarding changes in energy generation and consumption, and how this can be facilitated at best value for consumers. All these scenarios predict a substantial increase in the role that DER and utility scale variable renewable energy play in electricity generation and increasing demand for electricity to power electrification of the economy. Alongside the many benefits of this transition, changing risk profiles will need to be monitored from a reliability perspective, including the potential for load shedding should any temporary supply shortfalls occur due to lack of firm supply, or increasing numbers of embedded generators connected to the network and their associated risk of installation faults.

5.2 Local

Evoenergy operates the majority of its network in the Australian Capital Territory (ACT) where the territory government, as with many other jurisdictions, has outlined a policy to reach net zero carbon emissions. The timeline, set out in the ACT Climate Change Strategy, specifies an end target of net zero emissions by 2045, with interim targets every five years. The Evoenergy Distribution System Operator (DSO) Strategy (PO0731) discusses implications of the ACT Climate Change Strategy, with contributions to upwards pressure on network electricity demand from urban infill, a transition to all-electric infill and greenfield suburbs, and encouragement of zero emissions vehicle uptake. From a reliability perspective, this electrification of energy and transport increases reliance on the electricity network for more aspects of customer lives and livelihoods. In developing our reliability strategy, Evoenergy will need to be mindful of the potential impacts this may have on the value customers place on reliability (VCR) now and in the future.

At Evoenergy we engage with our customers regularly to understand how we can best deliver value through our network. Recently, the first phase of customer engagement was completed to provide inputs to our 2024-

[5] https://actewagl.sharepoint.com/:b:/r/sites/Evo_Energy/SiteAssets/SitePages/5b9k38l0/Network-Resilience---Joint-DNSP-Collaboration-Paper.pdf?csf=1&web=1&e=CEDObU

2029 5-yearly plan. Customers have told us that we should aim to maintain our current level of reliability of the network but continue to make decisions that balance reliability and cost in this context.

5.3 Internal

Management of network reliability at Evoenergy is a dynamic process involving a variety of teams working together to meet short and long-term needs. Recent initiatives that have changed the way that reliability is managed include:

- Evoenergy has started recruiting and training an increased number of Network Operators (Switchers).
- Introduction of 4-way MV switchgear as a standard item to be procured in padmount substations, replacing the previous standard of 3-way switchgear. This increases flexibility in the network, enabling higher prevalence of feeder ties where it is economically feasible to do so.
- Introduction of arc-safe link pillars, enabling the trial and introduction of non-fused submersible pits. This eliminates the need for LV tee joints and as such aims to improve safety, reliability, and cost.
- Review of storm response practices. Large storms are a frequent feature of weather conditions in the ACT, causing significant damage to sections of the Evoenergy network. The recent January 2022 storm event, classified as an MED, was a particularly large event of this type. A review of this event has been conducted to find lessons learned and codify this knowledge into business practices. Learning from this event have refined our response to storms and have been captured in a new (2022) Evoenergy Storm Business Continuity Plan.
- Business strategic initiatives. Reliability outcomes will benefit from the attention provided by business strategy to uplift capability in key areas including:
    - The Asset Condition Initiative, which will review and improve the defect management process, asset inspection forms, asset failure modes and effects analysis, and asset health profiles. A number of these are elaborated upon in the Actions Section of this strategy.

Works Planning Optimisation is a strategic initiative which aims to improve efficiency of planned works. An improvement in efficiency will in turn improve the planning of our network reliability programs.

Reliability considerations are taken during all aspects of an assets lifecycle from acquisition and development of Asset Technical Specifications through to asset retirement.

Furthermore, several teams directly influence the network reliability performance through daily activities. These include network controllers, switchers, reactive crews, and outage coordinators. This impact on network reliability is governed through the various Network Operations policies and procedures.

LINE OF SIGHT

Network reliability objectives and how they relate to regulatory and business requirements.

6. LEGISLATIVE AND REGULATORY REQUIREMENTS

Evoenergy is subject to statutory obligations regarding network reliability through provisions of the technical code contained in the Utilities (Electricity Distribution Supply Standards Code) the industry code contained in the Consumer Protection Code, the National Electricity Law, and consequently, the National Electricity Rules.

6.1 National jurisdiction

The National Electricity Objective (NEO), is *"to promote efficient investment in, and efficient use of, electricity for the long term interests of consumers of electricity with respect to: (1) price, quality, safety and reliability and security of supply of electricity (2) the reliability, safety and security of the national electricity system."* Implementation and compliance of the rules is governed by the Australian Energy Regulator (AER). Under the National Electricity Rules (NER), the AER is required to develop and administer a Service Target Performance Incentive Scheme (STPIS) to provide incentives to maintain and improve network reliability and service performance.

The STPIS is intended to balance the cost of electricity with the level of network reliability service received by customers. The scheme achieves this by providing financial incentives to Evoenergy to maintain and improve service performance where customers are willing to pay for improvements. The scheme establishes reliability of supply and customer service targets which Evoenergy's performance is assessed against. Under or over performance against these targets directly affects Evoenergy's revenue and the price customers pay through distribution network tariffs.

Application of the STPIS for 2019-24 includes three components, reliability of supply measuring how often customers have unplanned outages (SAIFI) and how quickly outages a restored (SAIDI), and customer service measuring the percentage of customer calls answered by Evoenergy in an appropriate time. Network reliability and customer service performance under the STPIS can result in a financial benefit or penalty up to 5% of smoothed annual revenue. The STPIS includes additional components measuring momentary interruption performance, MAIFI and MAIFIe. For Evoenergy, these components are excluded from the 2019-24 period due to lack of data to support setting a target. For the 2024-29 regulatory period, Evoenergy is considering MAIFI and MAIFIe in the STPIS.

STPIS reliability of supply targets and customer service targets are summarised in

- Utilities Act 2000 Technical Code -Electrical Distribution Supply Standards Code 2013
- Utilities Act 2000 Industry Code – Consumer Protection Code 2020
- AER Service Target Performance Incentive Scheme
- National Electricity Rules

6.2 Local jurisdiction

The Electricity Distribution Supply Standards Code is defined and administered by the local Utilities Technical Regulator (UTR) for the safe and reliable electricity supply from the electricity distributor's network. Network reliability obligations imposed by this code include:

- Establish network reliability targets to at least minimum standards defined by the code
- Network reliability targets must include CAIDI, SAIFI and SAIDI metrics

- Publish network reliability targets annually

Minimum standard reliability targets defined by the code are outlined in Appendix A – Consumer Protection Code.

The Consumer Protection Code is defined and administered by the Independent Competition and Regulatory Commission (ICRC) to outline the rights customers and consumers and protect them in relation to utility networks and services. Network reliability obligations imposed by this code include:

- Comply with network reliability Guaranteed Service Levels (GSL) set out by the code
- Pay rebate(s) to customers for non-compliance against GSLs

GSLs defined by the code are outlined in Appendix A – Consumer Protection Code.

7. BUSINESS GUIDANCE

The Network Reliability Strategy is informed by extant internal artefacts outlining Evoenergy strategy and management practices. Highlights of relevant content from these artefacts are captured in Table 5.

TABLE 5 BUSINESS GUIDANCE FROM ARTEFACTS THAT INFORM THE NETWORK RELIABILITY STRATEGY

SOURCE(S)	ABOUT	GUIDANCE
Evoenergy Business Strategy	Outlines strategic pillars and initiatives for Evoenergy	Pillars of the 2022 Evoenergy Business Strategy are to: 1. Build our net zero carbon future 2. Elevate customer experience 3. Optimise our assets and network 4. Efficient and targeted investment The Network Reliability Strategy is linked most strongly to pillars two and three with key callouts in the business strategy including efforts to: • Minimise customer outages. • Manage our assets based on condition and risk. • Increase visibility, feedback, and control of works program planning and delivery. • Manage defect processes effectively, including measurement of outcomes and risks. Interpreting this from a Network Reliability Strategy perspective, we are looking to increase network reliability by improving our understanding of asset condition and refining our program planning.
Asset Management Strategy	Defines the strategic objectives and approach to the management of relevant physical assets.	Evoenergy's Asset Management Objectives are to: 1. Operate and maintain our network safely 2. Meet our network reliability targets 3. Manage our network for the least total lifecycle cost 4. Manage and invest in our network using prudent risk management approaches 5. Deliver sustainable and cost-efficient network investments 6. Operate an AMS that satisfies the needs of our stakeholders 7. Manage opportunities and drive continuous improvement The Asset Management Strategy provides the following with relevance to network reliability: • Definition of our key stakeholders • Contextualisation of reliability within the broader asset management system

		• Identification of SAIDI, SAIFI, and CAIDI as key performance indices for reliability When managing assets with regard to availability and reliability, the Asset Management Strategy dictates that the following strategic issues are to be considered: • Regulatory requirements • Stakeholder expectations • The N-1 principle • The value that customers assign to lost load
Sustainability Strategy	Aims to make a systematic and step-change improvement in Evoenergy's sustainability performance and management	Evoenergy's 2021 Sustainability Strategy identifies three goals: • Net-zero greenhouse gas emissions by 2045 • Resilient and adaptive to climate change • Responsible supply chain and resource management Of these, resilience to climate change has the strongest relationship with network reliability. Within its Climate Change theme, the Sustainability Strategy identifies the threat of increasing frequency and severity of extreme weather impacts on network infrastructure, safety and customer service levels. Interpreting implications for the Network Reliability Strategy, a key takeaway is the Climate Change theme's 2025 Target that 'climate change and sustainability is integrated in all strategies… using data-driven approaches.'
Energy Network Safety Management System (ENSMS): Formal Safety Assessment (FSA) – Public Safety and Property	Identifies hazards and controls for managing risks to members of the public and protecting property.	The FSA – Public Safety and Property identifies seven sources of threats that can result in public or property exposure to a hazard. Of most relevance to the Network Reliability Strategy, the failure of a network asset represents a hazard that could lead to a member of the public being exposed to an electrical shock or non-electrical incident, or to property being damaged. Whilst the Network Reliability Strategy focuses predominantly on the value of customer reliability, this FSA is an important reminder that there is an intimate link between asset failures, network reliability, and public safety. As such, there is a degree of alignment between gaps and treatments identified in the FSA and the challenges and actions addressed by this strategy. Note that this 2020 FSA is due to be refreshed in 2022.
ENSMS: FSA – Loss of Supply	Identifies hazards and controls for safety risks to persons arising from loss of electricity supply.	The FSA – Loss of Supply identifies seven sources of threats that can result in a loss of supply incident. These comprise: • Equipment failure • Third party activities • Upstream constraint • Customer installation faults • Flora and fauna • Process error • Planned outage This FSA highlights the critical role that reliable electricity supply plays in the safety of those who depend on this power. Moreover, the controls, gaps, and treatments are all relevant frames of

	reference for how Evoenergy approaches network reliability that form the basis of analysis in this strategy. Note that this 2020 FSA is due to be refreshed in 2022.

Gaps and proposed treatments associated with the asset failure threat in our FSA – Public Safety and Property (2020 version) are summarised in Table 6.

TABLE 6 FSA - PUBLIC SAFETY AND PROPERTY (2020) PROPOSED NEW TREATMENTS FOR GAPS

THREAT	PROPOSED TREATMENT	GAP BEING ADDRESSED
Asset failure	Updating design standards.	Current asset ratings for maximum temperatures sit at 40 degrees Celsius but climate is getting hotter.
Asset failure	Review connections process with respect to how infield development is evaluated. Review connections procedure.	No checks to prevent overloading of LV network assets.
Asset failure	Develop procedure to engage with vendors during the standard procurement process.	Need to ensure products are fit for purpose before introducing as BAU.
Asset failure	Develop Inspection Test Plans (ITPs) for construction and installation (20 – 30 currently).	Ability to use the correct specification asset and install it correctly.
Asset failure	Develop strategy and procedure for applying FMECA.	No policy / plan on how to use / apply FMECA.
Asset failure	Update Asset Class Strategies to define the information required to prioritise investment / inspections.	Condition monitoring data is not fed back into strategies.
Asset failure	Faster roll-out of real-time monitoring on assets (ADMS and SCADA).	Automation is not used effectively to identify and deal with failures to prevent public safety incidents.
Asset failure	Improve governance for project setup to include risk assessment.	Site-specific design and risk assessment is needed.
Asset failure	Improve collation and linking of asset failure to property impacts.	Lack of a daily incident log to record asset failures and enable trend analysis to determine actions to take.

Gaps and treatments associated with the various threats in our FSA – Loss of Supply (2020 version) are summarised in Table 7.

TABLE 7 FSA - LOSS OF SUPPLY (2020) PROPOSED NEW TREATMENTS FOR GAPS

THREAT	GAP BEING ADDRESSED	PROPOSED TREATMENT
Equipment failure	The redundancy of the network is used to restore supply after an asset fails, however, the repair of the failure is deferred or otherwise not prioritised. An assessment of the impact of this across the network and the likelihood of an extended loss of supply needs to be investigated to correctly inform asset strategy development.	Review the network security of supply to inform asset strategy development.
Upstream constraint	Restoration of supply in the event that Canberra 330kV BSP cannot supply power would be lengthy. This is an additional risk control for ACT Government to define critical areas of supply that require N-2 supply such as Hospitals, Civic. The treatment could be a derogation to provide targeted N-2 within Evoenergy's transmission network downstream of TransGrid.	Continue engaging with TransGrid on ISP to improve security of supply for ACT.
Customer installation faults	Inappropriate switching by HV customers can cause an outage on Evoenergy lines / substations.	Implement switching authorisation and verification requirements into operating protocols with HV customers.
Flaura and fauna	Best practice bushfire prevention and mitigation measures currently not applied in BAZ.	Adoption of ISSC3 in BAZ (Bushfire Abatement Zone) and rural areas.
Process error	Switching operators are not assessed for competency currently.	Annual competency assessment for switching (Operational Learning Services) (on the job).
Process error	There is no authorisation process for switching operators.	Authorisation of switching operations.
Planned outage	Lack of performance indicator for planned outages.	Develop KPI to track the reduction in planned outages
Planned outage	Planned outages are not managed efficiently to maximise works under an outage, which would minimise the need for an outage.	Coordination of outages across vegetation, maintenance and customer-initiated outages.
Planned outage	Obtain a clear understanding of which customers / areas are affected by any given network outage.	Develop an outage map.
Planned outage	Loopholes exist in the deregistration requirements which mean a life support customer could be deregistered who requires the connection.	Strengthen controls to deregister life support customers.
Planned outage	No refresher training currently in place to ensure life support is consistent and fit for purpose.	Carry out life support refresher training.

8. OBJECTIVES

An engagement survey was conducted with Evoenergy's customers in preparation for the 2024-29 regulatory plan. Customers have told us that we should aim to "maintain reliability but make decisions that balance reliability and cost". Additionally, feedback was collected from various internal stakeholders and industry experts in other electricity distributors. The below objectives are our interpretation of this feedback.

This strategy has been developed to achieve three key objectives as captured in Table 8.

TABLE 8 - NETWORK RELIABILITY STRATEGY OBJECTIVES

REFERENCE	DESCRIPTION
NRO1	Maintain network reliability performance
NRO2	Maintain zero non-compliance against license conditions
NRO3	Elevate STPIS awareness and value-based decision making

PERFORMANCE

9. SERVICE TARGET PERFORMANCE INCENTIVE SCHEME

STPIS financial outcomes for 2015 – 2022, covering the period since inception of the scheme, are displayed in Figure 4. FY22 featured substantial revenue penalties totalling over $4M, most of which are attributable to reliability performance. Detailed performance numbers are available in Appendix B – Performance data.

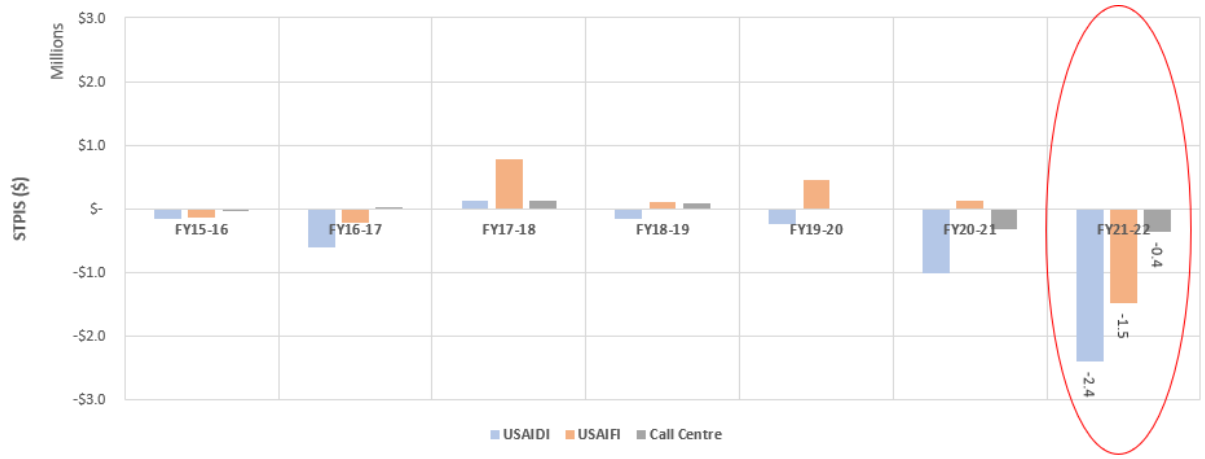

FIGURE 4 STPIS PERFORMANCE SINCE INCEPTION 2015-2022

STPIS financial outcomes for reliability are determined by performance against targets set for SAIDI and SAIFI, which are fixed for each regulatory period. Figure 5 displays performance against reliability targets, revealing that the high financial penalties in FY22 can be explained by reduced performance in both the frequency and duration of outages.

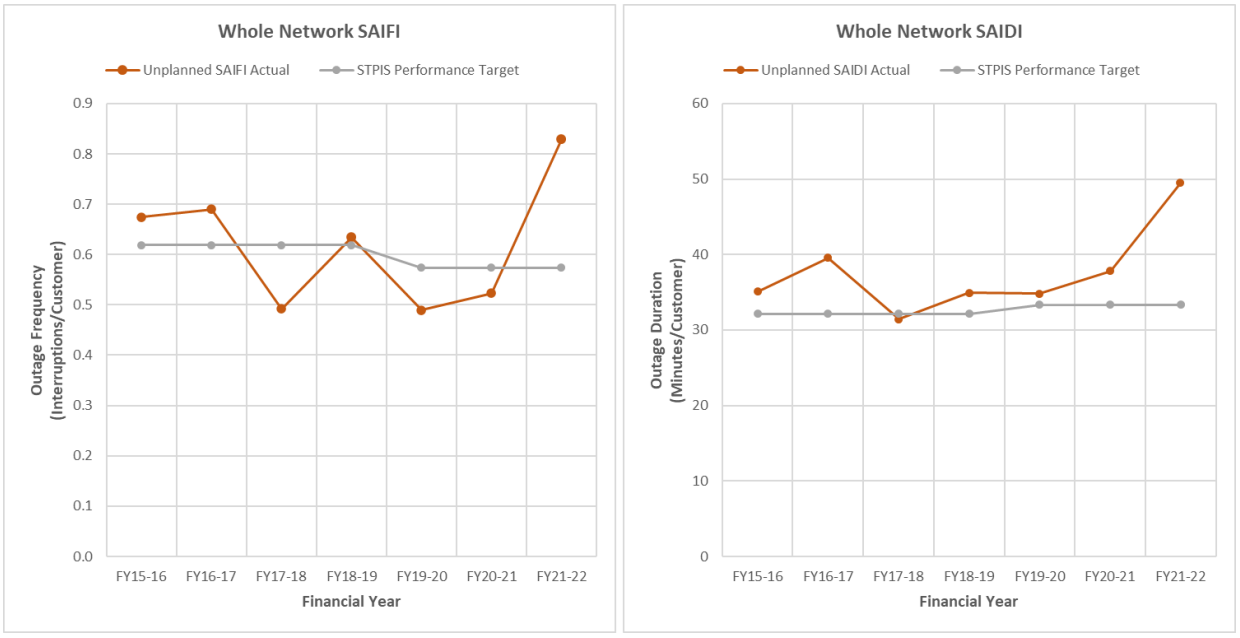

FIGURE 5 NORMALISED SAIDI AND SAIFI AGAINST STPIS TARGETS 2015-2022

In the next section we will explore outage causes and locations, which further unpack the major contributors to these high-level reliability performance numbers.

10. GUARANTEED SERVICE LEVEL

GSL financial outcomes for 2020 – 2022, covering the period since automatic GSL payments to customers were mandated are displayed in Figure 6 -GSL Payments Since automatic payments mandated 2020-2022Figure 6. FY22 featured substantial increased payments compared to FY21 totalling over $100k. Detailed performance numbers are available in Appendix B – Performance data.

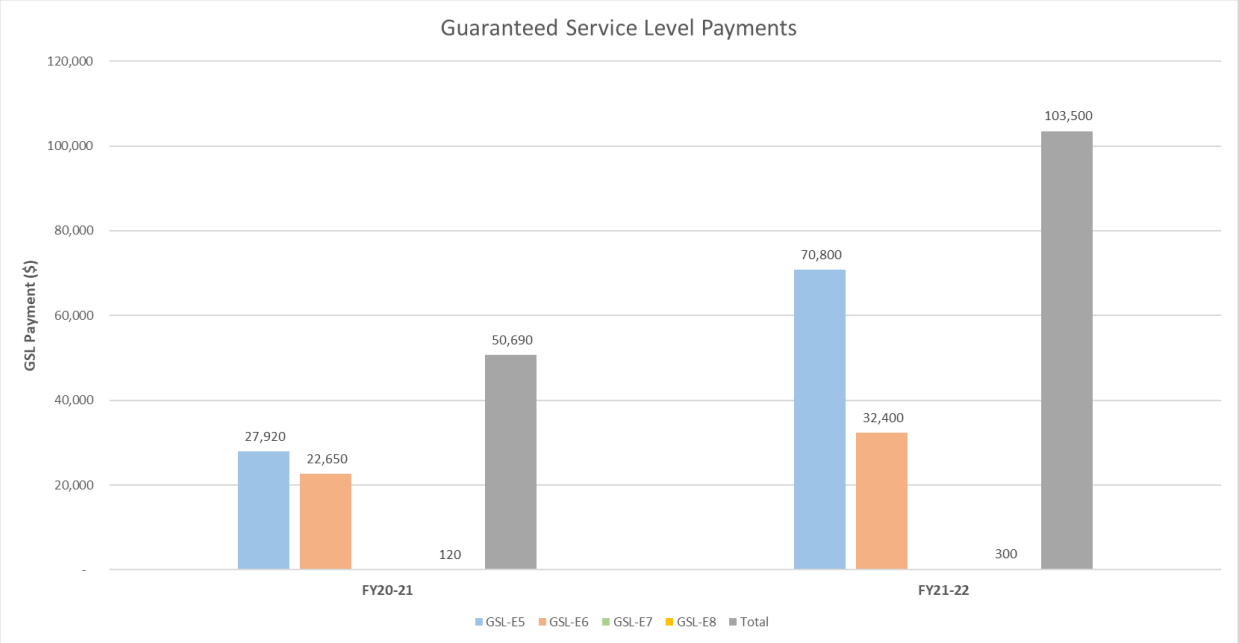

FIGURE 6 -GSL PAYMENTS SINCE AUTOMATIC PAYMENTS MANDATED 2020-2022

11. GENERAL PERFORMANCE

11.1 Unplanned outages

Figure 7 explores the causes of unplanned outages, and their relative impacts on the number of network incidents, SAIFI, SAIDI, and STPIS penalties. Asset failure is the largest contributor to unplanned outages, with a small upwards trend in SAIDI and SAIFI over the six years despite a reduction in FY22. Vegetation and weather are closely related contributors that have a large degree of variability between years, with a relatively large, combined contribution in FY22. The 'Other' cause category is often associated with various forms of human error (works planning and execution) and displays a significant anomalous increase in FY22.

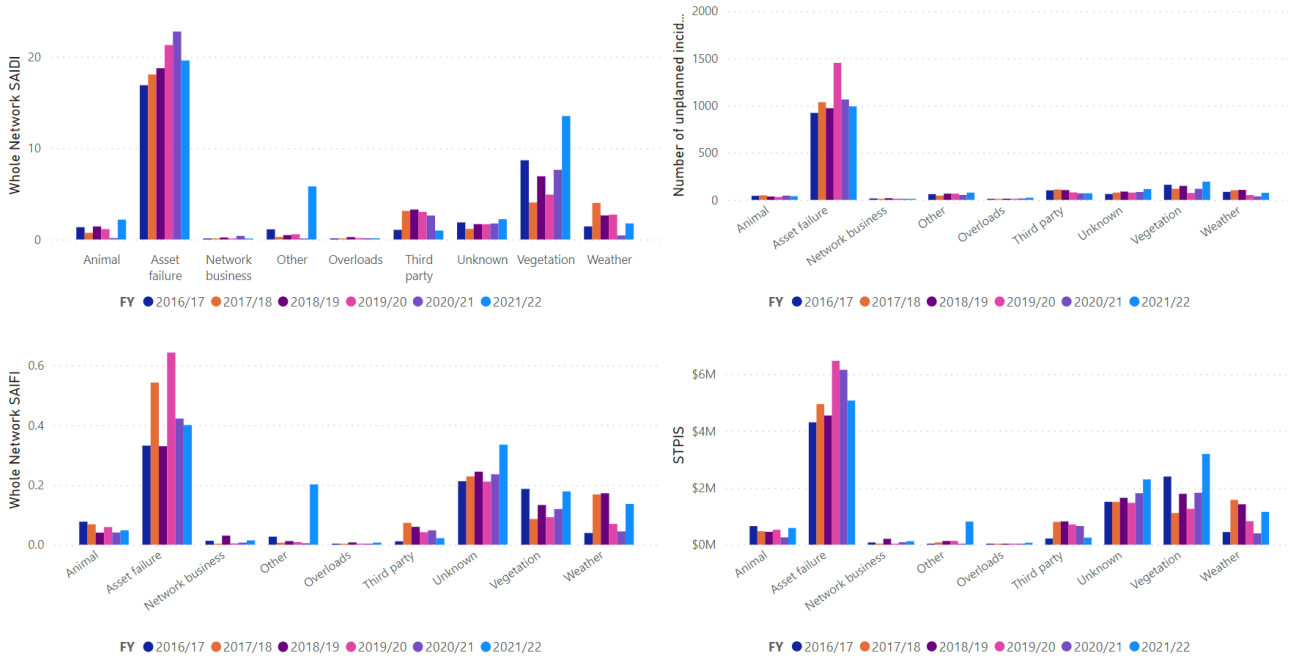

FIGURE 7 CAUSES OF UNPLANNED OUTAGES

Figure 8 applies a geographic lens, relating number of unplanned incidents (vertical axis) to zone substation (horizontal axis) and STPIS penalty (circle size).

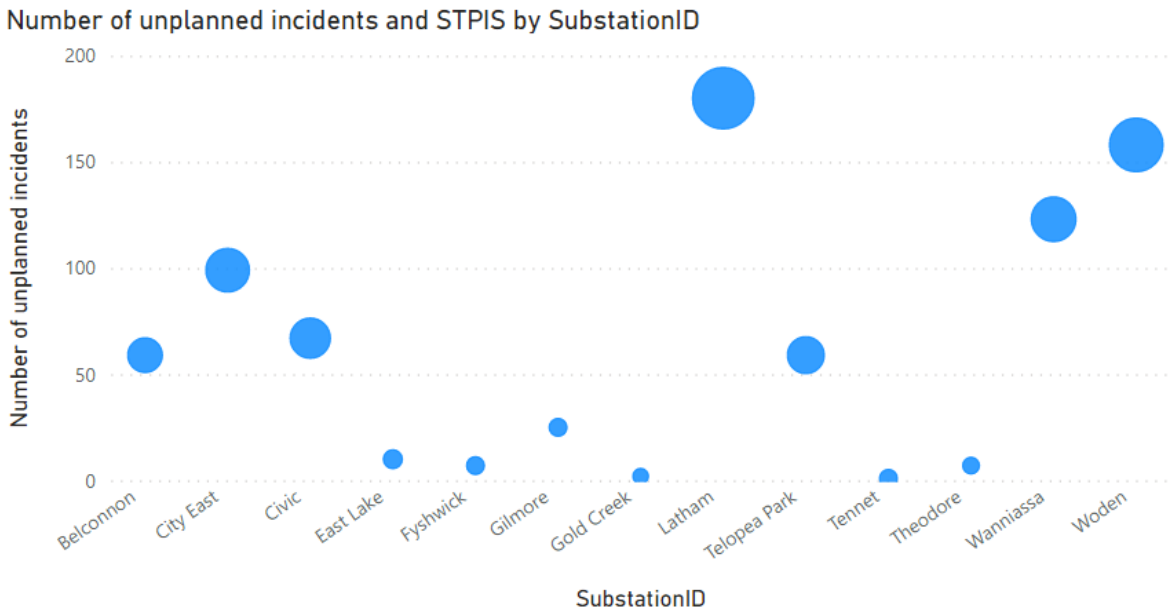

FIGURE 8 UNPLANNED INCIDENTS BY ZONE SUBSTATION, WITH CORRESPONDING STPIS IMPACT (CIRCLE SIZE)

Figure 9 provides a breakdown of asset failures into constituent asset types. Unsurprisingly, failures with cable assets (especially HV cables) have a large impact on STPIS financial performance despite having a relatively low occurrence. This is due to the high number of customers each outage would affect and the time it takes to locate and repair faults. Conversely, outages on LV networks (captured by fuse failures) are very common but have very little impact on the STPIS performance.

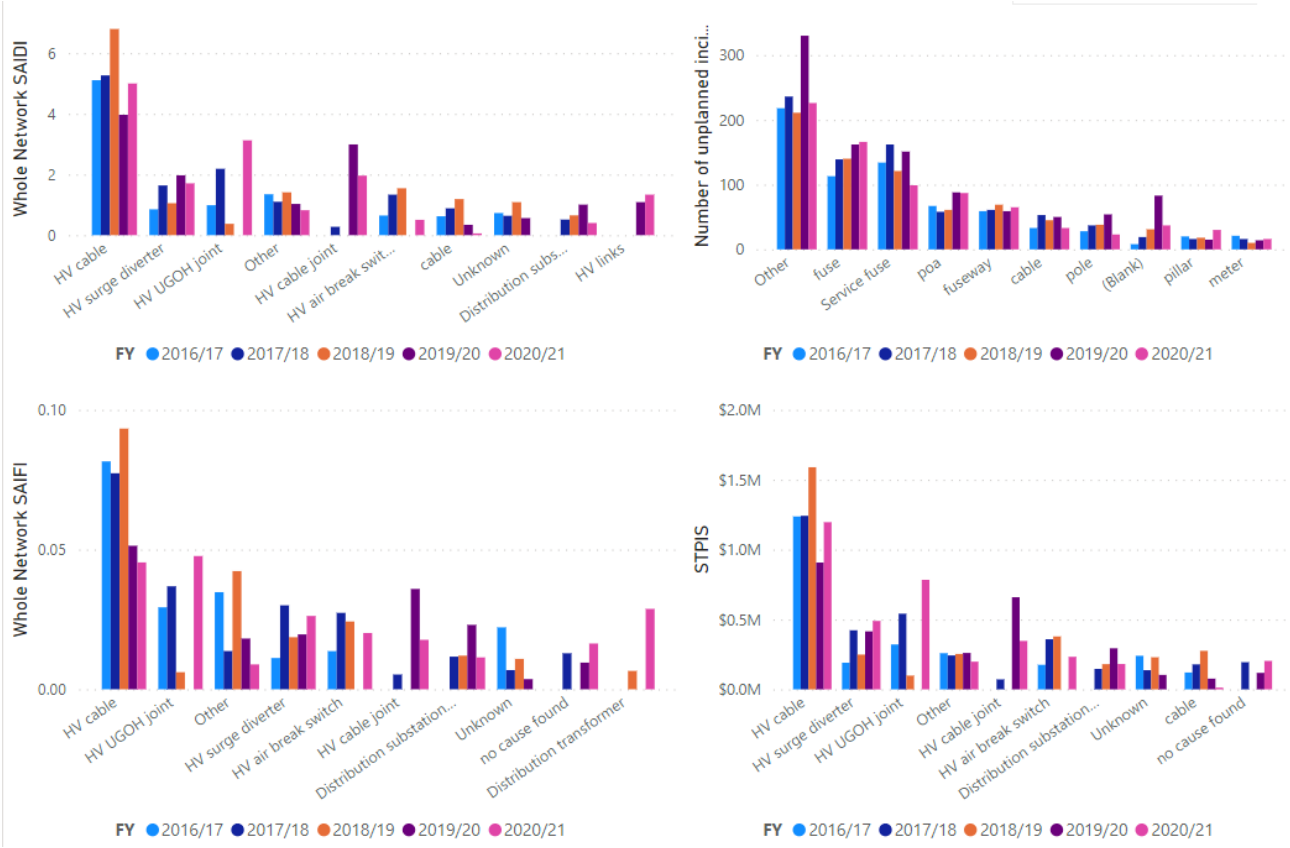

FIGURE 9 COMMON CAUSES OF ASSET FAILURE

Figure 10 provides a breakdown of vegetation-induced outages into subcategories. Between fall-in, blow-in, and grow-in failures, typical restoration times (CAIDI) are relatively consistent. However, blow-in failures are far more prevalent than the other two subcategories, leading to a larger reliability performance contribution.

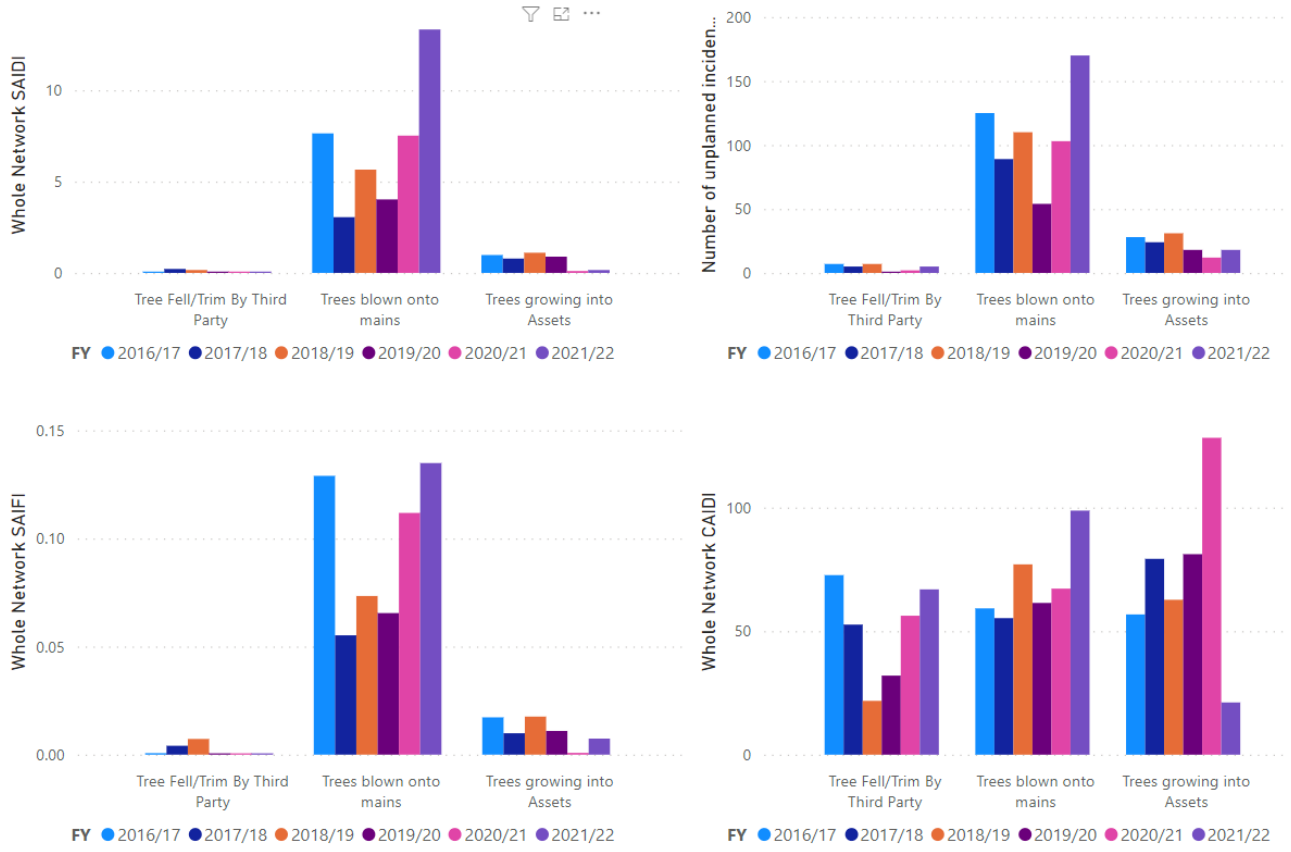

FIGURE 10 COMMON CAUSES OF VEGETATION CAUSED OUTAGES

11.2 Major event day

Major Event Days (MED) are defined by the IEEE Guide for Electrical Power Distribution Reliability Indices as: a day in which daily SAIDI exceeds a threshold value T_{MED} (calculated at the end of each reporting period to be used in the next reporting period) which is 2.5 standard deviations from the mean SAIDI.

Figure 11 and Figure 12 provide detail on the prevalence and impact of reliability events attributed to MEDs between 2016 – 2022, and therefore excluded from normalised statistics reported in Section 11.1. Whilst FY22 only had a single MED and relatively small number of distinct reliability incidents during this event, the number of customers affected was comparable to other years with multiple MEDs. This gives an indirect sense of the criticality and scale of destruction associated with each incident comprising the event colloquially referred to as the 'January 2022 storm event'.

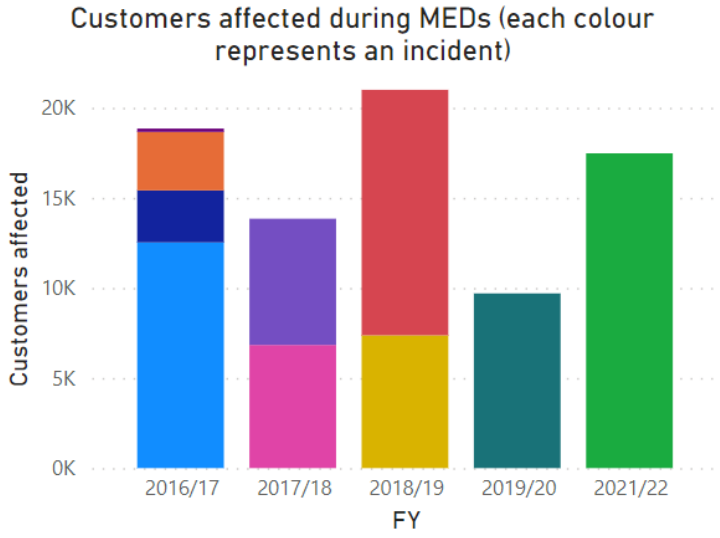

FIGURE 11 CUSTOMERS AFFECTED PER MAJOR EVENT

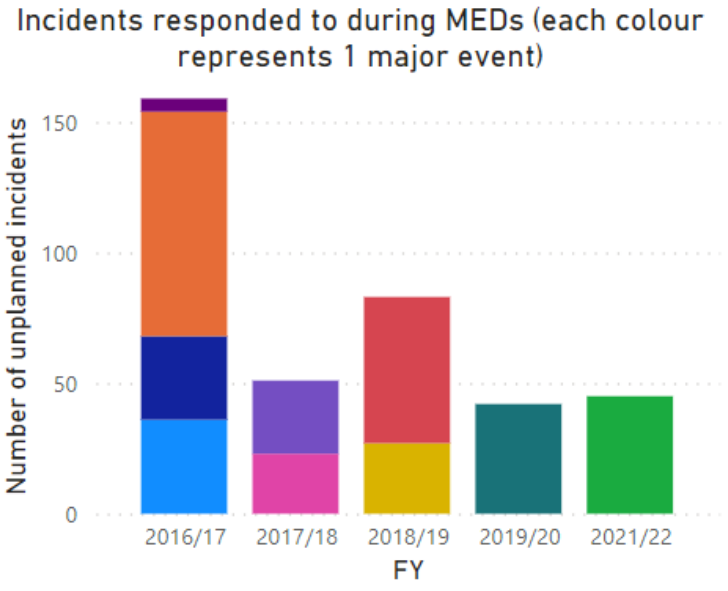

FIGURE 12 INCIDENTS RESPONDED TO PER MAJOR EVENT

11.3 Network reliability MAIFIe

The momentary interruption measurement parameter MAIFIe is a defined STPIS parameter that is not currently applied to determination of revenue at risk for Evoenergy. Future application of STPIS has the potential to include MAIFIe, so it is worthwhile exploring performance at Evoenergy in the context of the broader industry. As displayed in Figure 13, Evoenergy exhibits somewhat stable MAIFIe performance over time, with favourable comparison to most of its peers.

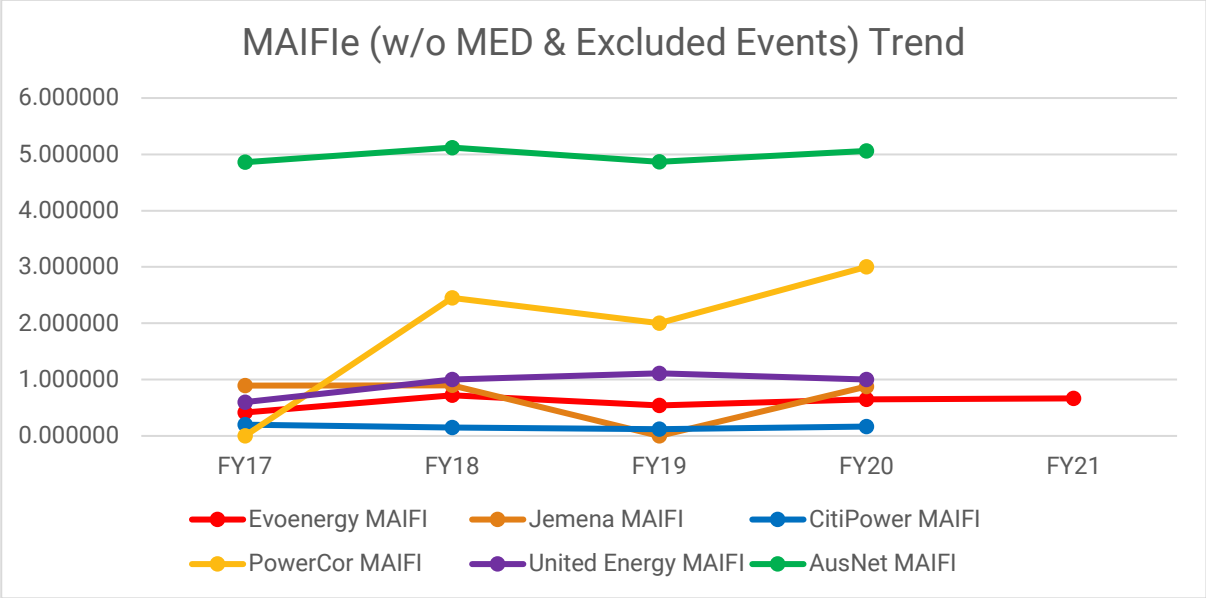

FIGURE 13 MAIFIE (NORMALISED) PERFORMANCE HISTORY AND COMPARISON

STRATEGY

Identification of our current challenges in meeting network reliability objectives, with actions to address these informed by guiding principles.

12. KEY CHALLENGES

Results of an investigation into key challenges for reliability at Evoenergy can be summarised as follows:

- Asset failure is consistently the largest contributor to unplanned outages.
- Vegetation and weather incidents have a substantial and highly variable impact on reliability performance.
- Human error has been high this year, leading to avoidable reliability consequences.
- Availability of trustworthy and detailed incident cause information is inadequate for key risk management decisions.
- There is a long lead time for completing reliability projects, which carries a high opportunity cost.
- Many defects remain on the network for extended time periods, reducing incident response flexibility.

12.1 Reliability incidents

In pursuit of our objectives of maintaining network reliability performance (NRO1) and maintaining zero non-compliance against licence conditions (NRO2), observations from Section 11 General performance are instructive in identifying key challenges. Vegetation, works planning and execution, and asset failure emerge as substantial drivers of performance:

- **asset failure is consistently the largest contributor to unplanned outages.** Cable assets are particularly strong contributors, with high load criticality and long outage durations leading to large influence on reliability performance. Trends point to a minor deterioration in asset-related reliability over recent years.
- **vegetation and weather incidents have a substantial and highly variable impact on reliability performance.** These two closely related contributors depend in part on environmental conditions that vary between years, leading to a variable hazard rate for Evoenergy to manage and respond to. Blow-in vegetation failures are particularly prevalent sources of incidents.
- **works planning and execution has been high this year, leading to avoidable reliability consequences.** It remains to be seen whether the substantial and historically anomalous jump in contribution from this cause category is a unique occurrence or whether a systemic shift has taken place requiring underlying controls to be revisited. In the outage investigations conducted it was also found that some of the processes and systems in place do very little to mitigate the risk of works planning and execution . Competency assessments for Switchers were highlighted as a gap in the 2020 FSA for Loss of Supply, and an increase in competency assessments should be monitored (especially when it comes to the particulars of operating various types and models of switchgear).

Clearly, each of these challenges impacts on the ability to achieve reliability performance objectives. As such, there is elevated importance in establishing mature risk management practices to target resources efficiently.

12.2 Risk management

The creation of our third objective, to elevate STPIS awareness and value-based decision making (NRO3), is to some extent driven by a need to address known challenges that moderate our ability to meet the other two objectives. High STPIS penalties this year have had a direct and significant impact on revenue for Evoenergy, reducing resources available to finance system improvements. Opportunities to create uplift include addressing information availability, project delivery, and defect management as outlined below:

- **availability of trustworthy and detailed incident cause information is inadequate for key risk management decisions.** There is a lack of consistency in recording which assets are failing, and through which failure modes when outages and asset failures occur. Data from core systems requires substantial cleansing by individuals at the time of use, slowing down analysis and creating further opportunities for inconsistent reporting. The net result is difficulty in accurately quantifying risk for assets on the network, and prioritising work accordingly.
- **there is a long lead time for completing reliability projects, which carries a high opportunity cost.** Reliability projects that are identified, valued, and approved, still require resourcing to carry out the work. In the current state at Evoenergy, such projects can take years to reach commissioning, leading to extended periods over which reliability risks continue to be borne by the network despite the existence of approved mitigation measures. Examples of this include recloser projects that have the potential to reduce the number of customers affected by a given outage. Underlying causes for the long lead times likely relate to works planning practices, and the need for holistic resource accounting across all sources of work.
- **many defects remain on the network for extended time periods, reducing incident response flexibility.** Redundant connectivity in the network enables faster restoration of power to customers by making the minimum requirement to switch the network rather than repair the fault. When defects are present on the network for extended periods of time (potentially after an incident restored via switching), such flexibility is reduced for the treatment of future faults. This leads to a network that carries elevated risk associated with longer outages when switching paths are not available and the minimum requirement for restoring power is to repair the fault.

Targeting these opportunities would lead to substantial maturity uplift and elevation of STPIS and value-based decision-making as consequential topics within Evoenergy.

13. GUIDING PRINCIPLES

Evoenergy's response to the challenges identified in this strategy have been grouped under five guiding principles:

- Invest in people and process
- Plan for a more responsive network
- Embed risk-based asset management
- Incorporate best practice vegetation management
- Create a better outage experience

13.1 Invest in people, process, and systems

Network reliability performance depends on capable people given appropriate tools and training, delivering to well-designed process. Events that stress-test the system and anomalous performance outcomes can reveal gaps in existing people and process management. We can reflect on these experiences to drive changes that improve the system and make it more robust to future events.

13.2 Plan for a more responsive network

One of the most direct ways to improve network reliability performance is to enhance the typical speed at which supply is restored when outages occur. We can achieve this by creating a more flexible network that lends itself to rapid deployment of resources to areas of need and can be easily reconfigured to avoid dependencies on faulted assets.

13.3 Embed risk-based asset management

A mature understanding of risks and the asset management choices we can make to control them is critical to efficient and effective management of network reliability. We will benefit from improving our understanding of the condition and lifecycle stages of our assets, with implications for inspection, maintenance, and resource prioritisation.

13.4 Incorporate best practice vegetation management

Vegetation is a large contributor to unplanned outages on overhead networks. Outages can occur when trees contact overhead wires or when trees fall on overhead networks, often during storms. Recent revisions to Australian Standards for vegetation management present an opportunity to review our own practices and re-establish what best practice vegetation management looks like for Evoenergy.

13.5 Create a better outage experience

Customer engagement undertaken in preparation for the 2024-2029 regulatory submission has revealed that customers are interested in Evoenergy doing more to improve their experience and level of support when an outage occurs. Whilst these considerations may not contribute directly to our outage duration and frequency statistics, they are clearly an important contributor to the impact that outages have on our customers.

14. ACTIONS

Each of the guiding principles in the previous section provided a high-level guideline to solving the key challenges for Reliability. In this section, a set of actions is outlined under each guiding principle for greater specificity on who needs to do what by when, while keeping in line with the strategy objectives highlighted in Section 8. Timeframes are categorised as:

- short term – prior to the 2024-2029 regulatory period.
- medium term – within the 2024-2029 regulatory period.
- long term – ongoing or extending beyond the 2024-2029 regulatory period.

Note that the timeframes refer to when the action is due for completion, and medium term and long-term actions may require short-term interim deliverables. Long term projects are subject to business case development and approval.

14.1 Invest in people and process

TABLE 9 ACTIONS RELATING TO INVESTING IN PEOPLE AND PROCESS

ACTION	RESPONSIBLE / ACCOUNTABLE (SUPPORTIVE)	TIMEFRAME
Increased STPIS awareness and training Current state • STPIS is a regulatory obligation and a direct measure of the Evoenergy network performance, however, its drivers and relationship with day-to-day work practices are not widely understood within the business. Changes	Planning & Future Networks (Finance, EOLS)	Short term

• Develop a Beakon e-learning module to raise STPIS awareness. • Start recurring reliability meetings to discuss recent outages, GSL reporting, and worst served customers with a diverse technical group (protection, systems control etc). Outcome • Greater awareness of STPIS and understanding of how individuals and roles contribute. • A sense of shared responsibility amongst all staff, leading to performance improvements.		
Implement MED lessons learned Current state • Major events occur annually and cause a large number of outages which take a long time to resolve. The January storm in FY22 had a larger impact than any other individual MED event in the past 5 years. • A review of the past years' MEDs has been conducted and the Evoenergy Storm Business Continuity Plan (BCP) has been created in FY23. Changes • Implement lessons learned from MED response reviews • Continue the actions identified in the Evoenergy Storm BCP. Outcome • Improved response to large and widespread outages with a coherent response • Improve customer experience during major events and have our customers be more informed during such incidents	As per ARIA investigation Action owners (children of INC-16225)	Medium Term
Improve data quality Current state • Some data capture is in non-standardised formats that make repeatable and efficient reporting challenging. • Data capture processes do not fully support reporting and analysis needs (i.e., type of asset failed, location of incident etc) and requires manual intervention to transform data • Data cleaning is highly manual and has low repeatability. This leads to inconsistency between analyses and can compromise the quality of data analysis if there is staff movement. Changes • Define key data attributes for reporting and analysis (asset management, regulatory reports, etc) processes relating to reliability (through a data dictionary or similar)	Data and Analytics (Planning and Future Networks)	Medium Term

- Review process and systems regarding capture and validation of data during incidents (Evoenergy ADMS Incident Management Procedure)
- Ratify the RASCI for reliability data capture and validation
- Centralise a source of truth for ‘clean’ reliability data in enterprise systems. This will require documentation uplift and cleaning automation.
- Develop and implement repeatable reporting and dashboarding capability for reliability
- Include MAIFIe amongst the other reliability metrics that we record and track

Outcome

- Consistent reporting which can be done quickly
- Better informed targeting of initiatives
- A more methodical approach when requesting adjustments to data in the future
- ‘Future proofed’ data cleaning process

14.2 Plan for a more responsive network

TABLE 10 ACTIONS RELATING TO PLANNING FOR A MORE RESPONSIVE NETWORK

ACTION	RESPONSIBLE / ACCOUNTABLE (SUPPORTIVE)	TIMEFRAME
Review feeder design principles Current state • Feeder sectionalisation principles are not specified in planning or design manuals leading to missed opportunities to design and construct reliable feeders (holistic feeder sectionalisation may not be considered/optimised for feeder changes (new connections, upgrades etc) • Limited use of automated switches at feeder tie normally open points • Radial networks (HV & LV) reduce ability maintain supply during network maintenance and can lead to longer unplanned outages • In some instances, control and protection schemes aren't implemented consistently across the network and function differently leading to a more complex network to operate • There are still some tee joints and spur joints present on the network which have proven to be deleterious to network reliability Change • Review planning and design manuals with respect to feeder sectionalisation, switching zones and feeder tie normally open points • Evaluate practices for establishing network ties for HV and LV networks and use of tee joints	Asset Standards (Planning and Future Networks, Secondary Systems)	Medium Term

• Review and standardise control and protection schemes Outcome • Realignment between cost, risk, and performance in feeder design • Efficient design process reducing need of design reviews by network planners • Safer and efficient operations from a simpler and standardised network		
Encourage network automation investment Current state • Asset replacement principles are predominantly like for like, e.g., assets at end of life or air break switches are often replaced with a switch of similar non remote control capability. • Embedding network automation through customer-initiated network augmentation is ad hoc Change • Create a view of network reliability performance and highlight the value of reliability improvements • Incorporate feeder reliability design requirements into asset replacement, customer initiated and network augmentation design process Outcome • Harness network reliability improvement opportunities in routine design process and projects • Increased flexibility and safe operations of the network	Planning and Future Networks (Network Services)	Medium Term
Review automated switchgear operation principles Current state The Evoenergy network has the following capability: • Automated switchgear: ring main switches, circuit breakers, load break switches, and reclosers • Fault location: fault passage indicators, ADMS fault location tool, and fault current from protection relays Change • Review and update Managing Network Faults (PO07262), ensuring that when and how automated switchgear should be operated remotely are appropriately addressed • Review fault location practices to utilise available tools and capability Outcome • Robust set of guidelines which allows the network to be more responsive to abnormal network conditions in a safe manner	System Operations (Planning and Future Networks)	Medium Term

Review equipment storage arrangements Current state • The nexus of operations, tools, and equipment is the Greenway Depot. • In the event of an outage or fault, supplies are moved in potentially repeated trips between the work site and the single depot, which can lead to delays in resolutions (particularly for events with widespread network damage) Changes • Review suitability of fixed and portable equipment / spares arrangements for incident response. • Continue to identify and assess the value of any innovation opportunities (e.g., deploy temporary shipping containers containing spares in close proximity to concentrations of localised network damage) Outcome • Changes to equipment storage (if any) and business justification are defined.	Asset Standards (Network Services)	Short Term
Trial and evaluate technology Current state • Some trials (such as demand management for load shedding management, Distribution Fault Analysers for fault prevention) have occurred in this regulatory period • Distribution fault analysers have been trialled on the underground network to investigate ability to prevent faults through early detection of potential failures. • Evoenergy has the capability of advanced functions such as load flow, state estimation, and Fault Location Isolation and Restoration (FLISR), but has not utilised their full potential due to gaps in network model and data. Changes • Continue trials into the use of Distribution Fault Analysers on the overhead network. • Investigate feasibility and requirements of operationalising FLISR technology. • Maintain awareness of industry trends and innovation opportunities that may be applicable to the Evoenergy network. Outcome • Opportunities to prevent faults through early detection of potential failures are explored. • Resource requirements to implement automated network recovery are defined. • Awareness of future innovation opportunities is maintained.	Planning and Future Networks (Network Services)	Long Term

14.3 Embed risk-based asset management

TABLE 11 ACTIONS RELATING TO EMBEDDING RISK-BASED ASSET MANAGEMENT

ACTION	RESPONSIBLE / ACCOUNTABLE (SUPPORTIVE)	TIMEFRAME
Review defect management processes to appropriately prioritise rectification and return to system normal Current state • Defects are recorded in multiple places (ADMS tags, Cityworks defects). • Many defects remain on the network for extended periods of time where they have no immediate impact on supply to customers. • Note that this action falls within the current scope of the Asset Condition Strategic Initiative Changes • Continue to review defect management processes through the Asset Condition Strategic Initiative. Outcome • An efficient defect management process that allows for risks to be understood, and defects to be prioritised and resolved quickly • Defect data is captured and saved in a standardised manner to allow for ease of analysis and reporting	System Operations (Network Services)	Short term
Uplift understanding of asset failure modes in key assets Current state • Failure modes are not optimally addressed in the asset inspection and maintenance processes • Note that this action falls within the current scope of the Asset Condition Strategic Initiative Changes • Perform Failure Modes Effects and Cause Analysis (FMECA) on key assets • Investigate benefits of restructuring Evoenergy asset hierarchy • Incorporate FMECA results and findings into asset maintenance and inspection forms Outcome • Failure modes are understood for key assets (such as padmount substations and poles) • Inspection and maintenance is focused on value-add activities	Network Services (Planning and Future Networks)	Short term

Refine asset health models to align with failure modes and improve accuracy of risk calculations. Current state • Asset health profiles primarily use age as the determining factor rather than failure modes or inspection data. • Note that this action falls within the current scope of the Asset Condition Strategic Initiative. • Existing projects such as Secondary Systems Configuration Management (SSCM) and digital substations aim to better inform asset condition through automation. Changes • Incorporate Reliability Centred Maintenance (RCM) and FMECA results into asset health models • Incorporate new asset health models into asset management. • Utilise visibility from existing Intelligent Electronic Devices (IED) to incorporate asset load utilisation, health, and status in asset management plans. Outcome • Closure of feedback loop between inspection data and risk models • More accurate asset risk models • Improved REPEX and maintenance decisions based on better asset condition information	Planning & Future Networks (Network Services, Data & Analytics)	Medium Term

14.4 Incorporate best practice vegetation management

TABLE 12 ACTIONS RELATING TO INCORPORATING BEST PRACTICE VEGETATION MANAGEMENT

ACTION	RESPONSIBLE / ACCOUNTABLE (SUPPORTIVE)	TIMEFRAME
Review clearance practices in relation to our peers Current state • Vegetation clearance work is carried out as a part of three vegetation programs, prioritised primarily through LiDAR (Light Detection and Ranging) results. • Data analysis of vegetation work is sparsely done at the end of the year Changes • Increase regularity of data analysis on vegetation programs • Review other companies' vegetation practices and list the improvements and changes that can be adopted • Explore risk-based opportunities for vegetation management improvement. • Compare and analyse the cost-benefit ratio for clearance vs other solutions such as replace bare	Vegetation	Medium Term

overhead conductor with Aerial Bundled Conductor (ABC) Outcome • List of best practice actionable improvements • Consolidated clearance data available for analysis annually • Capability to manage vegetation with alternative solutions to vegetation clearing.		
Model implications of adopting new vegetation standard Current state • Evoenergy is not currently following the ISSC3 standard for vegetation clearing. Adoption of this standard in full would likely have high costs due to the larger clearances specified. Changes • Model the benefits and costs of adopting new vegetation clearance standards which are wholly or partially aligned to ISSC3 Outcome • Business justification for adoption or non-adoption of particular clearances is well defined.	Vegetation (Planning and Future Networks)	Medium Term

14.5 Create a better outage experience

TABLE 13 ACTIONS RELATING TO CREATING A BETTER OUTAGE EXPERIENCE

ACTION	RESPONSIBLE / ACCOUNTABLE (SUPPORTIVE)	TIMEFRAME
Improve communications with customers when outages occur Current state • Customers are notified in advance for planned outages via letters and SMS program. Customers able to get information on all outages via the Evoenergy website. • Contact centre is available 24/7 to provide limited information to customers who call in. • Proactive outbound calls are made to life-support and vulnerable members of the community for planned outages. Changes • Better integration of data and information between field staff, contact centre, network controllers and the Evoenergy website and social media. • Procurement of new technology in contact centre for better tailoring our messaging.	Customer Interactions	Short Term

• Review of contact centre staff structure to optimise our ability to serve customers (such as during storms or large events). Outcome • Improved customer experience and service perception when outages and MEDs occur. • Improved consistency, frequency, and language of external communications.		
Strengthen collaboration with ACT government around community support during major incidents Current state • Evoenergy Storm Business Continuity Plan and Evoenergy Electricity Network Emergency Management Plan state the roles, responsibilities, and scope for external communication during a major storm or emergency events. Changes • Continue and refine the updated procedures around major events and incidents. Outcome • Improved service perception when major incidents occur.	Communications and Engagement	Medium Term
Streamline Planned and Reactive Works Process Current state • The Works Plan Optimisation strategic initiative is currently working to improve the planned and reactive works procedure • There is lack of communication between customer initiated and network-initiated works, leading to reduced efficiency between jobs and planned outages Changes • Investigate the optimal method for communication on planned upcoming work between Network Services and Customer Delivery Outcome • Improved outcomes for reliability at a cheaper cost • Improved planned outage experience for customers	Major Projects (Network Services, Planning and Future Networks)	Medium Term

ASSET MANAGEMENT SYSTEM

Long term impact on the asset management system from enacting this Reliability Strategy.

15. EXPECTED OUTCOMES

This Reliability Strategy has introduced a number of new concepts with implications for the asset management system. It has defined for the first time three Reliability Objectives as captured in Table 8. This enables asset portfolio strategies to look at potential changes to the management of its assets and apply a reliability perspective, asking the questions:

- will this lead to a material change in the reliability performance of our network?
- will this impact the extent of our ability to meet reliability compliance requirements? and
- is this improving our targeting of valuable projects when considering customer reliability and/or STPIS risks?

This can help asset managers to justify the creation and delivery of projects and can similarly help to support the continuation of existing work by providing a justification for the work that has line of sight through the business.

When its actions are carried out, expected asset management system outcomes include:

- A cultural shift should be taking place in Evoenergy, network reliability will be a serious consideration as part of network planning, design, and maintenance. This culture shift will be driven by the mandatory e-learning module that all staff have to complete and the monthly reliability discussions that will be facilitated by the Network Performance Team. With the increased awareness around network reliability, network data quality will become a greater priority. Accurate and improved data quality will enable other actions and initiatives to succeed and managing and maintaining reliability will become easier.
- Specific efforts to improve SAIDI will include reviewing and improving Evoenergy's automated switchgear principles, standard feeder design, and equipment storage locations. These changes aim to help us plan smarter, allowing us to respond quicker to incidents and outages. To further improve our response capabilities, we will also be trialling new technologies in the network such as FLISR, VPPs etc.
- The Evoenergy asset management framework has already started adopting a risk-based asset management methodology. This is expected to further increase and make almost all asset management decisions on the basis of monetised risk. After systematically mapping out failure modes of all our assets and reviewing and improving the defect management process, we will have a reasonably accurate understanding of the condition of our assets and as such will be able to make efficient and targeted investments which will improve our reliability performance. We will also be able to work our assets harder and be better at maintenance as well.
- There is a greater focus on reliability when planning and executing vegetation clearing activities. Vegetation decisions are based on vegetation growth and fault history data alongside LiDAR results. Vegetation clearance requirements will have been reviewed to better suit Evoenergy's needs which will be resulting in fewer vegetation caused outages (note: this may also mean that we may be performing a greater volume of vegetation clearing activities in our Program of Work).
- Customers will have improved and more up to date information ready to view on the Evoenergy website. Customers aiming to contact Evoenergy for information on outages will have a tailored

experience as a result of new machine learning technologies used in and updated structure of the contact centre.

16. FUTURE ITERATIONS

This section captures strategic challenges that we elected not to focus on in this iteration but may be considered as topics in future versions of the Network Reliability Strategy.

Much of the value of strategy comes from taking a highly complex real-world situation and identifying and aligning organisational resources towards improving the most important levers. In doing so, the simplification process requires challenges outside of the core focus areas to receive limited attention from a strategic guidance perspective. Nevertheless, these challenges can be significant and there may be value in documenting them, so they are not lost when it comes time to refocus efforts. The challenges identified in this section are not intended to be exhaustive (or even a balanced organisational perspective), but rather to document potentially important topics that happened to reveal themselves during development of this strategy iteration. These challenges include:

1. Further analysis into worst performing parts of the network. The data on root causes for poor performance need to be available for this type of analysis. This would also help us to paint a better picture of the worst served customers in our network.
2. Study the correlation between frequency of vegetation clearance activities against feeders which have the greatest amount of vegetation related outages.
3. In depth planned outage (which don't feature in KPIs) reporting. A deeper dive into planned outage performance could benefit works planning processes.
4. Proactive reporting and analysis of MAIFIe. We aim to begin to elevate the importance and management of MAIFIe in future iterations of the strategy.
5. Investigate reliability ramifications of electrification including the transition from gas to electricity and uptake of Electric Vehicles (EV). With electrification, there is elevated risk of overloading assets resulting in unplanned outages.
6. In a changing climate, create greater alignment and understanding between network reliability, sustainability and resilience strategies.

GOVERNANCE

Our approach to implementing, maintaining, and updating the Network Reliability Strategy.

17. ROLES AND RESPONSIBILITIES

The Strategy and Operations group is responsible for the development and maintenance of this strategy. Specific roles for strategic initiatives are indicated next to the Actions where they are defined in Section 14.

18. REPORTING

Reporting on Strategy progress will occur through monthly Strategy & Operations updates, with inputs gathered from action owners and coordinated by Planning & Future Networks.

19. REVIEW CYCLES

In addition to ongoing performance monitoring and minor annual updates, this strategy requires a major revision every three years or when triggered by external changes. Examples of triggers that would result in the need for revision are:

- Changes to the organisational structure
- Regulatory or legislative changes (both jurisdictional and national)
- Changes to business risk and valuation tools such as the value framework and network risk register

The responsibility for identifying a trigger for review and undertaking the review sits with the Strategy and Operations group.

The strategy is expected to undergo ongoing minor updates annually and during implementation as actions are completed and new information is obtained. Table 14 provides guidance around the classifications of major and minor reviews.

TABLE 14 - REVIEW CYCLE CATEGORIES

Update Category	Detail
Minor	Examples of minor updates involve refreshing data sources, updating administrative items or amending/adding actions.
Major	Examples of major updates include revision of QoS objectives, or any updates that are initiated by the triggers outlined above.

20. CHANGE MANAGEMENT

Change management should occur in accordance with the Evoenergy Change Management Framework (PO0777).

21. VERSION CONTROL

VERSION	DETAILS	APPROVED BY	DATE
0.1	Initial draft for review	N/A	07/10/2022
1.0	First publication	Group Manager, Strategy & Operations	31/10/2022

22. DOCUMENT CONTROL

DOCUMENT OWNER	PUBLISHED DATE	REVIEW DATE
Group Manager, Strategy & Operations	01/11/2022	01/11/2024

APPENDIX A – CONSUMER PROTECTION CODE

Consumer Protection Code, Schedule 2 NERL retailer, Gas Distributor and Electricity Distributor Guaranteed Service levels. Table 15 outlines GSLs applicable to the network reliability strategy.

TABLE 15 - CODE GSLS

#	PARAMETER	GSL THRESHOLD	GSL REBATE PAYMENT
GSL-E5	Duration of interruptions (single event)	An Unplanned sustained interruption lasts for 12 hours or longer	$80
GSL-E6	Total duration of interruptions (cumulative)	Total cumulative hours of Unplanned sustained interruptions experienced by Customer in a financial year is equal to or exceeds: Level 1 – 20 hours Level 2 – 30 hours Level 3 – 60 hours	Level 1 - $100 Level 2 - $150 Level 3 - $300
GSL-E7	Frequency of interruptions	Customer experiences more than 9 Unplanned sustained interruptions in a financial year	$80
GSL-E8	Response time to notification of a fault, problem or concern that affects the premises of the Customer	Utility fails to Respond: 1. if the notification relates to damage to, or a fault or problem with the Network which is likely to affect public health, or is causing, or has the potential to case, substantial damage or harm to a person or property, Respond as soon as practicable and in any event within six hours; or 2. In all other cases within 48 hours; and 3. Resolve the problem or concern within the time specified in the response.	$60

APPENDIX B – PERFORMANCE DATA

Unplanned outage performance

SAIDI

TABLE 16 - UNPLANNED SAIDI PERFORMANCE AGAINST AER STPIS TARGETS

SAIDI	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Urban network							
Target	31.91	31.91	30.32	30.32	32.524	32.524	32.524
Actual	35.73	39.11	30.38	33.19	29.32	31.76	47.33
Variance	3.82	7.2	0.06	2.87	3.204	0.764	14.806
Short rural network							
Target	49.32	49.32	46.86	46.86	35.056	35.056	35.056
Actual	30.25	42.74	34.9	36.58	46.63	57.30	51.49
Variance	19.07	6.58	11.96	10.28	11.574	22.244	16.434

TABLE 17 – PLANNED AND UNPLANNED SAIDI PERFORMANCE AGAINST UTR TARGETS

SAIDI	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Whole network						
Target		91	91	91	91	91
Actual	83.74	99.97	92.53	81.7	82.04	164.69
Variance		-8.97	-1.53	9.3	8.96	-73.69

SAIFI

TABLE 18 - UNPLANNED SAIFI PERFORMANCE AGAINST AER STPIS TARGETS

SAIFI	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Urban network							
Target	0.616	0.616	0.585	0.585	0.565	0.565	0.565
Actual	0.682	0.669	0.458	0.601	0.445	0.462	0.822
Variance	0.066	0.053	0.127	0.016	0.12	0.103	0.257
Short rural network							
Target	0.942	0.942	0.895	0.895	0.591	0.591	0.591
Actual	0.616	0.852	0.576	0.6	0.586	0.723	0.845
Variance	0.326	0.09	0.319	0.295	0.005	0.132	0.254

TABLE 19 – PLANNED AND UNPLANNED SAIFI PERFORMANCE AGAINST UTR TARGETS

SAIFI	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Whole network						
Target		1.2	1.2	1.2	1.2	1.2
Actual	0.902	0.79	0.95	0.71	0.745	1.203
Variance		0.41	0.25	0.49	0.455	-0.003

CAIDI

TABLE 20 – OVERALL CAIDI PERFORMANCE AGAINST UTR TARGETS

CAIDI	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Whole network						
Target		74.6	74.6	74.6	74.6	74.6
Actual	265.9	126.7	96.9	114.3	110.1	136.9
Variance		-52.1	-22.3	-39.7	-35.5	-62.3

STPIS

TABLE 21 – STPIS BENEFIT BASED ON REPORTED VALUES

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Reliability							
SAIDI Urban	-$368,299	-$689,180	-$5,264	-$292,174	$302,550	$74,273	-$1,484,939
SAIDI Short Rural	$218,115	$74,664	$124,446	$124,274	-$545,638	-$1,079,992	-$822,112
SAIDI Total	-$150,184	-$614,516	$119,183	-$167,900	-$243,088	-$1,005,719	-$2,307,051
SAIFI Urban	-$342,526	-$271,095	$596,376	-$89,720	$436,777	$385,443	-$989,998
SAIFI Short Rural	$212,252	$58,282	$188,813	$202,640	$9,193.68	-$253,670	-$502,695
SAIFI Total	-$130,274	-$212,813	$785,190	$112,920	$445,970	$131,772	-$1,492,694
Customer Service							
Calls answered in 30s	-$34,823	$28,991	$119,795	$95,880	-$2,722	-$330,501	-$354,279
Grand Total	-$315,280	-$798,338	$1,024,167	$40,899	$200,160	-$1,204,448	-$4,154,024

GSL

From 2020/21, GSLs are paid automatically to all eligible customers. Table 22 details GSLs paid to customers.

TABLE 22 GSL REBATES PAID

	2020/21	2021/22
Guaranteed Service Level		
GSL-E5	$27,920	$70,800
GSL-E6	$22,650	$32,400
GSL-E7	$0	$0
GSL-E8	$120	$300
Total	**$50,690**	**$103,500**

Planned outage performance

TABLE 23 PLANNED OUTAGE RELIABILITY

		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Reliability								
SAIDI	Urban	40.49	44.80	64.90	42.20	32.40	42.78	34.37
	Short Rural	26.36	39.70	44.50	40.30	35.30	30.41	39.68
SAIFI	Urban	0.190	0.210	0.200	0.198	0.161	0.216	0.203
	Short Rural	0.109	0.190	0.200	0.180	0.181	0.167	0.224
CAIDI	Urban	208.4	208.6	232.5	210.7	192.4	196.6	170.5
	Short Rural	242.4	209.1	201.9	205	192.3	181.7	174.9