Jemena Electricity Networks (Vic) Ltd

JEN – RIN – Support – Outage Preparedness and Response – Business Case – 20250131

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JEN – RIN – Support – Outage Preparedness and Response – Business Case – 20250131

Preface

This business case intends to provide self-supportive, rigorous documentation to substantiate the need and prudency of investments for both Jemena and its customers. The business case should assist in determining the strengths and weaknesses of a proposal, in comparison with its alternatives, systematically and objectively. The business case seeks endorsement and funding for the project from the appropriate Jemena stakeholders and approval from the relevant delegated financial authority.

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Abbreviations

AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
BAU	Business as Usual
CISRO	Commonwealth Scientific and Industrial Research Organisation
DNSPs	Distribution Network Service Providers
EDCoP	Electricity Distribution Code of Practice
GSL	Guaranteed Service Level
JEN	Jemena Electricity Networks
LV	Low Voltage
MED	Major Event Day
MERV	Mobile Emergency Response Vehicle
NEL	National Electricity Law
NEO	National Electricity Objectives
NER	National Electricity Rules
RCP	Regulatory Control Period
RIN	Regulatory Information Notice
SAIDI	System Average Interruption Duration Index
STPIS	Service Target Performance Incentive Scheme

Overview

This business case has been prepared by Jemena Electricity Network Vic Ltd. (**JEN**) to support forecast expenditure for the 2026-31 regulatory control period.

This business case seeks to support expenditure which will be used to enhance JEN's network resilience through investments in:

1. Uplifting JEN's people and processes to meet the expectations of our customers and the Victorian Government.
2. Procuring a Mobile Emergency Response Vehicle (**MERV**) and two low voltage generators to enable Jemena to provide support to customers during an outage.

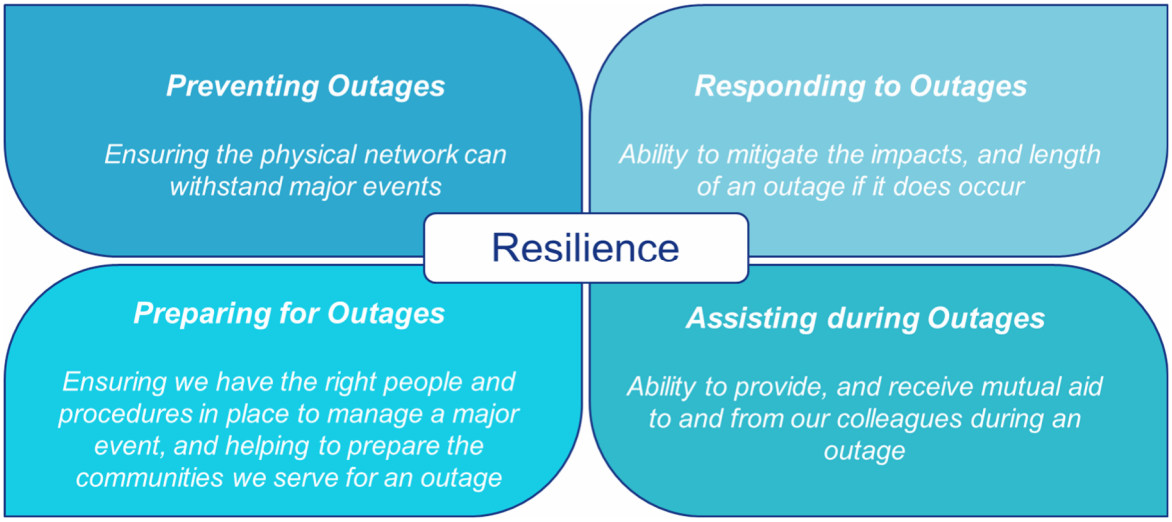
Details of interrelated ICT expenditure can be found in "*JEN – RIN – 4.4.1. ICT Investment Brief – Outage Preparedness and Response*"

1. Introduction

In the face of increasing climate risk, JEN is taking a holistic view on how best to bolster resilience across its network. This means incorporating resilience initiatives into our broader program of work and business as usual activities to ensure we have a network fit to meet the challenges of the energy transition, and the expectations of our customers. This will also ensure work delivery synergies, providing confidence that the expenditure is prudent and efficient.

This holistic view of resilience has led to JEN developing four key resilience tenets. Three of these tenets, *Preparing for Outages, Responding to Outages*, and *Assisting during Outages* are addressed in this business case. JEN's four resilience tenets are provided in Figure 1-1 below.

Figure 1-1 JEN's key resilience tenets



1.1 Identified need

This business case is aimed at addressing two key needs:

1. To meet JEN's requirements as a prudent and responsible DNSP in the face of increasing impacts of climate change on JEN's network by supporting customers, communities, and other stakeholders during major outage events which are forecasted to increase in intensity and frequency and reducing the need for costly network hardening.

2. To meet the high-level recommendations, stemming from Victorian Government's Expert Panel Network Outage Review (**2024 Review**) and the Victorian Government's Expert Panel's Electricity Distribution Network Resilience Review (**2022 Review**)

1.1.1 Increasing impacts of climate change on JEN's network

JEN's network is increasingly exposed to impacts from climate change events. In 2023 JEN, along with our Victorian DNSP peers, commissioned AECOM to develop a statewide Climate Change study. The purpose of this report was to assess the likely impact of the changing climate on the electricity network assets and to identify areas which could be classified as 'at risk.' The study found that the main hazards and exposure risk for JEN's network are as provided in Table 1- JEN's exposure to hazards[1].

[1] AECOM – Network Resilience Study Findings Report (2024); AECOM - Climate Change Study for Victorian Electricity Distribution Businesses – Phase 1 (2023).

Table 1-1 JEN's exposure to hazards

Hazard	Exposure risks to Jemena's network
Extreme rainfall (flooding) (changes in heavy rainfall events, existing flood hazard area)	Projected changes in heavy rainfall are greatest at Sunbury and Gisborne South. In addition to parts of Sunbury, areas of asset exposure are spread across the southern half of the distribution area, example locations include West Footscray, Hadfield and Heidelberg West. Approximately 5% of JEN's electricity distribution lines (and associated assets), 4% of distribution substations and 10% of zone substations intersect with the existing flood overlays across the distribution area.
Bushfires (existing bushfire management overlay)	Areas of greatest asset exposure include Gisborne South, region surrounding Gisborne South and Woodlands Historic Park. Approximately <1% of distribution lines and 1% of distribution substations intersect with the bushfire management overlays across the distribution area.
Extreme heat (heatwaves) (Days over 35°C and/ or days over 40°C)	Frequency and severity of extreme heat days are relatively uniform across the distribution area. Assets are similarly exposed across JEN's distribution area with the frequency and severity of extreme heat events projected to be relatively uniform. The projections do not consider the potential for higher ambient temperatures due to the urban heat island effect
Extreme wind (Tree extent, wind gust >100 km/h)	Areas of higher exposure as indicated by the vegetation overlay and the concentration of assets include the region surrounding Gisborne South, and in proximity to Merri Creek and Darebin Creek. Approximately 3% of distribution lines intersect with the vegetation overlay across the distribution area.
Sea level rise (Storm surge flooding)	Areas of greater asset exposure include Williamstown. Less than 1% of distribution lines (depending on the voltage levels) and distribution substations intersect with areas that are projected to be inundated by 2040 and areas that projected to be inundated by 2070. Approximately 3% of zone substations intersect with areas that are projected to be inundated by 2070.

The findings of this report are echoed by CSIRO's Victoria Climate Projections which provides an overarching assessment of the states future weather conditions.[2] This report states that Victoria's temperature is expected to continue to increase, with maximum and minimum temperatures increasing over this century. Victoria is projected to receive less overall total rainfall in the future, however extreme rainfall events are projected to increase with intensity and/or frequency of past 1-in-20-year extreme daily rainfall is expected to increase.[3]

Overall, CISRO modelling predicts extreme weather events will become more intense, with high variability as to when and where they will occur. Sea level rise is also projected with *high confidence.*

[2] Victorian Government, 2019 - Victoria's Climate Science Report 2019

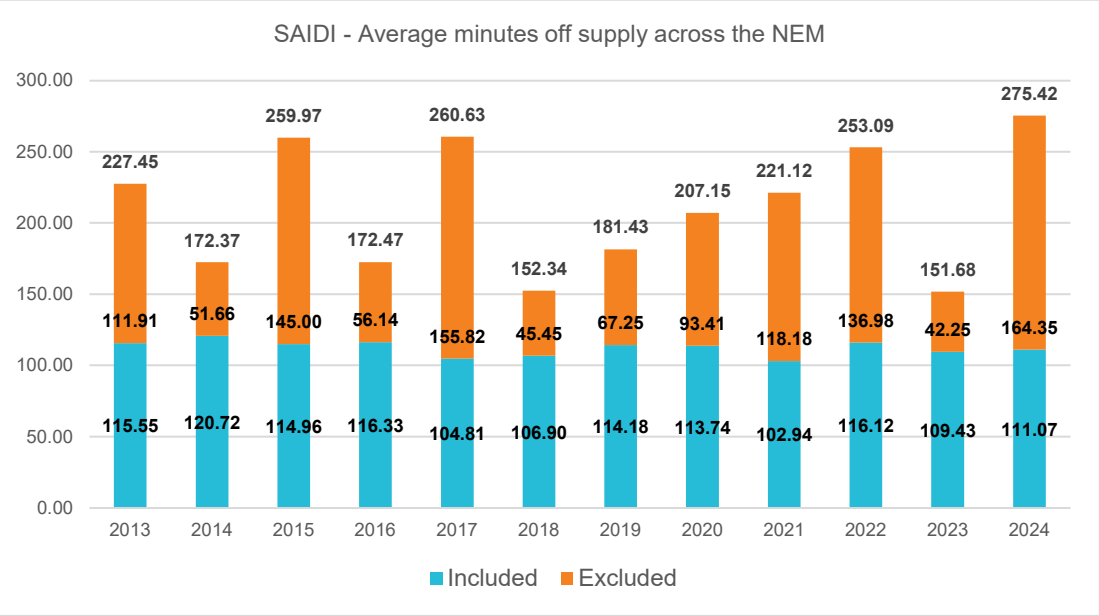
[3] CSIRO, 2019 - Victorian Climate Projections 2019: Technical Report

Figure 1-2 Summary of Victorian climate change projections

Examining AER Regulatory Information Notice (**RIN**) data illustrates the effect of these events on distribution networks. System Average Interruption Duration Index (**SAIDI**) measures the average cumulative outages duration for each customer served across the network. Distribution Network Service Providers (**DNSPs)** are assessed against this metric under the AER's Service Target Performance Incentive Scheme (**STPIS**). This scheme allows network's to exclude outages which occur on a Major Event Day (**MED**)[4] or fall under one of the specified exclusion categories as these are deemed to be outside of the control of the DNSP.

[4] A major event day is defined as an event where the SAIDI is greater than 2.5 standard deviations from the mean SAIDI of the log normal distribution of five regulatory years' SAIDI data.

Figure 1-3 SAIDI - Average minutes of supply across the NEM



Source: AER RIN Data

Over the period assessed, while the duration of outages included under the STPIS has generally fallen, the *total* duration of outages has not. This is due to an increase in the duration of outages which are excluded from the STPIS. Due to the changing climate conditions discussed above, historic averages may not be reflective of future trends however it is reasonable to assume the trends highlighted in Figure above, will continue if not be exacerbated.

Extreme weather damages and disrupts the electricity network and can result in long duration outages. While investments can be made to 'harden' the network to prevent this, it is difficult to pinpoint where exactly each event will take place, meaning there is the potential that the investment will be underutilised or another area of the network will be affected by a storm, creating a 'risk of paying twice'. Historically, this risk has been managed by allowing networks to recoup the costs of recovering from these long-duration outages after the event has occurred through a cost-pass through mechanism. While this method removes the 'risk of paying twice', it does not alleviate the risk of the outage occurring.

1.1.2 New Regulatory Obligations

The effect of these outages on customers has been highlighted by The Victorian Government's 2022 and 2024 Expert Panel reviews, which assessed the resilience of electricity networks across the state, and provided a number of recommendations to bolster this. The Electricity Distribution Network Resilience Review (**2022 Review**)[5] was initiated following severe storms across the state in June and October 2021. This was then followed by the Network Outage Review (**2024 Review**)[6], commissioned in response to the February 2024 storms.

Findings from the 2022 Network Resilience Review supported a rule change request, submitted by the Victorian Government to the Australian Energy Market Commission (**AEMC**) in October 2024. The rule change would include distribution network resilience under the National Electricity Rules **(NER)** and create a positive obligation for DNSPs to consider climate resilience, when preparing price review proposals. Submissions to the AEMC's Consultation Paper included widespread support for the proposal among DNSPs, industry bodies, and the AER, and a final determination is expected in May 2025.[7]

[5] DECCA, Electricity Distribution Network Resilience Review, 2022 | Electricity Distribution Network Resilience Review

[6] DECCA, Network Outage Review, 2024 | Network Outage Review

[7] Victorian Government – Including distribution network resilience in the National Electricity Rules Rule Change, 2024

In addition to this this rule change request, following Victoria's 2024 February storms, the Victorian Government convened an Expert Panel ('the Panel') Network Outage Review ('the 2024 Review').[8] This weather event caused significant disruptions across Victoria, affecting over 531,000 customers at the event's peak. Although the JEN system did not experience prolonged outages to the same extent as other DNSPs, the increasing likelihood of more severe and frequent weather events requires all DNSPs, including JEN, to address the recommendations outlined in the 2024 Review.

Following significant engagement with effected communities the Panel emphasised the need for improved operational resilience, emergency planning, and customer engagement during prolonged power outages. Recommendations 2 and 16 provide for changes relating to planning and coordination, and the formalisation of mutual aid, respectively. These Recommendations, and relevant Observations are provided below in Boxes 1-3 below.

[8] Victorian Government - February 2024 Storm and Power Outage Event Independent Review of Transmission and Distribution Businesses Operational Response Final Report (2024).

Box 1: Recommendation 2

Distribution businesses annually attest to the Minister for Energy and Resources as to the currency, completeness, maturity and implementation ability of their emergency risk management practices with regard to maintaining electricity supply, inclusive of assets, people, resources, governance, systems, processes and arrangements with contractors.

The attestation should include specific reference to, but not limited to:

- ***Planning and coordination***

1. Participation in Regional Emergency Management Planning Committees and Municipal Emergency Management Planning Committees to support response planning for areas at high risk of prolonged power outages.

Communication and engagement with customers and community

2. Application of best practice communication and engagement approaches before, during and after prolonged power outages including:
    a. Inclusive design of customer service systems such as outage trackers and interactive voice response (IVR) systems with regular monitoring, evaluation, and feedback from customers with lived experience of vulnerability.
    b. Capacity of customer service systems to meet surge demand and back-up continuity plans if these services fail.
    c. Capability to provide on-the-ground support to communities during emergencies.

Impact assessment and make-safe actions

3. Adoption and operation of State Emergency Management Priorities including ‘make safe’.
4. Ability to undertake rapid impact assessment at a network-wide scale during an event including integration of:
    a. mutual aid resources and state and regional emergency response teams
    b. reports of damaged infrastructure by emergency services personnel and community members
    c. consistent information flow through to the incident response and restoration planning teams
5. Processes to report timely and accurate information about status to restore services and confirm ‘safe’ infrastructure to emergency services and communities.

Restoration planning, prioritisation and operations

6. Capability and capacity to achieve effective management of events and timely restoration of customers.
7. Review of emergency management practices including but not limited to review of risks and risk controls and testing of revised controls following all major events and exercises.

Temporary generation for key community assets

8. Capacity and capability to connect main streets and key community assets in areas at high risk of prolonged power outages to temporary generation within 12 hours of an event. Information on location of temporary generation sites, network connection points and key access routes should be included in Regional Emergency Management Planning Committees and Municipal Emergency Management Planning Committees.

Box 2: Recommendation 16

DEECA in conjunction with distribution businesses formalise mutual aid arrangements between all businesses to support effective management of prolonged power outage events to reduce time to restore outcomes for customers. Arrangements should include early consideration of mutual aid when a prolonged power outage event is likely to last more than 48 hours. This recommendation should be implemented by December 2024.

Observation 11 provides more context for the implementation of Recommendation 16.

Box 3: Observation 11
Implementation of mutual aid arrangements should remove barriers to rapid supply, deployment, absorption and effective use of mutual aid by all businesses to support timely restoration of customers through:

a) establishment of guidelines and service level agreements between businesses
b) review of organisational processes, systems, enabling technologies and resourcing
c) exercising network-wide events with incorporation of mutual aid with outage scenarios that stress test control room and restoration planning operations and capacity
d) cross walk analysis of role to role (role familiarisation between businesses)
e) work system analysis
f) crew make up including supervisory support for crews assisting other networks
g) near real-time training
h) expansion to include non-energy specific personnel resources, such as emergency services, other volunteer or manpower services organisations

By enhancing its preparation and response capabilities, JEN can not only ensure compliance with state mandates but also better understand the needs of vulnerable customers, and how best to respond. The proposed operational expenditure increases are essential to covering the uplift needed to address these areas, ensuring JEN remains resilient, responsive, and in full compliance with the Victorian Government's evolving requirements.

The 2024 storm exposed the importance of understanding customers' risk exposure during outages, particularly vulnerable communities. The 2024 Review incorporated feedback from customers who experienced hardship during the prolonged outages, emphasising the need for local-level risk profiling and more robust and tailored customer service systems. It is essential that JEN understands who its high-risk cohorts and customers are, so that tailored responses can be undertaken to meet customer needs in the event of an outage.

Although JEN's customers' were not as significantly impacted by the February 2024 storms, the level of support they expect from JEN is in line with the Panel's findings (see section 2 Customer Engagement for details), which further underscores the need to invest in these capabilities.

1.1.3 How the identified need is necessitating additional expenditure

Expenditure is required to provide support to JEN customers impacted by long duration outages caused by increasing climate change events.

The forecasted impacts and trends as a result of climate change illustrate that the hazards JEN is exposed to will continue to be diverse and uncertain, highlighting the need for JEN to take a holistic and balanced approach to its response to outages. The frequency and intensity of long duration outages will continue to increase, and consequently, there is a need for JEN to be able to provide more support to customers in the instance of these outages to maintain and improve performance during these events.

Given the uncertainty around when and where adverse weather events will happen, JEN needs to be responsive and adaptable to how support for customers. Customers, particularly residential customers, are increasingly reliant on the electricity network due to both the proliferation of devices and Government policies that encourage electrification – this further necessitates JEN to be prepared to respond to potential long duration outages.

This creates the need to invest in operational capacity in order to ensure staff are able to provide on-the-ground support to communities during an emergency. The proposed capability will support the rapid deployment of temporary generation and support will enhance a community's resilience and support other activities fostering improved wellbeing.

Expenditure is required to enhance JEN's emergency management and arrangements for mutual aid in line with the Victorian Government's mandate.

To meet the recommendations from the 2024 Review and the requirements of 2024 resilience rule change request, JEN's emergency management capabilities, including planning, coordination, and communication with at-risk communities must be improved. The proposed expenditure increases will strengthen JEN's emergency preparedness, ensuring continuity of service and improved restoration times during prolonged outages. JEN will also need to implement the mutual aid arrangements stipulated in the Review, a proportion of the proposed operation expenditure will facilitate this.

2. Customer Engagement

2.1 Our approach to engagement

JEN implemented an extensive customer engagement program in order to inform our 2026-31 regulatory proposal. As part of our engagement for the 2026-31 revenue determination process, we have tripled engagement hours and have aimed to capture the views of customers whose voices, without specialist and purposeful engagement, would not be heard. Our engagement strategy is underpinned by energy industry best practices, our engagement values and principles, and lessons learned from developing our past regulatory proposals. Our customer engagement objectives are:

- Build a deep understanding of our customers and their views – this involves understanding their needs, views and expectations.
- Shape our regulatory proposal based of customers' views – this involves providing our customers with unbiased and easy-to-understand information that they can engage with.
- Support growth of JEN's customer-focus culture – this involves bringing in our Board, Executive Team, Senior Managers and team members to play an active role in the engagement process.
- Build customer trust in our regulatory proposals – this involves engaging with customers throughout the entire reset process, giving them access and opportunities to provide input and feedback to show them how this is used in JEN's planning.

We are committed to fostering a customer-centric approach that meets the AER Better Resets guidelines.[9] This will ensure that our regulatory proposal is transparent, inclusive, and responsive to the needs of our stakeholders.[10]

2.2 What our customers said

Early engagement with our customers identified network resilience as a top priority for the majority of customer groups.[11] Following the publication of our Draft Plan, which contained our early thinking on resilience, and some estimated costs to deliver these initiatives. JEN conducted a 'recall day' to ensure our customers were fully informed on the climate risks to the network, our proposed initiatives, and the associate costs. This also gave customers the opportunities to ask questions and seek clarification. This engagement gave JEN the opportunity to understand the nuance of our customers' views on the topic.

2.2.1 Customer Recall Day

In August 2024, following publication of JEN's Resilience Addendum, JEN conducted a 'trade-offs' discussion, during which customers were presented with four resilience packages. Each with different costs and customer outcomes attached. Following the session 91% of customers supported the level of expenditure proposed by this business case (or higher).[12] This option was favoured as customers felt it addresses concerns around fairness and increasing risk, while acknowledging the inherent uncertainties created by the current operating environment.

Some quotes to elaborate customers' preference for a balanced investment approach are provided below which illustrate the desire to balance investment in the face of uncertainty, and that a balanced approach is deemed to be more equitable.

[9] AER, Better Resets Handbook – Towards Consumer Centric Network Proposals, 2021.

[10] JEN, '*Att 02-24 – Engagement Strategy*', 2025

[11] JEN, *'Att 02-01 - Customer Engagement'*, 2025

[12] JEN, MosaicLab, '*Att 02-21 Draft Plan Recall Day*', 2024

Given we are dealing with unknown situations (when, where, how, etc.) it makes sense to future proof in a way that potentially everyone can benefit, not just a few, and still be economically reasonable – Customer from the Recall Day

Fair equitable for all customers. Focus on important aspects of resilience. In time we may get better at this and re-evaluate investment requirements - Customer from the Recall Day

2.2.2 Costed Options Deep Dive

Following on from this session, JEN further refined the scope and cost estimates associated with this project and presented the resulting residential bill impacts to our customers during an October 2024 costed options deep dive session. This session informed customers on how we further refined our resilience to their feedback and reinforced the 'risk of paying twice', which is an inherent part of investments in network assets to increase resilience. Customers viewed investment to bolster outage preparedness and response, as warranted and they supported the expenditure on this. Customers considered investing in these systems and capabilities as "balanced and pragmatic" and stated, "these are all useful things to spend money on".[13]

[13] JEN, MosaicLab, *Att 02-22 Customer Deep Dive Outcomes* –Public

3. Business case objectives

In line with the National Electricity Objective (**NEO**), JEN's investment decisions aim to maximise the net present value to electricity consumers.

This business case is aimed at enhancing the resilience of JEN's network through improved emergency response processes, including enhanced customer support and service before and during an outage.

3.1 Regulatory considerations

During the current regulatory control period, The Victorian Government has commissioned Expert Panels to conduct two reviews, assessing the resilience of electricity networks across the state. The Electricity Distribution Network Resilience Review (**2022 Review**)[14] was initiated following severe storms across the state in June and October 2021. This was then followed by the Network Outage Review (**2024 Review**)[15], commissioned in response to the February 2024 storms.

3.1.1 Alignment with the Victorian Government's Network Resilience Reviews

2022 Network Resilience Review

The 2022 Review focused on preparedness for, and response to, prolonged power outages caused extreme weather events, it also considered ways to strengthen community resilience in the face of prolonged power outages. JEN's proposed investments align with several key recommendations made by the Expert Panel:

- Support municipal and regional emergency planning: a proportion on the operational expenditure considered will ensure the labour hours required to actively engage with Local Councils and other responsible parties in advance of the outage.
- Enhanced response capabilities: The implementation of a Mobile Emergency Response Vehicle (MERV) directly addresses this recommendation by providing immediate on-the-ground support during emergencies, enhancing JEN's ability to respond quickly and effectively to outages.
- Backup generation: JEN is proposing to invest in mobile generators, which will be used to power 'community hubs' if an outage were to occur.

2024 Network Outage Review

The 2024 Review focussed on operational arrangements and preparedness to respond to extreme weather events. Jemena's proposed investments align with several key points:

- Mutual aid agreements: JEN is proposing to formalise mutual aid arrangements between other DNSPs before outages occur to facilitate quicker responses and reconnections during emergencies.
- Planning and coordination: When developing this business case, JEN assumed the labour input needed to meet the 'support municipal and regional emergency planning' requirement arising from the 2022 Review could also be used to meet this requirement.
- Temporary generation for key community assets: The mobile generators referenced above will enable JEN to meet this requirement.

[14] DECCA, Electricity Distribution Network Resilience Review, 2022 | Electricity Distribution Network Resilience Review

[15] DECCA, Network Outage Review, 2024 | Network Outage Review

- Communication and engagement with customers and community: Access to a MERV will provide a channel for on the ground communication.

By addressing these key recommendations, JEN's proposed investments demonstrate a commitment to enhancing network resilience, improving emergency response capabilities, and meeting customer expectations during extreme weather events.

3.2 Alignment with the National Electricity Objective (NEO) and National Electricity Rules (NER)

JEN's investment decisions are fundamentally guided by the NEO, which prioritises the long-term interests of consumers by ensuring reliability and security of supply. While resilience is not explicitly mentioned in the NEO or NER,[16] investing in network resilience will ensure networks can maintain reliability, despite increasing climate risks.[17] In addition to considering the AER's specific requirements needed to justify resilience expenditure, JEN has also considered the capital expenditure objectives outlined in the National Electricity Rules (NER), particularly clause 6.5.7, guide JEN in evaluating the necessity and efficiency of its investments: JEN's:

a) *A building block proposal must include the total forecast capital expenditure for the relevant regulatory control period which the Distribution Network Service Provider considers is required in order to achieve each of the following (the capital expenditure objectives):*

   (1) *Meet or manage the expected demand for standard control services over that period*

   (2) *Comply with all applicable regulatory obligations or requirements associated with the provision of standard control services*

   (3) *To the extent that there is no applicable regulatory obligation or requirement in relation to:*

      (i) *The quality, reliability or security of supply of standard control services; or*

      (ii) *The reliability or security of the distribution system through the supply of standard control services,*

   to the relevant extent:

      (iii) *Maintain the quality, reliability and security of supply of standard control services*

      (iv) *Maintain the reliability and security of the distribution system through the supply of standard control services.*

   (4) *Maintain the safety of the distribution system through the supply of standard control services.*

3.3 Alignment with Victorian Electricity Distribution Code of Practice (EDCoP)

Additionally, the Victorian Electricity Distribution Code of Practice (**EDCoP**) sets out provisions relevant to JEN's planning, design, maintenance, and operation of its network Section 13.3 (Reliability of Supply):

Section 13.3 – Reliability of Supply

A distributor must use best endeavours to meet targets determined by the AER in the current distribution determination and targets published under clause 13.2.1 and otherwise meet reasonable customer expectations

[16] The AEMC are currently reviewing a rule change request made by the Victorian Government, to explicitly include distribution network resilience in the NER. Further details on the rule change request can be found here: Including distribution network resilience in the National Electricity Rules | AEMC

[17] AER, *Network Resilience; Note on Key Issues*, 2022

of reliability of supply.

3.4 Alignment with the AER's Network Resilience; Note on Key Issues

JEN's proposed investments align with the AER's note on network resilience key issues, which sets out three key criteria which networks must demonstrate in order to justify resilience expenditure. Further details are included in Table 3-1 below.

Table 3-1 How the expectations in AER's Note on resilience are met by this business case

Expectation from AER Note on Network Resilience Key Issues	How this business case meets the expectation
A causal relationship between the proposed expenditure and the expected increase in the extreme weather events	The business case identifies the risks associated with the increased intensity and frequency of extreme weather events, including the probability of exposure to risk. Climate impact modelling has highlighted the diverse nature of risks face by JEN's network – both geographically and the type of weather event. The expenditure proposed in section 4 has regard to the inherent uncertainties in forecasting the timing, location, scale and impacts of extreme weather events. By bolstering our response capabilities and ensuring JEN's people and internal processes are prepared for an outage event JEN can maintain customer service levels across the network, without creating a 'risk of paying twice'.
The proposed expenditure is required to maintain service levels and is based on the option that likely achieves the greatest net benefit of the feasible options considered	The business case proposes uplifting people and processes, and procuring mobile assets to ensure JEN's level of customer service is maintained in the face of an increasing risk of long-duration outages.
Consumers have been fully informed of different resilience expenditure options	As noted in section 2, JEN has engaged extensively with customers around the topic of resilience. This engagement with customers has been undertaken in line with the AER's Better Resets Handbook. Over the course of this engagement, JEN and our customers have discussed; – the climate risks facing JEN's network, – the experiences of communities who have faced long-duration outages (as captured by the 2022 and 2024 Review) and the resulting Expert Panel recommendations – the option to, and resulting cost impacts of hardening the network – the inherent uncertainties recommendations around these network investments and 'the risk of paying twice' or the potential for 'mismatched investment' – the annual bill impacts of the proposed investment for a typical residential customers This engagement was held across 2023 – 2024, after each conversation JEN incorporated customer feedback and refined our thinking. The final session established willingness-to-pay for the initiatives included in this business case.

3.5 Interactions with incentive schemes

Service Target Performance Incentive Scheme

The purpose of the AER's STPIS is to provide incentives for DNSPs to maintain and improve service performance, to the extent that customers are willing to pay for such improvements.[18] The scheme is comprised of reliability of supply, quality of supply, customer service and guaranteed service level **(GSL)** components. These metrics are used by the AER to determine the service standards financial reward or penalty component of a distribution determination.

In determining the STPIS reward or penalty, the AER excludes a number of outages, beyond the control of the network, including MEDs. [19] As the temporary generators are intended to power a single community asset during MEDs**,** rather than groups of customers, their impact on the STPIS would be marginal at most.

Customer Service Incentive Scheme (CSIS)

The intention of the CSIS is to provide an incentive for DNSPs to deliver a level of customer service which aligns with their customers' preferences.[20] Following engagement with our customers JEN is proposing a CSIS for the coming regulatory period.[21] JEN's proposed scheme will capture our performance under four metrics – none of which will be influenced by the spend outlined in this document.

3.6 Interactions with other programs

When developing these initiatives, JEN has considered their interactions with our current business-as-usual (**BAU**) activities. We have ensured no 'double counting' of costs or duplication of effort occurs by examining where internal processes can be altered to meet customer and state government expectations at no additional cost to customers. We have also sought to establish synergies between resilience expenditure and BAU activities to ensure this expenditure is efficient.[22] By considering resilience initiatives as an incremental addition to our current BAU activities, rather than a new program of work we are assured that the proposed expenditure is prudent and efficient and includes no 'double counting' or duplication of internal labour.

[18] AER, Electricity distribution network service providers, Service target performance incentive scheme Version 2.0, 2018.

[19] Defined as days when the network's unplanned SAIDI is more than 2.5 standard deviations greater than the mean of the log normal distribution of five regulatory years' SAIDI data .

[20] AER, Customer Service Incentive Scheme, 2020, p. 1.

[21] JEN, Att 07- 03 - CSIS, 2025

[22] For example, upgrades are required to our outage notification ICT systems in order to meet Expert Panel recommendations, JEN is proposing to bundle these upgrades with necessary lifecycle upgrades to reduce the total overall cost of both programs. Further details can be found in "*JEN – RIN – 4.4.1. ICT Investment Brief – Outage Preparedness and Response*"

4. Options

4.1 Identifying Credible Options

We have identified three credible options which respond the identified needs discussed in section 4.2. These are discussed in more detail in the next section.

- **Option 0 – Do nothing/maintain status quo** – Continue with existing controls, processes, resourcing levels, and equipment for emergency response and customer support.
- **Option 1 – Uplift people and processes** – Uplift people and processes to implement recommendations from the 2024 Review.
- **Option 2 – Uplift people and processes & enable community hubs** - Uplift people and processes and procure one MERV and two LV mobile generators, to implement recommendations from the 2024 Review.
- **Option 3 – Uplift people and processes & enable additional community hubs** - Uplift people and processes and procure two MERVs and four LV mobile generators, to implement recommendations from the 2024 Review.

4.2 Options discussion

In this section, each of the options identified are discussed to address the business needs, problems, or opportunities for JEN. The analysis covers the scope, benefits, risks, and other relevant factors to assess the viability of each option.

4.2.1 Option 0: Do nothing

Description and timeframe for delivery

Continue with existing controls and processes for emergency response and customer support and service to reduce disruption, without investing in or implementing any changes to the current operations.

Benefits

Avoids immediate capital and operational expenditure.

Costs

While there is no additional investment associated with this option, the net economic or financial benefit of this option is likely to be negative, as maintaining the status quo may lead to increased costs and risks in the long term.

Risks

- **Inability to meet customer expectations:** JEN would not have the tools and people necessary to respond to a severe weather events, leading to significant customer harm and impacts on community resilience.
- **Non-compliance with government mandates:** JEN will not comply with potential Victorian Government mandates for enhancing emergency preparedness and response processes, which are based on deep engagement with customers during the 2024 Review, this may also further exacerbate risks for customers.

Summary

This option poses risks regarding compliance, customer satisfaction, and operational resilience. It is not recommended due to the increasing likelihood of more frequent and severe weather events, financial penalties associated with compliance, and reputational outcomes associated with insufficient emergency risk management.

Response to identified needs

Table 4-1 Option Do Nothing: Response to Identified Needs

Item No.	Identified need	Assessment
1	Responds to the increasing impacts of climate change on Jemena's network by supporting customers, communities, and other stakeholders.	Does not meet
2	Meets the recommendations included in the Victorian Government's 2022 and 2024 Reviews	Does not meet

4.2.2 Option 1: Uplift People and Processes

Description

This option involves implementing some of the recommendations from the 2022 and 2024 Reviews by uplift of JEN's people and processes. This option is proposed to support JEN to prepare for, respond to and assist in the instance of a prolonged customer outage event.

The uplift proposed to meet these recommendations is focussed on improving JEN's planning and coordination capabilities before and during an outage. The following initiatives are proposed:

- Increase internal capability and capacity to provide on-the-ground support to communities during emergencies
- Design and deliver annual network-wide rapid impact inspection to be shared with Emergency Management Agencies
- Increase internal capacity for ongoing engagement with at-risk communities including attending Regional and Municipal Emergency Management Planning Committees and State Critical Infrastructure Forums
- Embed the State Emergency Management Priorities in fault and restoration strategies, including formally embedding 'make safe' as a priority
- Work with Emergency Services to develop procedures for Rapid Impact Assessment
- Risk and Control Review for attestation purposes to report back to the Minister under Part 7A of the Emergency Management Act with exercised emergency management and restoration procedures.
- Formalise mutual aid. To meet the requirements in Recommendation 16, the following initiatives are proposed.

Benefits

Proposed expenditure to will deliver the following benefits:

- **Improved resilience:** By enhancing emergency preparedness and response capabilities and formalising mutual aid agreements, JEN will be better positioned to manage future extreme weather events, reducing the risk of prolonged outages.

Costs

The total costs to deliver this option over the 2026-31 regulatory control period (RCP) are provided in Table 4-2.

Table 4-2 Option 1 : Estimated Cost

	RY27	RY28	RY29	RY30	RY31	Total
OPEX	$652,000	$672,000	$671,000	$672,000	$673,000	$3,340,000
CAPEX	$0	$0	$0	$0	$0	$0
Total	**$652,000**	**$672,000**	**$671,000**	**$672,000**	**$673,000**	**$3,340,000**

Risks

- **Investment and additional operational resources:** Requires additional operational resources.
- **Potential non-compliance:** This option does not meet all the recommendations of the 2022 and 2024 Reviews

Summary

This option aligns JEN with the Victorian Government's requirements, it partially meets the requirements of our customers, enhances operational capacity, and mitigates risks associated with future severe weather events

Response to identified needs

Table 4-3 Option 1 : Response to Identified Needs

Item No.	Identified need	Assessment
1	Responds to the increasing impacts of climate change on Jemena's network through supporting customers, communities, and other stakeholders.	Meets partially
2	Meets the recommendations included in the Victorian Government's 2022 and 2024 Reviews	Meets partially

4.2.3 Option 2: Uplift People and Processes and Enable Community Hubs

Description

This option involves uplifting JEN's people and processes in line with Recommendations 2 and 16 of the 2024 Review, as described in 4.2.2, and procuring one MERV and two LV generators to support Jemena's customers and communities during outages. By enhancing JEN's ability to respond to emergency events, this option aims to ensure compliance with regulatory requirements and meet customer satisfaction.

The MERV would provide essential services such as phone recharging, tea/coffee, and act as a point of contact for affected community members. The MERV would be deployed from JEN's Tullamarine Depot to affected communities during a long-duration outage.

Further information around the particular vehicle specifications can be found in Appendix A

LV generators would allow JEN to provide electricity to key community assets during outages. This would enable the creation of a 'community hub' during the outages so affected customers could charge their devices, stay warm/cool and prepare simple meals. Providing electricity for these community hubs has been noted as a key role for DNSPs in supporting community resilience by both the 2022 Review and the 2024 Review.[23]

Procuring both LV generators (and enabling a community hub) and a MERV will provide a physical location during a long-duration outage for customers to gather and embed JEN staff in the community. This will enable in-person interactions between customers and JEN staff and allow information sharing around restoration times and other supports for those customers who may not wish to use or have access to digital services.

Benefits

In addition to the benefits mentioned in 4.2.2 as a result of uplifting people and processes, the procurement of the mobile assets – the MERV and the LV generators will provide the following benefits:

- **Responsiveness:** The MERV and LV generators will enable JEN to respond to potential long-duration outages across the network. As it is challenging to predict when and where an outage may occur, the flexibility of these mobile assets will enhance JEN's ability to respond to communities affected by a prolonged outage.

- **Customer preference:** JEN's customer engagement found that a balanced approach to resilience investment is preferred to ensure that risks are managed in a way that is fair and equitable. The investment in the MERV and the LV generators as well as uplifting people and processes will position JEN to respond to any communities which are affected and in need of support.

Costs

A breakdown of the additional investment required across the regulatory control period for implementation of this option is provided in Table 4-5

Table 4-4 Option 2 : Estimated costs required for Uplifting People and Processes

	FY27	FY28	FY29	FY30	FY31	Total
OPEX	$652,000	$672,000	$671,000	$672,000	$673,000	$3,340,000
CAPEX	$0	$0	$0	$0	$0	$0
Total ($2024)	**$652,000**	**$672,000**	**$671,000**	**$672,000**	**$673,000**	**$3,340,000**

Table 4-5 Option 2 : Estimated costs required for the delivery of one MERV and two LV generators

	FY27	FY28	FY29	FY30	FY31	Total
OPEX	$200,000	$200,000	$0	$0	$0	$400,000
CAPEX	$630,000	$616,000	$0	$0	$0	$1,246,000
Total ($2024)	**$830,00**	**$816,000**	**$0**	**$0**	**$0**	**$1,646,000**

[23] Victorian State Government – Victorian Government Response to the Expert Panel's Electricity Distribution Network Resilience Review (2022).

The total costs to deliver this option over the 2026-31 regulatory control period **(RCP)** are provided in Table 5-4.

Table 4-6 Option 2 : Total Cost

	Project ID	Total ($2024)
OPEX		$3,740,000
CAPEX	A554, A555	$1,246,000
Total		**$4,986,000**

Risks

- **Investment and additional operational resources**: Requires upfront capital investment and additional operational resources.

Summary

This option aligns JEN with the Victorian Government's requirements, it fully meets the requirements of our customers, enhances operational capacity, and mitigates risks associated with future severe weather events.

Response to identified needs

Table 4-7 Option 2 : Response to Identified Needs

Item No.	Identified need	Assessment
1	Responds to the increasing impacts of climate change on Jemena's network through supporting customers, communities, and other stakeholders.	Meets fully
2	Meets the recommendations included in the Victorian Government's 2022 and 2024 Reviews	Meets fully

4.2.4 Option 3: Uplift People and Processes and Enable More Community Hubs

This option is proposed to support JEN to prepare for, respond to and assist in the instance of a large-scale customer outage event. This option involves uplifting JEN's people and processes as described in section 3.2.3, and procuring two MERVs and four LV generators to support JEN's customers and communities during outages.

The scope of the MERV and the LV generators is as above for Option 2 and further detail is provided in Appendices A-B.

Benefits

The benefits of this option align with those mentioned in section 4.2.2 as a result of uplifting people and processes and the procurement of the mobile assets. The additional benefits to come from this option compared to Option 2 is that there will be more MERVs and LV generators available in the instance of multiple communities and customers experiencing prolonged outages.

Costs

A breakdown of the additional investment required across the regulatory control period for implementation of this option is provided in Tables 5-5 and 5-6.

Table 4-8 Option 3 : Estimated costs required for Uplifting People and Processes

	FY27	FY28	FY29	FY30	FY31	Total
OPEX	$652,000	$672,000	$671,000	$672,000	$673,000	$3,340,000
CAPEX	$0	$0	$0	$0	$0	$0
Total ($2024)	**$652,000**	**$672,000**	**$671,000**	**$672,000**	**$673,000**	**$3,340,000**

Table 4-9 Option 3 : Estimated costs required for the delivery of two MERV and four LV generators

	FY27	FY28	FY29	FY30	FY31	Total
OPEX	$400,000	$400,000	$0	$0	$0	$800,000
CAPEX	$1,260,000	$1,233,000	$0	$0	$0	$2,493,000
Total ($2024)	**$1,860,000**	**$1,633,00**	**$0**	**$0**	**$0**	**$3,293,000**

The total costs to deliver this option over the 2026-31 regulatory control period **(RCP)** are provided in Table 5-7.

Table 4-10 Option 3 : Total Cost

	Project ID	Total
OPEX		$4,140,000
CAPEX	A554, A555	$2,493,000
Total ($2024)		**$6,333,000**

Risks

- **Investment and additional operational resources**: Requires upfront capital investment and additional operational resources.

Summary

This option aligns JEN with the Victorian Government's requirements, it fully meets the requirements of our customers, enhances operational capacity, and mitigates risks associated with future severe weather events. However, this investment may be underutilised.

Response to identified needs

Table 4-11 Option 3 : Response to Identified Needs

Item No.	Identified need	Assessment
1	Responds to the increasing impacts of climate change on Jemena's network through supporting customers, communities, and other stakeholders.	Meets fully
2	Meets the recommendations included in the Victorian Government's 2022 and 2024 Reviews	Meets fully

5. Option Evaluation

5.1 Financial analysis

5.1.1 Summary of credible options' expected costs & market benefits

Table 5-1: Economic Analysis Results Summary

($'000, 2024)	Option 0	Option 1	Option 2	Option 3
Opex	$0	$3,340,000	$3,740,000	$4,140,000
Capex	$0	$0	$1,246,000	$2,493,000
NPV	N/A	N/A	N/A	N/A
Option ranking	4	3	1	2

5.1.2 Financial summary of preferred option

Project budget information for the highest ranked option is tabulated below.

Table 5-2: Project Budget Information

Cost Category	Value ($M)
Opex	$3.7
Capex	$1.2
Total Project Cost	$5.0

6. Recommendation

6.1 Recommended Option

This business case recommends Option 2 with a total expenditure of $4.99M ($3.74M operating expenditure and $1.25M capital expenditure). This option involves uplifting JEN's people and processes and also procuring one MERV and two LV generators to support JEN's customers and communities during prolonged outages. By enhancing JEN's ability to respond to emergency events, this option meets customer preferences and ensures compliance with regulatory requirements.

6.2 Reason for selection

Options 1, 2 and 3 all include the uplifting JEN's people and processes to support JEN to prepare for, respond to and assist in the instance of a prolonged customer outage event.

All three options have the benefit of:

- Improved resilience to manage future extreme weather events, reducing the risk of prolonged outages,
- Regulatory compliance by adhering to the Victorian Government's recommendations under the Network Outage Review, and
- Cost efficiency by reducing the need for costly emergency responses will optimise resource allocation and prevent costs associated with unplanned outages and emergency responses.

However, the availability of mobile temporary generation and emergency response vehicles, delivered by Options 2 and 3 will multiply these benefits by giving customers a physical location to seek assistance during an outage.

Additionally, Option 2 and 3 will ensure JEN is capable of meeting all the recommendations of the 2022 and 2024 Expert Panel Reviews.

JEN considers Option 2 to be the optimal solution as it provides these additional benefits with a lower cost and better utilisation, as compared to Option 3.

7. Consistency with JEN's strategy and plans

This initiative reflects Jemena’s commitment to supporting customers in emergencies, fostering trust, and improving overall satisfaction. Additionally, the MERV strengthens operational resilience by maintaining communication and providing necessary services during adverse conditions, thereby mitigating risks associated with prolonged outages.

Appendix A
MERV Specification and Schematics

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A1. MERV Description

The implementation of a MERV would involve initial capital investment and ongoing operational costs to maximise its effectiveness and reach. The MERV would be equipped with essential features including a 3kW Pure Sine-Wave inverter, 3 x 160W solar panels, 300AH lithium battery, 110W small generator solar, 70L water tank, 4 x 50W tower lights, and a 7kW generator. It would also include additional amenities such as satellite Wi-Fi connectivity (Starlink), coffee machine, first aid kit, defibrillator (DeFib), communication platforms (TMR/UHF/Satellite phone), portable PA system, storage containers and trestle tables and chairs.

A2. MERV specifications

Component	Specification
Inverter	3kW Pure Sine-Wave
Solar Panel	3 x 160W
Lithium Battery	300AH
Small Generator Solar	110W
Water Tank	70L
Tower Light	4 x 50W
Generator	7kW
Additional Components	
Satellite Wi-Fi Connectivity	Starlink
Coffee Machine	
First Aid Kit	
Digital Screens	
Defibrillator	
Communications Platforms	TMR/UHF/Satellite phone
Portable PA System	
Storage Containers	
Trestle Tables and Chairs	
Business Branding Materials	

A3. MERV Design Overview

Figure 7-1 MERV Side View

Figure 7-2 MERV Interior

Appendix B
MERV and LV Generator Location

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The MERV and the LV generators will be stored in JEN's Tullamarine depot. This location was strategically chosen due to its ease of access to major roads such as the Tullamarine Freeway, Western Ring Road, Westgate Freeway and Sydney Road / Hume Freeway.