Jemena Electricity Networks (Vic) Ltd

IT Investment Brief – Outage preparedness and response

Non-recurrent – Compliance

Jemena
bringing energy to life

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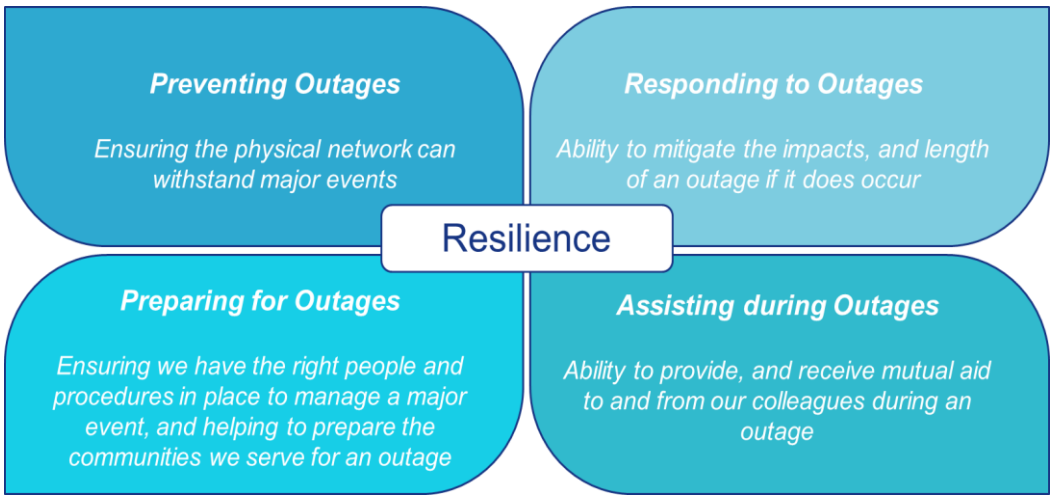
Glossary

AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
Capex	Capital Expenditure
Current regulatory period	The period covering 1 July 2021 to 30 June 2026
DNSP	Distribution Network Service Provider
EDCoP	Electricity Distribution Code of Practice
GIS	Geospatial Information System
ICT	Information and Communications Technology
IVR	Interactive Voice Response
Jemena	Refers to the parent company of Jemena Electricity Network
JEN	Jemena Electricity Network
Next regulatory period	The period covering 1 July 2026 to 30 June 2031
NER	National Electricity Rules
NERR	National Energy Retail Rules
NMI	National Meter Identifier
NPV	Net Present Value
ODW	Outage Data Warehouse
OMS	Outage Management System
opex	Operating Expenditure
POCM	Planned Outage Carding Management
RYxx	Regulatory year covering the 12 months to 30 June of year 20xx for years in the Next Regulatory Period. For example, RY25 covers 1 July 2024 to 30 June 2025
totex	Total Expenditure

Outage Preparedness and Response

Objective	Ensure that Jemena Electricity Network Vic Ltd. (JEN) consistently meets customer needs and compliance obligations regarding outage communications while also ensuring that underlying systems can accommodate non-standard customer needs.		
Non-recurrent ICT sub-categorisation	☐ Maintaining existing services, functionalities, capability, and/or market benefits	☒ Complying with new/altered regulatory obligations/requirements	☐ New or expanded ICT capability, functions, and services
Background	Both planned and unplanned outages are disruptive to customers, and this is particularly evident in the case of long-duration outages. Ensuring customers and necessary support services (e.g. emergency services, local and state Governments) receive accurate and timely information regarding these outages is critical to meeting the needs of the communities JEN serves and our compliance obligations. Enhanced preparedness and response to outages is part of JEN's overall approach to incorporating resilience across the network. JEN's four resilience tenets are provided in **Error! Reference source not found.** below. This investment brief responds to the tenet of *Preparing for Outages* through ensuring we have the right systems in place to communicate with customers before and during an outage. An initiative to address the *Responding to Outages* and *Assisting during Outages* tenets is provided for in '*JEN -RIN Support – Outage Preparedness and Response*' **Figure 1: Jemena's key resilience tenets**  		
Identified need	This investment brief addresses the following three needs: • **Regulatory obligations:** To continue to meet the regulatory obligations in the Electricity Distribution Code of Practice (EDCoP), and potential new obligations arising from the Victorian Government's "Including distribution network resilience in the National Electricity Rules Rule Change Request"[1] and the Victorian Government Expert Panel's Network Outage Review (NOR).[2]		

[1] DECCA, Rule Change Request, July 2024
[2] Victorian Government Expert Panel, Network Outage Review (energy.vic.gov.au), September 2024

	• **Extreme weather events:** To respond to an increasing frequency and intensity of extreme weather events, which will lead to increased outages and a higher number of customers impacted for longer durations of time. • **Customer expectations:** To respond to customer expectations regarding notifications of outages, including providing more accurate and timely information, and providing more proactive communication from JEN. The preferred option outlined in this investment brief details how JEN will ensure we can meet customer needs and mitigate some of the costs imposed on customer by long-duration outages, by providing accurate information and enabling customers to implement adequate contingency plans. Our preferred option supports JEN to implement changes which will offer more protection for life support customers which has been identified as a key priority by NOR[3] while ensuring we can meet customer needs as identified through our customer engagement (discussed below). The identified needs are compounded as JEN is preparing for an increased risk of long-duration unplanned outages and an increasing number of planned outages planned and unplanned outages affecting our customers in the next period. This is due to the increasing risk of extreme weather events and the volume of network augmentation required to facilitate electrification respectively. To respond to a higher volume of outages and provide more accurate information, JEN must ensure its ICT systems are equipped to communicate with customers in a way which meets their expectations, while complying with existing and potential regulatory obligations. This will require enhancements to some of JEN's existing customer facing systems (to communicate about outages) and JEN's internal facing systems (to process notifications for outages) within the next regulatory period.
Customer engagement and expectations	**A proactive, customer centric approach** Traditionally electricity distribution services have been centred around a National Meter Identifier (NMI) or property address, with the account holder being secondary to servicing the address. However, this approach does not consider the complex and varied relationships members of the community may have with JEN and the varied lenses of vulnerability that a customer may experience. This has led to subpar outcomes for customers and the wider market as recognised by the Australian Energy Regulator (AER)'s ongoing program of 'Game Changer' reforms, which are seeking to reduce the complexity of the energy industry and deliver improvements for customers experiencing vulnerability.[4] **Program of engagement** An extensive customer engagement program was implemented with JEN residential customers, small and medium businesses, large commercial and industrial customers, stakeholders, and energy experts to shape the 2026-31 Draft Plan.[5] Customer priorities on how we should prepare for a more sustainable energy future while meeting customer and community needs today were discussed. The priorities discussed that are most relevant to this investment include: • **Resilience and reliability** - Customers want a reliable and resilient network that can withstand and recover from the impacts of more extreme weather events. • **Digitisation and automation** - Customers want JEN to digitise and automate the grid to make it a smarter and more efficient network. • **Accessible communication** - Customers value efficient and accessible communication and want to easily access information on our service and the customer service team easily.

[3] NOR's recommendation is informed by The Energy Charter, Rule Change Rule Change Request (aemc.gov.au)
[4] Towards energy equity: Opinion piece from AER Chair Clare Savage | Australian Energy Regulator (AER)
[5] Refer to Chapter 2 Our customers spoke and we listened

	What our customers said about network resilience After nine months of collaborative engagement, our People's Panel view is that, as part of investing in network resilience, it is important for JEN to invest in non-network infrastructure with a focus on using technology to better predict, manage, and respond to significant outages, and minimise impacts on customers. The Panel also emphasise that efficient and accessible communication from JEN is paramount to increase understanding of information, improve customer service and satisfaction, and reduce anxiety and uncertainty of customers.[6] While all customer groups highlighted the need to minimise the impact of outages, this was a particularly important point for our Disability Customer Voice Group who stressed that in some instances, customers may be dependent on electricity supply to maintain their health. This additional layer of dependence means providing information on upcoming planned outage, and accurate restoration times is of acute importance to ensure they can put adequate contingency plans in place during outages.[7] JEN further engaged residential customers at the end of November 2024 in a costed-options engagement session, to establish their willingness to pay for various service improvements. Customers viewed investment to bolster outage communications, particularly for life support customers, 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".[8] **What our customers said about communications** During the customer engagement sessions, customers expressed a desire for more proactive communication from JEN. They noted that JEN's role and responsibilities as their electricity distributor are not widely understood by their fellow customers. They want JEN to take more of an active role in ensuring our customers are aware of the obligations and support available from JEN, particularly in the context of 'Guaranteed Support Level Payments' and 'Prolonged Power Outage Payments', which customers must apply to access. As our customers' lives become increasingly digitised, customers expect to receive information through both traditional channels (post, SMS, telephone call) and newer technologies (social media, website, outage tracker, webchat). This mix of media ensures customers can interact with JEN and receive important information in the manner which they prefer. In addition to a wide variety of media, customers, particularly members of our Multicultural and Seniors Customer Voice Groups, highlighted the need to provide information through multiple languages and in Plain English formats to ensure it is accessible and understood by all customers. Additional targeted engagement with large business customers[9], particularly those who may have multiple NMIs under one account, also identified a need for improvements to ensure we can notify the responsible person at the affected site before/during an outage rather than exclusively notifying the account holder. Electronic and digital communications are reliant on Information and Communications Technology (ICT) systems to ensure JEN delivers meets customer needs in a prudent and efficient manner.
Increased prevalence and frequency of	JEN's network is increasingly exposed to impacts from climate change events. In 2023, AECOM undertook a network resilience study to support JEN in gaining a high-level understanding of the current and emerging climate risks across the network.[10] JEN's exposure to risks associated with extreme weather events is expected to worsen as these

[6] Refer to JEN – MosaicLab Att 02-02 People's Panel Process report – 20240105 - Public and JEN – Att 02-19 People's Panel Recommendations – 20240420 – Public.
[7] Refer to JEN – MosaicLab Att 02-04 Customer Voice Group process report – 20240107 - Public
[8] Refer to JEN – MosaicLab Att 02-22 Customer Deep Dive Outcomes Report – 20241206 - Public
[9] Refer to JEN – Gauge Consulting Att 02-05 Large customer forum report – 20241203 - Public
[10] JEN - AECOM - Att 03-03 - Joint Victorian Climate Change Study Final Report - 20240613 - Public.

extreme weather events	events become more frequent and more intense, with high variability as to when and where they will occur.[11] As a result, we expect this will lead to increased number of long-duration outages which impact a higher number of customers.. This highlights the need to enhance outage management and communication, ensuring that JEN is prepared for these challenges in order to support its customers to remain resilient and safe in preparation for the future.
Compliance with regulatory obligations	This investment is proposed to enable JEN to: • Continue to meet existing obligations. • Meet new potential obligations and enable protections for life support customers. **Existing obligations** The EDCoP stipulates JEN's obligations to inform customers of both planned and unplanned outages and the additional obligations around how we notify life support customers of these outages. JEN currently fulfils the requirements for unplanned and planned outages as per the EDCoP, as detailed in Attachment A. This investment will enable JEN to continue to meet these obligations. In addition, the Electricity Industry Act 2000 was updated in June 2023 to ensure relevant government bodies would have access to the information needed during an emergency event.[12] **Proposed obligations and rule change request** **Victorian Government Network Outage Review** In 2024, the Victorian Government's Expert Panel Network Outage Review[13] identified several improvements to the outage notification process that could be made to better support customers, particularly life support customers during long-duration outages. Overall, the review reiterated that it is expected that Distribution Network Service Providers (DNSPs) share proactive, regular updates of accurate and timely information with customers and support service providers during a long-duration outage.[14] The review clearly articulated that DNSPs are expected to substantially strengthen current customer contact processes and that there is a duty to build greater responsiveness in the community. Other notable recommendations were: • Re-define and segment life support customers by need (e.g. critical or assistive). • Ensure both the account holder and a nominated third party will receive mandated outage notifications. • Ensure regular and targeted communication to life support customers to encourage the customer to develop and regularly update a medically informed back up plan. Despite the above recommendations not yet being mandated, JEN is confident that they will be accepted and mandated by the Victorian Government. **Rule Change Request to Embed Distribution Network Resilience into the NER** In July 2024, The Victorian Minister for Energy and Resources submitted a rule change request to the Australian Energy Market Commission **(**AEMC**)** to formally include distribution network resilience under the National Electricity Rules **(**NER**).** The purpose of

[11] Victorian Government, Department of Environment, Land, Water and Planning - Victoria's Climate Science Report 2019 (2019); CSIRO - Victorian Climate Projections 2019: Technical Report (2019).
[12] Section 109E(2)(a) outlines that a Department Head may, in an emergency direction, require a distribution company to provide information relating to outages and customer supply.
[13] Victorian Government Expert Panel, Network Outage Review (energy.vic.gov.au), September 2024
[14] Victorian Government - February 2024 Storm and Power Outage Event Independent Review of Transmission and Distribution Businesses Operational Response Final Report (2024).

	this rule change request is to ensure DNSPs are appropriately funded prepare efficiently to resist, manage during, or recover from, catastrophic events or severe weather hazards. 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.[15] **Rule Change Request for Protections for Life Support Customers** The recommendations from the 2024 Network Outage Review associated with life support customers are reflected in, and to a certain degree informed by, the Energy Charter's #BetterTogether program of works. A rule change request relating to this program of work was lodged to the AEMC in August 2024[16] (#Better Together – Better Protections for Life Support Customers). Whilst the AEMC has yet to initiate the proposed rule change, in December 2024, the Victorian Government published its in-principle support for this rule change[17]. The proposed changes to the National Energy Retail Rules (NERR) within the rule change request, which largely apply to retailers and distributors, have been met with widespread support from Energy Charter Signatories, and are unlikely to attract significant opposition from other energy market players. JEN considers that the proposed changes to the NERR are prudent and straightforward in nature. **How this investment will support JEN to meet the above proposed obligations** JEN considers the proposed updates to its ICT systems will improve organisational capability for mitigating the impacts of unplanned outages on customers particularly, those customers who may be experiencing vulnerability. In doing so, the ICT updates will help to enhance overall system resilience. They will also support JEN's capability, as a DNSP, to orchestrate a coordinated, effective response to extreme weather events, and contribute to fulfilling JEN's likely future resilience obligations under the NER.
Scope of work required	To comply with the recommendations from the 2024 Network Outage Review and enable the protections for life support customers mentioned above, JEN will need to update its ICT systems. We need to update the systems that support notifications and enable us to capture the additional data needed to create sub-categories of life support customers and store more than one set of contact details per life support registration. The scope of this investment combines the works required to enable JEN to meet the recommendations and provide better protection for life support customers, with that of the lifecycle upgrades for the ICT systems outage notification capabilities. This approach will deliver the most efficient outcome. **ICT systems** The ICT systems that JEN uses to meet our regulatory obligations, and which would need to be enhanced to meet the proposed rule change, can be split into two types; customer facing platforms and the internal systems that enable the publishing of information to the customer platforms. The ICT systems listed below are existing JEN platforms and systems. **Customer facing platforms** • Jemena Website: A public website which publishes information on what customers can do to prepare for supply interruptions and outages, templates for life support action plans and upcoming planned outages. During Major Outages, JEN will provide regular updates on the website.

[15] AEMC – Including distribution network resilience in the National Electricity Rules Rule Change (2024) Rule Change Request (aemc.gov.au)
[16] AEMC – Better protections for life support customers (2024) Rule Change Request (aemc.gov.au)
[17] Victorian government response to the Network Outage Review | Network Outage Review

- Telephony and Interactive Voice Response (IVR): Systems which provide customers with information directly through a telephone call with a JEN staff member or through an automated response.
- Social media: JEN currently only uses social media platforms during Major Outages.

These ICT systems will need to be updated to ensure that JEN is able to comply with the proposed rule changes described above.

JEN internal facing systems

JEN's internal systems that enable JEN to meet its obligations around customer notification for planned and unplanned outages include the following enterprise platforms. These ICT systems contain information essential for the processing of notifications for outages, as well as the storing and processing of data on life support customers.

- SAP ERP IS-U: An enterprise platform which contains customer information, including life support customer data, and other information essential for outages. This platform is updated daily with changes to customer contact details provided from retailers through market procedures.
- JEN Market Systems Interface (MSI): Is the enterprise platform which JEN uses to provide data to the market, including life support customer data, in accordance with clause 7.17.3 of the NER.
- Geospatial Information System (GIS): GIS is a geospatial representation of the JEN network, and stores information on customers including life support customer data.
- Outage Management System (OMS): A real-time system used to manage faults, unplanned outages and planned outages. This system stores information on the state of the network and when the outage is expected to be resolved.
- Outage Data Warehouse (ODW): The ODW is a real-time replication of OMS that provides information to other systems.
- SAP Service and Customer Data Cloud: This is JEN's customer relationship management (CRM) platform, which is used to manage customer enquiries.

Changes to these systems will need to be made to ensure that JEN is able to comply with the proposed rule changes described above.

Critical outage notification systems

The following ICT systems provide the critical outage notification capabilities and were implemented in the previous regulatory period (primarily in 2019 and 2020). Through prudent asset management, lifecycle upgrades of these systems were avoided in the current regulatory period (2021 – 2026). Some of these systems have recently started experiencing service degradation and whilst continued prudent management will ensure they will continue to meet obligations; they will require lifecycle upgrades to prevent service degradation in the next regulatory period:

- Outages and Emergency Page: An application used by JEN Control Room to provide real-time data on outages across the JEN's network, including information on the number of life support customers impacted by each unplanned or planned outage.
- Planned Outage Carding Management System (POCM)**:** JEN's carding task and evidence platform for planned outages.
- Broadcaster: An application that is used to manage a wide range of aspects of unplanned and planned electronic notifications, including:
    - Scheduling and processing of planned outage notifications
    - Processing unplanned outage notifications
    - Template content creation and updates
    - Contact management for large customers
    - Preference management for planned outage notifications all customers, including for hard copy notification

- Whispir: A third-party service provider which sends electronic notifications to inform customers of planned and unplanned outages.
- Emergency Vic: JEN provides real-time outage information through an Application Programming Interface (API) to Emergency Victoria.
- Power Outages Website: A public facing webpage which provides customers with the status of planned and unplanned outages across the JEN network. This webpage is automatically updated during and after an outage.
- Preference management portal: A customer facing self-serve portal which gives customers the ability to nominate their preferences on receiving information on customer outages. A customer can express a different notification preference for planned and unplanned outages.

These critical outage notification systems need lifecycle upgrades.

Alignment with other regulatory considerations

AER Assessment Criteria

In preparing this investment brief, JEN have considered and closely followed relevant AER assessment guidelines. This includes, but is not limited to, the Better Resets Guideline and Expenditure Forecast Assessment Guidelines.

Alignment with the AER Note on Network Resilience Key Issues

JEN's proposed investments align with the AER's note on network resilience key issues[18], by demonstrating a strategic approach to enhancing network resilience. The Note references the evidence that the AER expects to see demonstrated in proposals for resilience funding, in line with ensuring that the expenditure is prudent and efficient. The AER lists three elements which are essential to include in proposals, how this investment brief responds to these elements is provided below.

Expectation from AER Note on Network Resilience Key Issues	How this investment brief meets the expectation
A causal relationship between the proposed expenditure and the expected increase in the extreme weather events	Climate modelling prepared by AECOM[19] shows an increasing risk of extreme climate events. The proposed expenditure aims to change ICT systems to enhance outage management and communication, ensuring that JEN is prepared for associated long-duration outages and continue to support its customers to remain resilient and safe in preparation for the future.
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 options are aimed at maintaining service levels for customer through enhanced and more proactive communication about outages, in the face of increased adverse weather events. The discussion of options provides evidence of the option which provides the greatest net benefit of the feasible options considered.
Consumers have been fully informed of different resilience expenditure options	In our collaborative engagement program, it was clear that customers consider both network resilience and communications to customers to be priorities. Customers specifically identified the need to invest to

[18] AER – Network Resilience – A Note on Key Issues (2022).
[19] AECOM- Climate Change Study for Victorian Electricity Distribution Businesses – Phase 1 (2023).

		keep customers better informed with near real-time information at the times they need it most.[20] To address this expectation, it is essential for JEN to invest in ICT systems that strengthen customer contact processes. In response to feedback that the Draft Plan did not sufficiently consider the priority of affordability, JEN further engaged residential customers at the end of November 2024 in a costed-options engagement session. This purpose of this engagement was to establish customers' willingness to pay for various service improvements; as such the options described below were presented. Customers viewed investment to bolster outage communications, particularly for life support customers, as warranted and supported the expenditure on this.
Key Considerations	JEN is committed to ensuring it remains compliant with our obligations to inform customers about planned and unplanned outages. As such, JEN has identified the enhancements to both our enterprise systems and our outage notifications systems that will need to be implemented so that we can meet the obligations and expectations of the Victorian Government's Expert Panel's Network Outage Review and Victorian Government's Proposed Resilience Rule Change and Energy Charter's #BetterTogether Proposed Rule Change. JEN has also assessed that lifecycle upgrades are required for the outage notifications systems as at the beginning of the next regulatory period these systems will be ageing (seven years+), and system performance and security is expected to start degrading. To leverage economies of scale and scope, our recommended approach proposes completing both the lifecycle upgrades and the system enhancements as one project (both non-recurrent). **How we estimated costs** For options 2 and 3, a proxy-based estimation approach was adopted to estimate project-related costs. This approach takes comparable projects that have been successfully delivered in the current regulatory period: "Customer Experience Uplift Foundation" project and "Planned Outage Taskforce" and extrapolates these out to estimate costs in this project. These costs assume a blended team of internal and external resourcing, which balances the resource costs, capabilities, and capacity of people involved in deploying the project. Most of the resourcing profiles are assumed to be internal, with external resourcing providing advanced technical skills as required. Recurrent operating costs have been estimated based on benchmark costs of similarly skilled resources and are discussed further in each option.	
Options	JEN has considered three alternatives to deliver the capability articulated above: (1) Do nothing – not recommended (2) Concurrent lifecycle upgrades and enhancement of outage notification systems – recommended (3) Staggered lifecycle upgrades and enhancement of outage notification systems – not recommended Further, JEN has considered that the replacement of our full notification system with an alternative solution would not be a credible option given that the extent of full system	

[20] Refer to Chapter 2 Our customers spoke and we listened

replacements and integration with JEN's wider digital ecosystem would be prohibitively expensive[21]

Option 1: Do nothing

Description

The processes and ICT systems that support meeting our obligations would not be updated or refreshed; JEN would maintain the current version of the systems. New or changed capabilities needed to meet customer expectations and obligations will not be delivered, increasing the risk of harm to customers. The lack of system changes means that any enhancements required to address evolving customer needs and regulatory requirements will not be implemented. This option would place an unequitable proportion of risk on life support customers and would necessitate increased staff support due to the frequency of events requiring greater FTE resources to manage the manual processes effectively.

Costs

No additional capital expenditure would be incurred under Option 1; ongoing maintenance and non-ICT operating costs are reflected in JEN's base year opex. This is not a credible option as it doesn't meet the needs articulated in the Background section above. As a result, additional costs may be incurred as 'break fixes' may be needed to compensate for out-of-date notification systems.

Benefits

By maintaining the current version of our systems, JEN would avoid incurring the costs outlined in options 2 and 3, as detailed below.

This option will not result in customer benefits as described in the 'Customer engagement and expectations' above

Risks

The risks of Option 1 are:

- Limited ability to enable the intended benefits for customers from the proposed rule changes described above.
- JEN would be non-compliant with the proposed rule changes.
- Inability to meet customer and government expectations around outage notification, leading to reduce levels of support for customers.
- Inability to ensure customers with non-standard communication needs (e.g. nominated contact person for life support customers, large electricity customers) receive the necessary information to conduct outage contingency planning.
- Increased service and performance degradation of existing ICT systems; if these platforms stopped operating, there would be:
    - Increased manual workloads to ensure customers are adequately informed via electronic methods prior to planned outages so that the EDCoP obligations for electronic notifications are met.
    - Increased manual workloads during unplanned outages (and Major Outages) to ensure that the website and telephony are regularly updated so that the EDCoP obligations are met.

Summary

Whilst Option 1 incurs no incremental costs, it introduces manual workloads as our notification systems age, which as a result introduces risks that JEN may not meet existing EDCoP outage notification obligations. Further, by not implementing the system changes to meet the proposed rule change, JEN will risk increased customer harm due to

[21] EMCa, Report to AER on Ausgrid 24-29 DER and ICT, August 2023

insufficient information being provided to life support customers. This option is not recommended as we do not consider it reflects good industry practice given the risks outlined above. Furthermore, does not meet our identified needs as outlined below:

	Identified need	Assessment
1	Regulatory obligations: To continue to meet the regulatory obligations in the Electricity Distributor Code of Practice (EDCoP), and potential new obligations as a result of Victorian Government's Expert Panel's Network Outage Review.	Does not meet.
2	Customer expectations: To respond to customer expectations regarding notifications of outages, including providing more detailed information, and providing more proactive communication from JEN.	Does not meet.
3	Extreme weather events: To respond to an increasing prevalence and intensity of extreme weather events, which will lead to increased outages.	Does not meet.

Option 2: Concurrent lifecycle upgrades and enhancement of outage notification systems

Description

To respond to a higher volume of outages and provide more accurate information, JEN will make changes to its ICT systems to ensure we are equipped to communicate with customers in a way which meets their expectations, while complying with existing and potential regulatory obligations as outlined in the Background section above.

This will require enhancements to some of JEN's existing customer facing systems (to communicate about outages) and JEN's internal facing systems (to process notifications for outages) within the next regulatory period.

The following changes include, but are not limited to:

- Capture additional data fields to differentiate between and store details on life support account holders, nominated contact persons, and life support residents.
- The categories of life support customers (critical and assistive) will be changed.
- Subsequent downstream system enhancements to ensure consistent life support customer information is maintained across ICT systems, including GIS, OMS, ODW, telephony and IVR, and SAP Service Cloud and CDC.
- Enhancement of preference management platform so that preferences can be differentiated based on whether an individual is a life support account holder, nominated contact person, or a life support resident.
- Enhancement of preference management platform so that large customers and nominated contacts for life support customers can manage their notification preferences for planned and unplanned outages.
- Develop and utilise targeted notifications that differentiate between life support account holders, nominated contact persons or life support residents so that accurate and relevant information is provided for each outage event.
- Refactoring and performance improvements for interfaces between systems so that the timeliness of notifications, webpage updates, changes to the telephony system and the Emergency Victoria data feed are maintained and not degraded.

As the level of integration between these impacted systems and our outage notification systems is high, this option includes concurrent lifecycle upgrades of the latter to maintain current levels of reliability and availability.

Option 2 also includes expanding JEN's current "summer preparedness" customer education campaign to a year-long network and community resilience education campaign. This campaign would include additional information about long-duration outages, including what JEN is doing to prepare for them and what support customers can avail of when they occur.

Further, targeted information around outage preparedness for life support customers would be developed and deployed, encouraging life support customers to develop and regularly update their Action Plan, and JEN would increase its proactive support to life support customers during these long-duration outages. Together, these would directly support recommendations from the 2024 Network Outage Review.

Costs

JEN's costs for this option is outlined in the table below.

$2024	RY27	RY28	RY29	RY30	RY31
Total Capex	$1,688,000	$270,000			
Non-recurrent Opex	$592,000	$180,000			
Recurrent-step Opex	$197,500	$328,000	$329,000	$348,000	$346,000
Total Opex	$790,000	$508,000	$329,000	$348,000	$346,000
Totex	**$2,478,000**	**$778,000**	**$329,000**	**$348,000**	**$346,000**

As outlined in the 'Increased prevalence and frequency of extreme weather events' section above, there is an expected increase in outages in the next regulatory period and as a result, these highly integrated systems will be relied on more frequently. The increase in outages is anticipated to occur not only because of the increasing risk of extreme weather events but because of the volume of network augmentation required to facilitate electrification.

Whilst digitisation aims to drive efficiency, the complex integrations between the outage systems introduce system operations risk and increases the need for more skilled 24 / 7 technical support to be available for these systems; an additional ICT resource has been included in the forecast operating costs. This resource will also be responsible for expanded annual performance testing and assessments of accessibility of the customer service systems. This resource will help to ensure that JEN's systems are capable of operating and responding to the scale of large outages through stress testing the integration of systems.

The recurrent operating costs also capture the cost of a network and community resilience campaign specialist who will develop and run the year-long campaign along with regular life support customer campaigns. In addition, the incremental costs of delivering additional electronic and hard-copy notifications to meet the requirements of the proposed rule change have also been included in the forecast.

Benefits

The forecast benefits to JEN are:

- JEN will continue to meet its compliance obligations.
- JEN will continue to meet evolving customer and government expectations around timely notification of outages, including:
    - Ensuring JEN can continue to provide accurate restoration times to customers.
    - Ensuring JEN can proactively provide customers with information relating to outages.

- Ensuring JEN can deliver this information in an accessible manner.
- Ensuring JEN can provide customer assistance to prepare for outages.

The forecast customer benefits are:

- JEN's customers will be notified in a timely, and efficient manner, and as such, make informed decisions about how to manage during an outage.
- Increased preparedness for a customer can do to prepare for a long-duration outage.
- Targeted notifications for life support account holders, nominated contact persons and life support residents, so that a life support customer is well placed to activate their life support action plan.

Further to option 3, this option provides economies of scale for the delivery of the ICT enhancements as solution design, change management, testing and project management costs can be shared across the compliance obligations and lifecycle update activities.

Risks

Risks associated with this option are:

- One single delivery introduces risk of any delivery items failing potentially all need to be backed out. Additionally, this project delivery approach provides only one hypercare (typically 4 weeks) to remediate issues / defects whereas a phased approach reduces the risk of outstanding defects post the Project closure.
- Despite the proposed rule changes not yet being mandated, JEN is confident that they will be accepted and mandated given the high level of interest in enhancing resilience and supporting customers experiencing vulnerability.

Summary

This option is recommended as we consider it reflects good industry practice given the benefits and risks outlined above. Furthermore, it provides the lowest sustainable cost and best meets the identified needs:

	Identified need	Assessment
1	Regulatory obligations: To continue to meet the regulatory obligations in the Electricity Distributor Code of Practice (EDCoP), and potential new obligations as a result of Victorian Government's Expert Panel's Network Outage Review.	Meets fully.
2	Customer expectations: To respond to customer expectations regarding notifications of outages, including providing more detailed information, and providing more proactive communication from JEN.	Meets fully.
3	Extreme weather events: To respond to an increasing prevalence and intensity of extreme weather events, which will lead to increased outages.	Meets partially.

Option 3: Staggered lifecycle upgrades and enhancement of outage notification systems

Description

While this option will deliver all the enhancements outlined above to meet the identified needs the outage notification systems lifecycle upgrades will occur later in the period. This increases the overall cost profile of the project, as we are not able to use the same team concurrently.

Costs

JEN's costs for this option is outlined in the table below.

$2024	RY27	RY28	RY29	RY30	RY31
Total Capex	$800,000		$1,505,400		
Non-recurrent Opex	$200,000		$743,600		
Recurrent-step Opex	$198,000	$328,000	$329,000	$348,000	$346,000
Total Opex	$398,000	$328,000	$1,072,600	$348,000	$346,000
Totex	**$1,198,000**	**$328,000**	**$2,578,000**	**$348,000**	**$346,000**

By de-coupling the outage notification systems lifecycle upgrades and the system changes required to comply with existing and potential regulatory obligations as outlined in the Background section above, costs will be higher than if we were to implement both concurrently. This is because we will need to re-engage similar subject matter experts and re-mobilise the team which means we don't realise the economies of scale associated with option 2.

Benefits

The forecast benefits to customers are the same as for Option 2. Whilst costs are higher, de-coupling the enhancements and lifecycle upgrades may mean we are able to better manage risks associated with system change impacts.

Risks

Delaying the lifecycle upgrades further may result in degradation of reliability and availability of these systems which in turn may impact customer and government expectations as the frequency and duration of outages increase.

Additional risks include:

- A phased approach requires sustained resources, increasing workload and possibly leading to resource strain.
- Extended project timelines drive up costs due to ongoing support, testing, and integration across phases.

Summary

This option is not recommended as we do not consider it reflects good industry practice given the risks outlined above. Furthermore, it does not provide the most cost-efficient solution, and it only partially meets the identified needs as there is increased risk of our outage notification systems not performing as expected:

	Identified need	Assessment
1	Regulatory obligations: To continue to meet the regulatory obligations in the Electricity Distributor Code of Practice (EDCoP), and potential new obligations as a result of Victorian Government's Expert Panel's Network Outage Review.	Meets partially.
2	Customer expectations: To respond to customer expectations regarding notifications of outages, including providing more detailed information, and providing more proactive communication from JEN.	Meets partially.
3	Extreme weather events: To respond to an increasing prevalence and intensity of extreme weather events, which will lead to increased outages.	Meets partially.

<table>
<tr><td>Options Summary</td><td>The table below summarises the quantitative and qualitative differences between the analysed options.
<table>
<tr><th>($2024)</th><th>Capex</th><th>Opex</th><th>Totex</th><th>NPV</th><th>Residual Risk</th></tr>
<tr><td>Option 1</td><td>Not applicable</td><td>Not applicable</td><td>Not applicable</td><td>Not applicable</td><td>High</td></tr>
<tr><td>Option 2</td><td>$1,958,000</td><td>$2,319,500</td><td>$4,277,500</td><td>Not applicable</td><td>Low</td></tr>
<tr><td>Option 3</td><td>$2,305,400</td><td>$2,491,100</td><td>$4,796,500</td><td>Not applicable</td><td>Low</td></tr>
</table></td></tr>
<tr><td>What We Are Recommending</td><td>JEN recommends Option 2 as it delivers the system enhancements and lifecycle upgrades necessary to meet both our regulatory obligations and our customers' expectations around outage notification at the least cost to customers. Option 2 is more cost-effective given enhancements and upgrades will be done concurrently.</td></tr>
<tr><td>Dependencies on other Investment Briefs</td><td>The JEN – RIN – Support – ICT Investment Brief - Customer systems – 20250131 – Public Investment Brief covers maintenance of JEN customer systems. We will ensure enhancements to customer systems covered in this Investment brief take into consideration timing of customer systems maintenance activity.</td></tr>
<tr><td>Relationship to ICT Capital Forecast</td><td>The supporting modelling for this investment brief is contained in the following framework model: JEN – IT Investment Brief – Outage Preparedness and Response – Costs and Benefits Analysis Model</td></tr>
</table>

Attachment A

JEN’s compliance with existing regulatory obligations

	Obligation	Underlying Instrument	How JEN Fulfils This Requirement
Unplanned Outages	• Operate a 24-hour telephone service and provide frequent website updates to share information on the nature of the outage and an estimated supply restoration time	cl11.3 EDCoP	• JEN operates a 24/7 customer contact centre with a dedicated JEN faults line. • An outage map on JEN's website displays active outages. • Both the telephony and the website are updated automatically with information on the nature of the outage and an estimate of when supply will be restored.
	• In the case of a life support customer, provide information to assist in the preparation of a plan of action	cl12.2 EDCoP	• JEN includes a template for a life support action plan in its Medical Registration letter. • A life support action plan template is also available on JEN's website.
Planned Outages	• Enable customers to nominate one or more preferred methods of communication. • The customer must be able to update this preference, and a record of this preference must be maintained for at least two years. • When contacting customers about disruptions to service, the notice should be written in plain English and easily understandable by customers • This notice should be provided to customer at least four business days in advance of the outage and specify the expected date, time and duration of the interruption and include a 24-hour telephone number for fault enquiries and emergencies. • If the customer chooses to receive outage notifications electronically, a reminder must be sent one business day before the outage	cl11.4 EDCoP cl11.5 EDCoP	• Customers can nominate and update a preferred method of communication for planned outages by contacting the 24/7 JEN faults line. • Customers can also nominate and update a preferred method of communication for planned outages through a dedicated online, secure portal. • The notices are written in plain English and include the expected date, time and duration of the interruption and include a 24-hour telephone number for fault enquiries and emergencies. • Customers receive written notification via Australia Post, SMS and email at least four business days in advance of the planned outage. • An electronic reminder is sent one business day before the outage.
	• Additionally, life support customers should have the ability to request a longer notice period	cl11.5 EDCoP	• Life support customers can request a longer noticed period via phone or email.

Major Outages	• If an outage is likely to exceed 24 hours, the Department of Health must be informed. They should also receive updates every 12 hours, until the situation has been resolved. • During an emergency event, information held by the business on affected customers and the severity of the outage should be shared with relevant government authorities to support any emergency directions they may wish to issue. • Provide customers with access to information around emergency relief programs/schemes	cl11.8 EDCoP cl6AB Electricity Industry Act	• JEN updates the Department of Health as part of the Victorian Electricity Emergency Communications Protocol. • JEN ensures outage data in captured in a manner which can be shared to Emergency Victoria emergencies webpage and app solution. This is automatically made available during outages. • JEN makes information available on its website on emergency relief programs and schemes that are available to be accessed by affected customers.
Reliability of Supply	• Distributors must notify each customer annually about its role in relation to maintenance of supply, emergencies and restoration after interruptions.	cl13.3.2 EDCoP	• JEN has an annual customer education campaign which is sent by electronic means (SMS and email) and by post. • This campaign includes JEN's contact detail information, and our role in the maintenance of supply, emergencies and restorations.