Jemena Electricity Networks (Vic) Ltd

2026-31 Electricity Distribution Price Review

Technology Plan

Jemena
bringing energy to life

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Glossary

CER Integration Strategy	An overarching approach to optimise the connection and operation of CER technologies to deliver efficient outcomes to customers.[1]
Current Regulatory Period	The five-year regulatory period covering 1 July 2021 to 30 June 2026
Guidance Note	The AER's ICT Guidance Note, released 2019
Investment Briefs	A supporting business case for investment and operational implementation of a given non-recurrent project
Jemena	The parent company of Jemena Electricity Networks (VIC) Ltd.
Next Regulatory Period	The five-year regulatory period covering 1 July 2026 to 30 June 2031
Office 365	Office suite of desktop systems
Previous Regulatory Period	The five-year regulatory period covering 1 July 2016 to 30 June 2021

[1] See attachment 03-03.

Abbreviations

ACCC	Australian Competition and Consumer Commission
ACSC	Australian Cyber Security Centre
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AESCSF	Australian Energy Sector Cybersecurity Framework
AI	Artificial Intelligence
AIO	Annual Information Order
AMI	Advance Metering Infrastructure
API	Application Programming Interface
ASD	Australian Signals Directorate
AWS	Amazon Web Services
B2B	Business to Business
CAM	Cost Allocation Methodology
Capex	Capital Expenditure
CER	Consumer Energy Resources
CESS	Capital Efficiency Sharing Scheme
CX	Customer Experience
DER	Distributed Energy Resources
DERMS	Distributed Energy Resource Management System
DNSP	Distribution Network Service Providers
DOE	Dynamic Operating Envelope
DPV	Distributed Photovoltaic
DVA	Data Visibility and Analytics (program)
DVM	Dynamic Voltage Management
EBSS	Efficiency Benefits Sharing Scheme
ECC	ERP Central Component
EDCoP	Electricity Distribution Code of Practice
ERP	Enterprise Resource Planning
ESB	Energy Security Board
ESC	Essential Services Commission
ESG	Environmental, Social and Governance
EVSE	Electric Vehicle Supply Equipment
FTA	Flexible Trading Arrangements
GIS	Geographical Information System
IaaS	Infrastructure As a Service
ICT	Information, Communications and Technology
IDAM	Identity and Access Management

IDX	Industry Data Exchange
IFRS	International Financial Reporting Standards
IFRIC	International Financial Reporting Standards Interpretation Committee
IoT	Internet of Things
JEN	Jemena Electricity Networks Ltd. (VIC)
LV	Low Voltage
MDMS	Meter Data Management System
MITE	Market Interface Technology Enhancement
ML	Machine Learning
MSATS	Market Settlement and Transfer System
MSDR	Market Settlement and Transfer Solutions (MSATS) Standing Data Review
MSI	Market System Integration
NER	National Electricity Rules
NIST	National Institute of Standards and Technology
NMS	Network Management System
NPV	Net Present Value
Opex	Operating Expenditure
PaaS	Platform As a Service
Propex	Project Operating expenditure
PSC	Project Steering Committee
PV	Photovoltaic
RAP	Remote Access Protocol
RIN	Regulatory Information Notice
RTS	Real-time Systems
SaaS	Software As a Service
[redacted]	
SNAP	Strategic Network Analytics Platform
TCO	Total Cost of Ownership
Totex	The Total Operating Expenditure and Capital Expenditure
UFLS	Under Frequency Load Shedding
VEBM	Victorian Emergency Backstop Mechanism
VVC	Volt-Var Control

Overview

This proposal sets out the essential technology tasks Jemena Electricity Networks (VIC) Ltd. (JEN) carries out to ensure that our systems remain sustainable and secure and that we always maintain operational safety to safeguard the security and reliability of the Jemena electricity network in Victoria.

This proposal outlines our overarching strategy and key decisions regarding non-network information and communications technology (ICT). It demonstrates how these decisions enable efficient ICT capital and operating expenditure that align with the long-term interests and expectations of our customers for providing electricity distribution services. The proposal ensures our systems remain sustainable, secure, and operationally robust. It also highlights opportunities to adopt new and innovative technologies to optimise service delivery, where this is prudent, efficient, and aligned with customer needs.

Additionally, the proposal considers the uncertainty inherent in the evolving market landscape. It emphasises the role of innovative technologies in responding to and supporting changing dynamics, ensuring we can adapt effectively to emerging trends while continuing to meet customer needs. The following critical factors have been considered during the development of our initiatives for the 2026-31 regulatory period (next regulatory period):

NEM Reform Alignment
JEN's ICT strategy for the next regulatory period focuses on adapting to the energy market's shift toward renewables while maintaining regulatory compliance. This requires a flexible, responsive ICT environment capable of supporting renewable integration, efficient market operations, and distributed energy resource (DER) management. JEN's proposed initiatives align with industry reforms and regulatory requirements, ensuring JEN's resilience, network stability, and ability to deliver reliable, compliant services in a transforming energy landscape.

CER Integration
JEN is committed to playing a key role in facilitating the transformation of the energy market to renewable energy. To deliver the programs of work that support JEN's Consumer Energy Resources (CER) Integration Strategy,[2] ICT (and Network Management) capability will need to be developed to ensure that JEN can provide its customers with a smooth energy transition at an efficient cost.

Our Customers
Over the last 18 months, an extensive series of customer engagement sessions have been held, and our customers have provided us with considered and insightful feedback, which has been instrumental in developing our proposal for the next regulatory period. Our electricity customers are very clear on the key values that they expect our ICT proposal to address, which we have used as key focus areas when developing each of our initiatives for the next regulatory period. These are explored in detail in sections 5.2 and 5.4.3, but can be summarised as affordability, reliability, sustainability, corporate responsibility, digitisation and automation. Customers have also told us that JEN needs to support them with the energy transition by building their energy capability and increasing their ability to empower them and support their decision-making in the future.

The Transition to SaaS and Cloud
The ICT landscape is transforming with the shift to Software-as-a-Service (SaaS) and cloud-based platforms, moving away from legacy on-premises systems. This transition requires adapting from capital expenditure (capex) to operating expenditure (opex) models and navigating vendor-driven challenges such as lock-in contracts while leveraging cloud technologies to enhance scalability, security, and agility. JEN has modernised its infrastructure by migrating applications to Amazon Web Services (AWS) and will continue evaluating alternative solutions to optimise operations and align with evolving industry practices.

[2] Refer JEN – RIN – Support – Att 03-01 – CER Integration Strategy – 20250131.

1. Introduction

1.1 Purpose and structure of this document

This document explains our proposed ICT capital and operating expenditure for the next regulatory period to ensure our electricity network distribution system and the services we provide remain safe, reliable, and secure. This is necessary to ensure that we respond to our customers' needs and that we do so in a way that our electricity distribution services remain affordable. This document addresses capex, which falls within the definition of software expenditure previously reviewed by the Australian Energy Regulator (AER), as well as opex. Throughout this document, capex and opex are collectively referred to as ICT total expenditure (totex), which is applicable to the distribution network services provided by JEN.

Unless otherwise stated, all financial numbers in this document are presented in real $2024 AUD.

This document is structured as follows:

- Introduction: This section explains the document's relevance to other ICT supporting documents, outlines the role of ICT in our business, and discusses our customer-centric approach.
- Regulatory and Accounting Context: Discusses regulatory frameworks such as the AER's expenditure guidance note,[3] (Guidance Note) the Australian Energy Sector Cybersecurity Framework (AESCSF)[4] and International Financial Reporting Standards (IFRS) impacting the electricity distribution landscape and treatment of expenses.
- Technology Context: This section provides insights into our ICT environment and highlights key industry trends influencing our ICT strategy and technological investments.
- 2021-26 regulatory period (Current Regulatory Period): This section offers an overview of our technology capex and opex for the current regulatory period, including compliance with AER's Final Decision for the current regulatory period.
- Next Regulatory Period ICT Objectives and Outcomes: This outlines our extended technology roadmap, encompassing applications and infrastructure, for the next regulatory period. It includes the planned objectives and strategic themes guiding our ICT forecast.
- Forecasting Expenditure Approach: This section details the principles, processes, methods, and tools used to forecast our ICT expenditure for the next regulatory period.
- Forecast ICT Expenditure: Addresses project-related costs and additional ongoing expenses associated with ICT projects, including licensing, support and maintenance expenses.
- Deliverability: Details how Jemena is committed to delivering a robust ICT portfolio. Describes the governance framework supporting our ICT program and outlines how we will deliver our ICT program during the next regulatory period.

1.2 Relationship to other ICT supporting documents

This Technology proposal provides information about our ICT totex forecast for the next regulatory period. The proposal represents a collective output of business and technology strategies, roadmaps, policies, and standards that support the efficient running of the electricity distribution network business and technologies used to provide services.

A significant part of our ICT totex is directed at maintaining the performance of our ICT assets to ensure they continue to allow us to deliver the services our customers expect. We undertake operational risk assessments with lifecycle and capacity plans to identify when an ICT system's risk profile may change so that we can optimise the scope and timing of remediation solutions. Reviews are also undertaken regularly to evaluate the performance of software and hardware; these evaluations consider the current level of performance compared to the expected

[3] AER, *Non-network ICT capex assessment approach*, November 2019.
[4] Australian Energy Sector Cyber Security Framework (AESCSF) - https://aemo.com.au/-/media/files/initiatives/cyber-security/aescsf/2023/the-aescsf-v2-lite-framework.pdf?la=en

service levels, the frequency of incidents or interruptions, end-user or customer response times when using a service, and many other key performance criteria.

We also consider the rate of expected growth in usage of an ICT service, which may include the number of new customer connection points, the number of system users, and new or changed regulatory obligations that occur from time to time. Once performance evidence indicates the degradation of a service, changes are planned and implemented to remediate the problem.

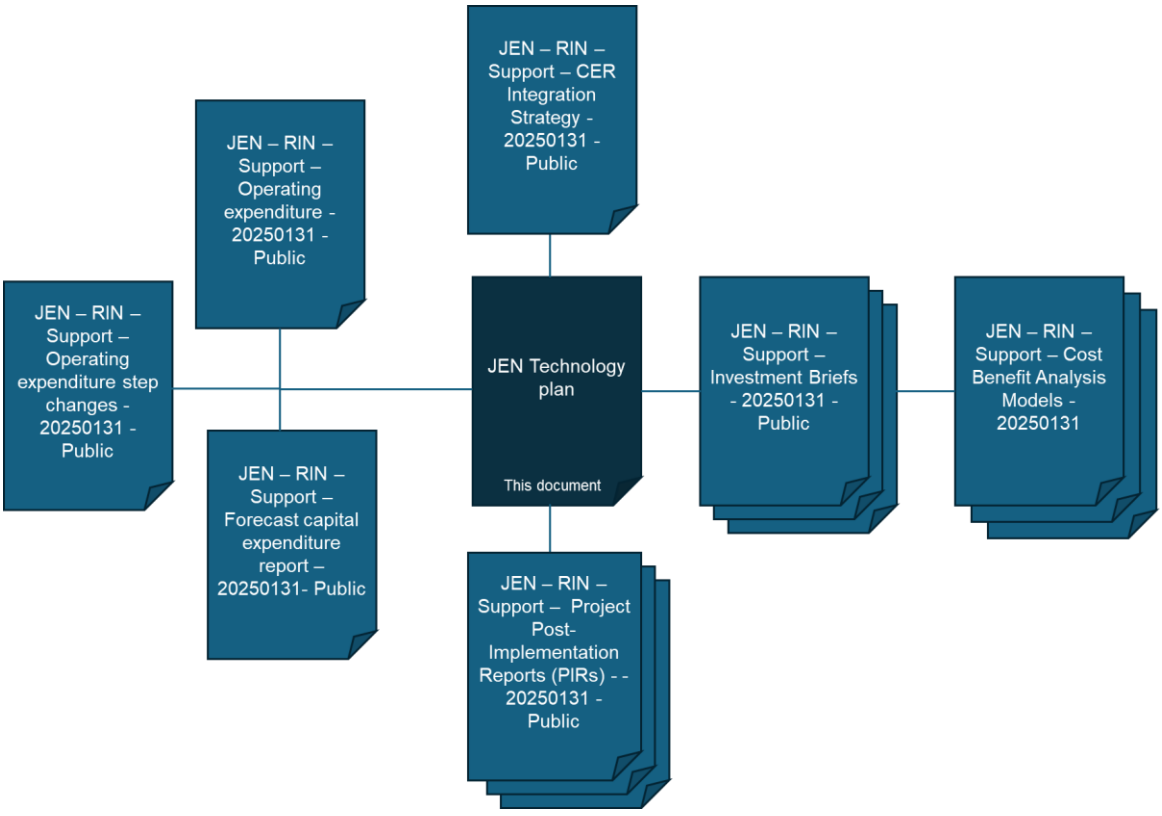
This Technology proposal and the resulting investment requirements are influenced by several internal and external inputs, which are captured and then assessed to determine whether a capability gap exists for any new or changed capability or anticipated service level requirement. Examples of external influences include customers and customer representatives, small business groups, large customers, and retailers. Also, we are subject to changes in regulatory obligations that come from regulatory and legal authorities, including the Australian Energy Market Commission (AEMC), Australian Energy Market Operator (AEMO), Australian Competition and Consumer Commission (ACCC) and the Victorian State Government.

Internally, technology is considered an enabler of the business. Therefore, investment requirements can be based on business requirements requested by teams responsible for planning and delivering services to customers. Jemena's ICT group also contributes to the list of projects in this Technology proposal, which focuses on technology capability and operational requirements to ensure the state of the technology ecosystems remains fit for purpose.

Irrespective of the initiation source of a proposed technology change or requirement, a robust and standardised governance process is employed. This includes establishing business requirements, assessing proposed timing and prioritisation, planning, and financial approval—crucially, ensuring all investments made are in the long-term interests of our customers.

Figure 1 shows the relationship between this Technology proposal and other ICT documents and financial models, which form part of JEN's next regulatory proposal. These materials form part of our overall proposal for the next regulatory period.

Figure 1: JEN regulatory proposal ICT artefacts



2. Regulatory and Accounting Context

2.1 Regulatory and Legislative Context

Meeting regulatory compliance often necessitates implementing new technologies or alterations to existing systems. In this context, it is imperative for us to position our ICT environment to be adaptable and responsive, capable of accommodating these necessary changes. By ensuring the agility and flexibility of our ICT landscape, we not only fulfil our regulatory commitments to work towards the long-term interests of our customers but also reinforce our organisational resilience in the face of regulatory shifts and evolving compliance standards.

There are emerging reporting and legislation requirements that JEN is obliged to comply with, which have been a driving factor behind some of our initiatives. These include:

National Electricity Market Reform Program

AEMO established the NEM Reform Program to collaborate with energy industry participants to deliver many of the Energy Security Board's (ESB) post-2025 reforms along with various other energy market reforms impacting the National Electricity Market (NEM) across the east coast of Australia.[5] The Program is a large-scale, complex, industry-wide program that aims to address essential change in a world of expanding consumer choices, new technologies, and large-scale capital replacement as ageing thermal power stations leave the market.[6]

The ESB's post-2025 electricity market design set out a pathway to transition the NEM into a modern energy system fit to meet the community's evolving wants and needs and move towards a net-zero future for Australia. The designs sought to address essential change as ageing coal-fired generators are retired and replaced by an expanding array of new technologies, including large-scale renewable energy generation and storage systems, complemented by rapid growth in consumer energy options, including rooftop solar.[7] We expect that most of the NEM Reform Program will be implemented over the next regulatory period.

With all the reforms in place, the NEM will:

- allow consumers to benefit from rapidly changing technologies in our power system.
- unlock the value of flexible demand and distributed energy resources.
- work alongside government schemes that are delivering on their policy commitments, including emissions reduction, and provide clear signals for timely and efficient investment to deliver reliable, secure, and affordable electricity for consumers.

The NEM Reform Program impacts JEN and, as a result, JEN will need to invest in ICT capability to remain compliant with the evolving regulatory and market requirements.

National Institute of Science and Technology (NIST) Cybersecurity Framework[8] and AESCSF

JEN uses the NIST Cybersecurity Framework and the AESCSF to assess its cyber-security risk and has an appropriate level of maturity when measured against these frameworks.

In addition to these frameworks, we use threat intelligence from Government and commercial organisations to inform the planning and implementation of appropriate controls and risk-reduction strategies. This approach allows us to deploy controls based on current techniques, tools and procedures used by cyber-adversaries today and into the future. Jemena currently uses general cybersecurity threat intelligence services provided by external agencies that are experts in their field. As products and vendor offerings around security evolve, we may change systems over time.

5 AEMO NEM Reform Program | https://aemo.com.au/initiatives/major-programs/nem-reform-program
6 NEM Reform Program Scope - https://aemo.com.au/-/media/files/initiatives/regulatory-implementation-roadmap/tiles/nem-reform-program-scope.pdf?la=en&hash=121CC0B0C323F9C3744B425F265B8551
7 NEM Reform Program Scope - https://aemo.com.au/-/media/files/initiatives/regulatory-implementation-roadmap/tiles/nem-reform-program-scope.pdf?la=en&hash=121CC0B0C323F9C3744B425F265B8551
8 National Institute of Science and Technology (NIST) Cybersecurity Framework - https://www.nist.gov/cyberframework

[redacted]

JEN must adhere to the [redacted]

Modern Slavery Act 2018 (MSA)[10]

The MSA aims to increase transparency and accountability in supply chains, raise awareness of modern slavery issues, and encourage businesses to take proactive steps to prevent and address exploitation and human trafficking. JEN must implement effective procurement practices to assess and address modern slavery risks across our operations and supply chains. Proactive risk mitigation, including supplier screening and tiering of the supply chain, is crucial.

Scope 3 Emissions Reporting[11]

Jemena is committed to assessing Scope 3 emissions, which include emissions from upstream and downstream activities in our supply chains, as part of our Environmental, Social and Governance (ESG) strategic theme and mandatory climate-related financial disclosures. We will begin reporting from 1 January 2025, with the first report scheduled for publication in 2026. JEN must enable comprehensive reporting and analysis, ultimately improving the accuracy and efficiency of our Scope 3 emissions assessment process.

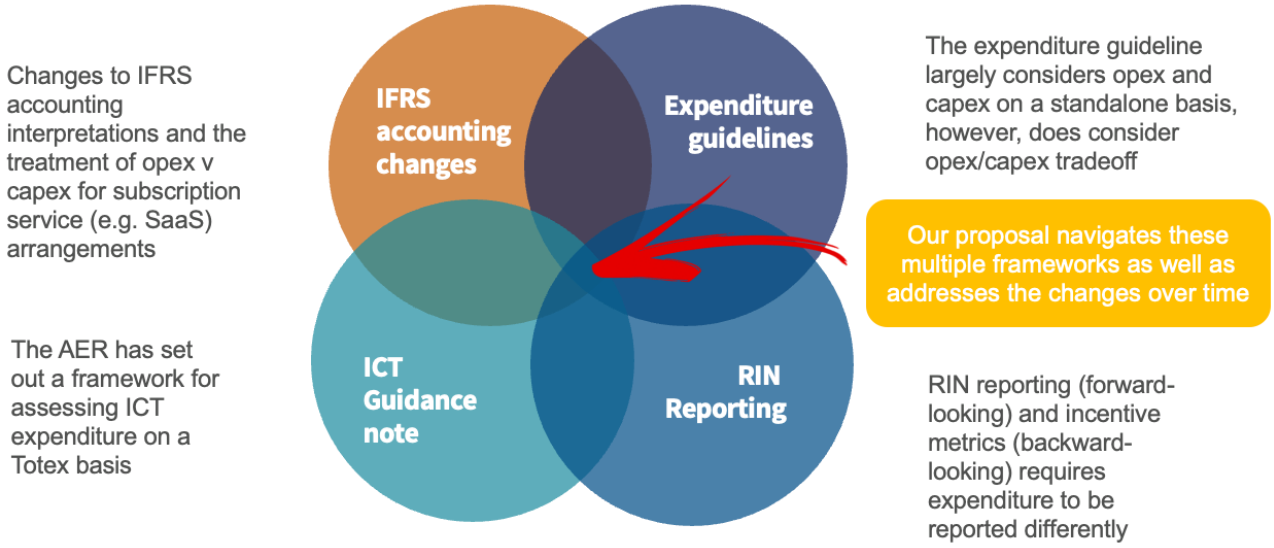
JEN must continue to maintain our systems to comply with existing obligations and respond to new obligations. In many cases, achieving regulatory compliance requires the capability of new or changed systems.

2.2 Changing Reporting Requirements Impacting ICT

Since developing our 2021 Technology Plan, several significant changes have been made to the way we capture and record ICT-related expenditures. These significant changes present complex challenges requiring us to develop a financial model that complies with all the changes concurrently. The most significant change is reporting a large portion of our ICT costs as opex rather than capex. A summary of these changes and the need for concurrency is depicted in Figure 2 below.

9 [redacted]
10 Modern Slavery Act 2018 | (legislation.gov.au)
11 Mandatory climate-related financial disclosures | Commonwealth Government (treasury.gov.au)

Figure 2: Multiple and concurrent frameworks impacting ICT expenditures



2.2.1 IFRS - Adjustment of SaaS implementation costs

The regulatory changes issued by the IFRS Interpretation Committee in April 2021 have significant implications for the accounting treatment of ICT costs, including SaaS costs. Under the new guidelines, costs associated with configuring or customising SaaS and other cloud-based platforms are now classified as operating expenditure when they were previously classified as capital expenditure. Expenses related to software development activities that enhance, modify, or add capability to existing on-premises systems continue to be treated as capital expenditure in relation to intangible software assets. These changes directly impact how we account for ICT-related costs. Specifically, this has led to a significant increase in operating expenditure over the current regulatory period given that SaaS implementation costs were approved as capital expenditure allowances by the AER in the current regulatory period.

In our 2026-31 Draft Plan[12], we demonstrate the change in the treatment of these expenses and the transition over time in more detail. Further details on our approach to forecasting our operating expenditure are set out in our opex[13] and opex step change[14] attachments.

2.2.2 AER Expenditure Guidelines

The industry-wide move towards SaaS is reshaping our capital programs. This shift entails a transition from capex to opex as we embrace pay-as-you-go models. Furthermore, our ICT transformation efforts, including cloud migration, are evolving towards opex-oriented strategies, requiring us to adapt our approach accordingly.

Vendors are also increasingly transitioning towards recurring subscription services, moving away from traditional licence plus maintenance models. This rapid shift towards annualised subscriptions, aimed at safeguarding revenue, has implications for our ICT ecosystem, including the "orphaning" of heritage products previously under licence. Additionally, the proliferation of fully hosted SaaS solutions is narrowing our ICT options.

Moreover, changes in accounting standards, such as those introduced by IFRS, are altering the recognition of assets in ICT projects. These changes restrict the scope of projects eligible for asset recognition and reduce the capture of first-year costs in assets, requiring us to reassess our asset management practices.

Lastly, it's essential to note that the IFRS reporting treatment of capex to opex conversion in regulation varies among network businesses. This discrepancy underscores the need for careful consideration of regulatory

12 Jemena Electricity Networks Draft 2026 Plan, section 5 - https://hdp-au-prod-app-jemena-gridtalk-files.s3.ap-southeast-2.amazonaws.com/9417/2437/6159/JEN_2026-31_Draft_Proposal_-_20240823.pdf.
13 JEN - Att 06-01 Operating expenditure - 20250131
14 JEN - Att 05-01 Capital expenditure - 20250131.docx

frameworks and compliance requirements as we navigate the transition from capex to opex in our ICT investments.

2.2.3 AER ICT Guidelines

Assessing the efficiency of ICT expenditure across distribution businesses can be complex, especially because of the different approaches taken by each business to deploying ICT systems and accounting for ICT expenditure. This is compounded even more due to the rapidly changing technology landscape, which makes the comparison of ICT expenditure across distribution businesses more difficult.

In 2019, the AER developed an ICT Expenditure Guidance Note (Guidance Note)[15] that set out a methodology to standardise its approach to considering ICT proposals in regulatory submissions. However, we note that the guideline has not been updated for the impact of IFRS reporting requirements. Having said that, JEN has considered this guideline note in developing our 2026-31 Plan.

2.2.4 Regulatory Information Notice Reporting

During the 2021-26 period, the AER introduced annual Regulatory Information Notice (RIN) reporting obligations onto JEN. This new set of obligations requires JEN to report financial and non-financial information to the AER annually for analysis purposes. In addition to the annual RIN, JEN must provide RIN related information as a part of our 2026-31 Plan; this information is similar to the annual RIN reporting, however, covers a wider timeframe, including the current and next regulatory periods.

The RIN sets out specific format, interpretation, and framework for reporting financial and non-financial information each year. This framework has linkages to accounting standards, audit standards, and other reporting requirements, making it quite unique relative to the other reporting and costing requirements.

[15] AER, *Non-network ICT capex assessment approach*, November 2019.

3. Technology Context

This section explains our current ICT environment and the key industry ICT trends impacting how we deliver services to our customers.

3.1 Industry trends and impacts on Jemena

We explore some of the key industry trends impacting the technological landscape, recognising their influence on our operations. As we navigate these dynamic shifts, our focus is on crafting a strategy that embraces technologies and innovation[16] whilst effectively addressing evolving industry dynamics. Central to our approach is our commitment to meeting customer expectations and regulatory obligations, underpinned by the objective of continuing to improve the expenditure efficiency of our ICT operating model.

Figure 3: Industry changes and trends impacting JEN's ICT

3.1.1 Energy Transition

There are 3 global megatrends that are currently driving the energy transition and are likely to fundamentally change the structure and function of the electricity system over the next regulatory period and the long term.[17] These are:

- **Decentralisation** - There has been a gradual decline in demand for electricity from centralised sources like power stations. Conversely, generation from, and consumption of, electricity from CER[18] has increased.

- **Decarbonisation** - Federal and state governments are implementing policies to decarbonise the economy, and many have accelerated their emissions reduction targets in recent years. In light of this, and the expected retirement of the coal generation fleet between now and 2050, it is likely that significant amounts of intermittent renewable generation–whether large-scale or CER–will enter the electricity system in its place.

- **Digitisation** - Digital technologies such as smart meters, sensors, automation, machine learning, artificial intelligence and other digital network technologies can create smart integrated networks that better meet customers' needs. Network operators who are late adopters are likely to be left behind, as they have less knowledge of their customers, poorer management of their workforces and assets, and are less prepared for future network changes.

[16] Innovation is important regardless of whether a business is in the inception, growth, maturity, or declining phases of product and service development. The only difference is the type and approach to innovation.

[17] https://www.mckinsey.com/featured-insights/themes/the-trends-shaping-the-energy-transition.

[18] CER are small-scale energy resources owned by customers, which can produce, store, or vary how they use energy. CER includes rooftop solar, batteries and electric vehicles and more traditional assets such as hot water heaters and pool pumps.

JEN must adapt our network to help facilitate the energy system transformation, in line with government policies, rules, and regulations. JEN's CER Integration Strategy[19] addresses this, with collaboration between ICT and Network to ensure the growing digitalisation and complexity of the energy landscape is supported effectively.

3.1.2 NEM Reform

AEMO has outlined a comprehensive roadmap for reforming the NEM.[20] This roadmap is focused on ensuring that the energy system remains secure and reliable and delivers low-emission electricity at an efficient cost to consumers.

ICT capability to support the NEM Reform is pivotal within the electricity distribution network over the next five years. The initiatives aim to adapt the NEM to current and future challenges by integrating more renewable resources and enhancing market operations to maintain system security and reliability.

Key aspects of the reform that are pertinent to ICT include the development of advanced trading solutions that increase market flexibility and adapt to the demands of a changing energy landscape. Additionally, the reform emphasises improvements to data exchange systems and DER/CER management. These enhancements are intended to support a more dynamic and responsive electricity network, facilitating the transition towards a more distributed energy system.

For instance, flexible trading arrangements are being introduced to accommodate a growing number of energy sources, including renewable generation. This requires sophisticated ICT systems capable of handling real-time data and enabling efficient market transactions. Improvements to the DER register and the industry data exchange will also necessitate advancements in ICT systems to ensure accurate and secure data management across a more decentralised network.

Each of these changes is designed to align with broader regulatory and market requirements, setting a foundation that supports sustainable energy practices while ensuring that the network remains stable and operates efficiently. As the rules and processes are established, these ICT enhancements will be critical in complying with evolving regulatory frameworks, managing the associated risks and costs effectively.

This ongoing transformation underscores the critical role of ICT in navigating the complexities of modern energy distribution and the regulatory landscape shaping it. Section 5.4.1 explores this in more detail.

3.1.3 Data driven technologies

The energy transition is accelerating the need for future-focused networks, transforming how Distribution Network Service Providers (DNSPs) manage assets, enhance operational performance, and integrate renewable energy sources. The widespread adoption of advanced data analytics, artificial intelligence, and IoT-enabled devices, such as smart meters and network sensors, is equipping utilities with vital insights to make informed, data-driven decisions that align with the shift towards a more sustainable energy system.

Data analytics is essential for enabling JEN to forecast network demand accurately, optimise renewable energy distribution, and proactively plan for infrastructure that supports the evolving energy landscape. By analysing both historical and real-time data, JEN can improve network efficiency, prioritise maintenance, streamline upgrade planning, and enhance customer experience. Predictive analytics and AI-driven algorithms assist in detecting potential equipment issues before they lead to disruptions, enabling a more efficient network.

Utilities around the world are increasingly adopting and investing in improving their analytical capabilities to support the energy transition, take advantage of data collected and surmount increasingly complex challenges. Recent Australian examples include:

- Ausgrid's $30 million data and analytics program[21] aims to provide data in the right channels and format to empower customers, enhance internal capabilities to meet the changing needs of the community and

[19] JEN – RIN – Support – Att 03-01 – CER Integration Strategy - 20250131
[20] AEMO NEM Reform Program, https://aemo.com.au/initiatives/major-programs/nem-reform-program.
[21] Ausgrid 2023, Attachment 5.9.f Data & analytics program - https://www.aer.gov.au/system/files/Ausgrid - Att. 5.9.f - Data %26 analytics program - 31 Jan 2023 - Public.pdf.

undertake scenario-based optimisation to improve operational efficiency and safety outcomes. New capabilities include a data lake expansion and data to intelligence, asset data analytics and predictive maintenance capabilities. Key quantifiable benefits are the optimisation of asset management as their field force.

- AusNet's $40 million information management program[22] to extend the information management platform to enable access to timely, accurate data (across all core systems, assets, and processes), enabling more advanced data analytics and reporting to support better decision-making.

Machine learning (ML) has evolved from an emerging technology to a critical tool, establishing a new paradigm in data analysis and energy demand forecasting. ML enables the creation of sophisticated models to predict demand patterns and optimise renewable energy distribution. By training algorithms on historical consumption data, utilities are increasingly able to plan for future distribution needs, thereby maintaining network stability and sustainability.

Digital metering and IoT integration are further transforming the energy network by providing real-time visibility of electricity usage and performance. These smart meters enable utilities to enhance distribution efficiency, detect faults promptly, and support demand-response programs. By 2030, the global utilities sector is expected to triple its investment in smart meter analytics, which will play a pivotal role in optimising network management and enhancing customer service.[23]

These advancements are driving several key impacts:

- A shift towards data-driven decision-making is underway as companies invest in analytics capabilities and data science talent.
- The role of field technicians is evolving due to AI and machine learning insights, allowing for a focus on complex tasks and proactive maintenance rather than routine inspections.
- Enhanced analytics enables utilities to provide accurate billing, personalised energy insights, and tailored energy-saving recommendations, improving customer satisfaction and promoting conservation.

To enable JEN's CER Integration Strategy, JEN must ensure a strong foundation in data quality, accessibility, and governance. As data becomes central to delivering value, JEN must expand the scope and depth of these capabilities. Investment in areas such as data analytics and supporting infrastructure, geospatial systems, and robust data governance will be crucial from 2026-31 to keep pace with change and maintain performance within the energy sector. By continuing to explore and invest in data-driven technologies, JEN will be well-positioned to support the energy transition and a more sustainable future.

3.1.4 Customer Engagement Platforms

With the digitisation of the energy network, it is more critical than ever to invest in customer platforms and engagement to support customers in the transition to a low-carbon, decentralised energy system. As consumers take on a more active role in energy generation and consumption—through technologies such as smart meters, home energy management systems, rooftop solar, and battery storage—there is an increasing expectation for greater control, transparency, and personalisation in their energy services.

ICT plays a vital role in enabling energy providers to enhance customer interactions, offering real-time insights into energy consumption, personalised tariffs, and self-service platforms. This shift towards digital customer engagement aligns with modern expectations for energy services, allowing consumers to make informed decisions about their energy usage and optimise their consumption patterns. Digital customer engagement tools also improve transparency, providing customers with valuable insights into their energy consumption, fostering trust, and improving overall satisfaction. While not directly critical to the core operations of the grid, these platforms

[22] Ausnet. (2022). ASG – GAAR – ICT Program Brief Information Management – 11 July 2022 – PUBLIC.pdf (aer.gov.au) - https://www.aer.gov.au/system/files/ASG %E2%80%93 GAAR %E2%80%93 ICT Program Brief Information Management %E2%80%93 11 July 2022 %E2%80%93 PUBLIC.pdf

[23] https://www.smart-energy.com/industry-sectors/smart-meters/utility-spending-on-smart-meter-analytics-to-triple-through-2030/?utm_source=chatgpt.com

help streamline customer interactions and support the broader transition to more sustainable and decentralised energy models.

Moreover, investing in digital platforms allows energy providers to offer seamless user experiences and tailored solutions, helping to unlock the value of flexible demand and distributed energy resources. This two-way communication capability enables faster issue resolution, proactive engagement, and enhanced customer loyalty, which are essential as the energy market evolves. At the same time, these digital platforms help JEN comply with complex regulatory requirements, particularly in light of government policies aimed at emissions reduction, increased sustainability and continued compliance requirements.

3.1.5 Cloud Computing and Vendor Dominance

[redacted]

[24] Accenture. (2020). The cloud imperative for the energy industry. Cloud Computing in the Energy Industry | Accenture - https://www.accenture.com/us-en/insights/energy/cloud-imperative-energy.

[25] Locating ICT assets and services within Australia is a legal and regulatory requirement for JEN.

[redacted]

3.1.6 Cybersecurity

Digitalisation has permeated and altered all aspects of our day-to-day lives; organisations and individuals now have more access to information, communication options and an environment that adapts to the way people and organisations want to work and interact. This has created opportunities to evolve business models, better understand customers, create simpler processes and improve business efficiency. However, with this comes increased exposure to cybersecurity risks, and with the increasing digitisation of electricity distribution networks, cybersecurity and data privacy have emerged as critical concerns for utilities and our customers.

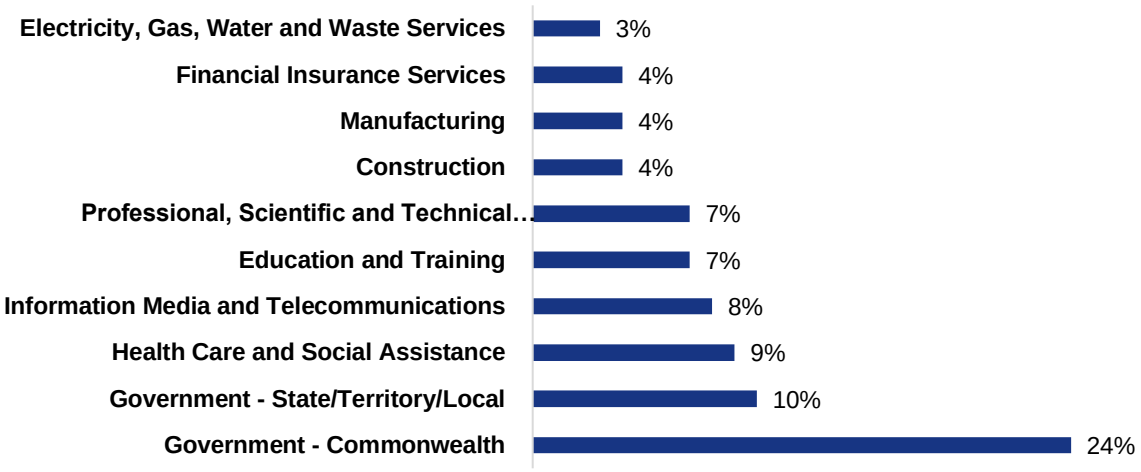
Cybersecurity risks continue to challenge companies in Australia and across the critical infrastructure sector. In 2022, cyber incidents reported to the Australian Signals Directorate (ASD) have seen the utility sector move into the top 10 industries based on the volume of reported incidents (see Figure 4).[26] Additionally, the ASD's 2023 Cyber Threat Report highlights that the number of cyber incidents in Australia is maintaining an upward trend.[27] In FY23, approximately 94,000 cyber incidents were reported to the ASD, a 24% increase from the 76,000 reported the previous year and a rate of growth that greatly outpaces the business growth. In the same period, 143 cybersecurity incidents were related to critical infrastructure operational technology and across Australia, significant data breaches resulted in millions of Australians having their information stolen. Cyber security threats are expected to continue increasing, with Gartner predicting[28] that by 2025, 30% of critical infrastructure worldwide will experience a breach that will result in the halting of either operations or mission-critical cyber-physical systems.

[26] ACSC-Annual-Cyber-Threat-Report-2022_0.pdf - https://www.cyber.gov.au/sites/default/files/2023-03/ACSC-Annual-Cyber-Threat-Report-2022_0.pdf

[27] ASD Cyber Threat Report 2022-23 - https://www.cyber.gov.au/sites/default/files/2023-11/asd-cyber-threat-report-2023.pdf

[28] Gartner predicts 30% of critical infrastructure organisations will experience a security breach by 2025 | Gartner (gartner.com)

Figure 4: ASD's top 10 industry sectors for cybersecurity incidents in FY22



[redacted]

To date, we have undertaken a significant level of effort and activity to make our technology environments more resilient so that in the event of a cyber attack, we are prepared and ready to restore services as quickly as possible and with minimal loss. Jemena invests in its cybersecurity function with an ongoing recurrent commitment that allows us to manage known and emerging risks. By continually assessing threat intelligence, Jemena has increased its cybersecurity capability, investing in staff and technology to implement key controls. Going forward, cybersecurity is a priority investment area over the next regulatory period as the consequences of a successful breach or incident are critical to the safety and security of the distribution system and the services JEN provide to customers.

3.2 Current ICT environment at Jemena

From a technology capability viewpoint, our current architecture is both modern and progressive, providing a fit-for-purpose set of core technologies that ensure continued resilience in the face of a changing external environment. As described in Section 3.1, key industry trends are impacting the electricity distribution network and it's crucial to highlight how these trends are directly impacting our ICT environment. We're witnessing significant shifts that necessitate adjustments in our approach to ICT investment and expenditure.

Jemena uses a shared services model for its range of assets, with a significant portion of technology being shared between its regulated gas and electricity distribution networks[redacted]. This approach enables Jemena to achieve enhanced efficiencies by sharing fixed costs of a large portion across a larger customer base, as opposed to incurring these costs individually. However, it is important to note that not all systems can be shared among multiple businesses, in which case costs have been allocated in accordance with the Jemena Group Cost Allocation Methodology.

[redacted]

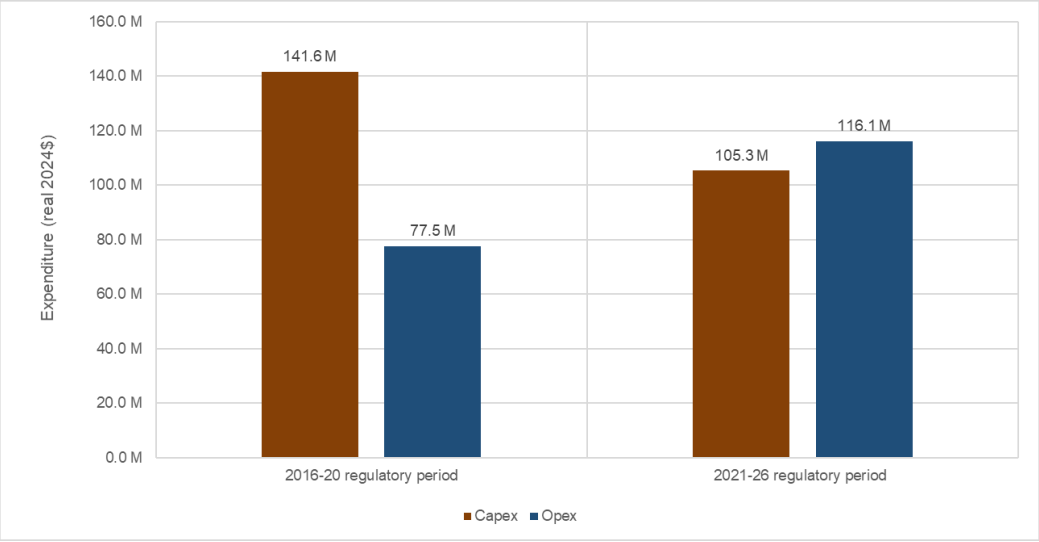
4. Current Regulatory Period

This section provides an overview of our ICT totex in the current regulatory period, including against the ICT allowance set out in the AER's Final Decision for the current regulatory period.

4.1 Previous and Current Regulatory Period Totex

A comparison of capex to opex expenditure from the last regulatory period to the current regulatory period is depicted in Figure 6.

Figure 6: Previous and current regulatory periods opex and capex comparison



Note: Reporting in the current regulatory period comprises a blend of actual and forecast values through to the end of the current regulatory period.

There is an increase in opex from the last regulatory period to the current regulatory period predominantly driven by the following:

- **SCADA team re-allocation of costs:** As a result of the increasingly close link between ICT and SCADA, the costs associated with the SCADA team moved into the ICT budget.
- **Investment in Cybersecurity:** Jemena has continued to invest in cyber security, with a sevenfold increase in expenditure since 2019. These investments have been crucial to maintaining robust cybersecurity defences in an increasingly digital landscape.
- **Enhanced Data and Analytics Capabilities:** With an increasingly digital environment and the prevalence of data, we have invested in uplifting data and analytics capability which has seen a 50% increase in associated opex from 2019 to 2023.
- **Cloud engineering capability to support the transition to Cloud-Based Storage Solutions:** The strategic shift away from on-premises (treated as capex) to cloud-based storage solutions as a service has been a key contributor to a decline in capex and uplift in opex. There has been investment in new cloud engineering capability to derive benefits from this new model.
- **Licensing costs have increased:** We have also seen rising licensing fees from key vendors such as SAP, Microsoft, and Optus that have contributed to the escalating opex reflecting the ongoing reliance on proprietary software solutions.
- **Accounting Treatment for SaaS:** Following the IFRS Interpretations Committee (IFRIC) guidance in April 2021, all SaaS-related expenditure is now classified as opex, further contributing to the overall increase in ICT operating expenses from one period to the next.

4.2 Actual and estimated ICT capex against AER allowance

Figure 7: Current regulatory period compared against AER's final capex allowance ($2024)

We will deliver on our ICT capex program of work commitment for the current regulatory period. Our actual and estimated capex for the current regulatory period is $105.3M (which excludes SaaS-related costs) compared with the AER's allowance in its Final Decision of $125.3M (which includes SaaS-related costs), with an overspend of $20.1. As shown in Figure 7, there was lower-than-expected spending in the first three years (FY22 to FY24) and a significant increase in estimated spend across FY25 and FY26.

Reduced spend seen across the first three years (FY22 to FY24):

- Throughout the current regulatory period, we have followed our ICT Project Management Lifecycle and Governance process. Before making a final investment decision, we carefully evaluate each proposed project, which can sometimes lead us to implement alternate, more economic solutions or adjust timelines compared to those outlined in our initial price review forecast. We prioritise ICT projects across our portfolio by continually reviewing emerging risks, priorities, and regulatory requirements. As a result, the delivery of projects or allocation of funds may differ from what was initially forecast.
- Additionally, while optimising the ICT program helped reduce some capex, certain projects initially planned as capex ultimately used opex funding, particularly for cloud-based solutions, as these are now typically recognised as opex under current accounting standards.

Increase in estimated spend across FY25 and FY26

- In the last two years, we are forecasting a marked increase in expenditure due to the introduction of NEM reform and related regulatory requirements (as detailed in Section 5), and capability to support CER integration. These initiatives have driven up both recurrent and non-recurrent capex.

4.3 Benchmarking

JEN consistently ranks as one of the most efficient operators in ICT costs within the NEM. Figure 8 demonstrates that JEN's ICT recurrent spend per user (recurrent ICT opex plus recurrent ICT capex) is slightly above the average compared to other DNSPs in the NEM. Although JEN appears to spend at slightly higher rates than its peer businesses when using this metric, this investment enables us to achieve an overall lower cost for customers,

which is a better demonstration of efficiency, as shown in Figure 9. By embracing technology and leveraging our ICT capabilities JEN can deliver efficient services.

Figure 8: Recurrent ICT spend per user – 5 year rolling average[29]

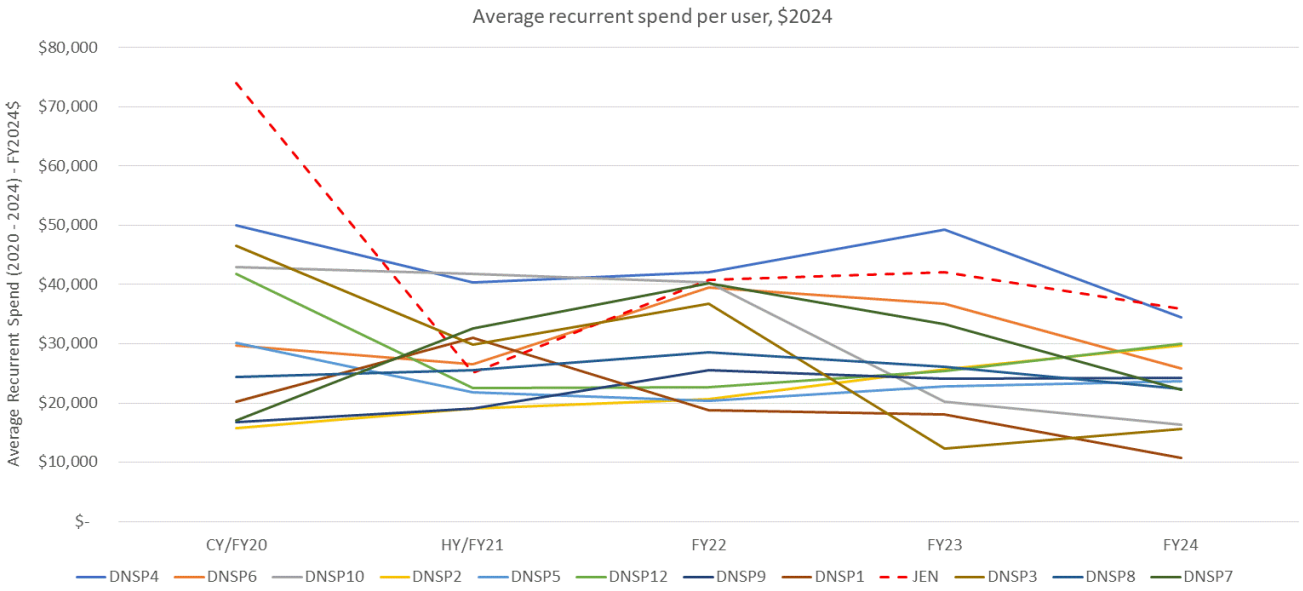
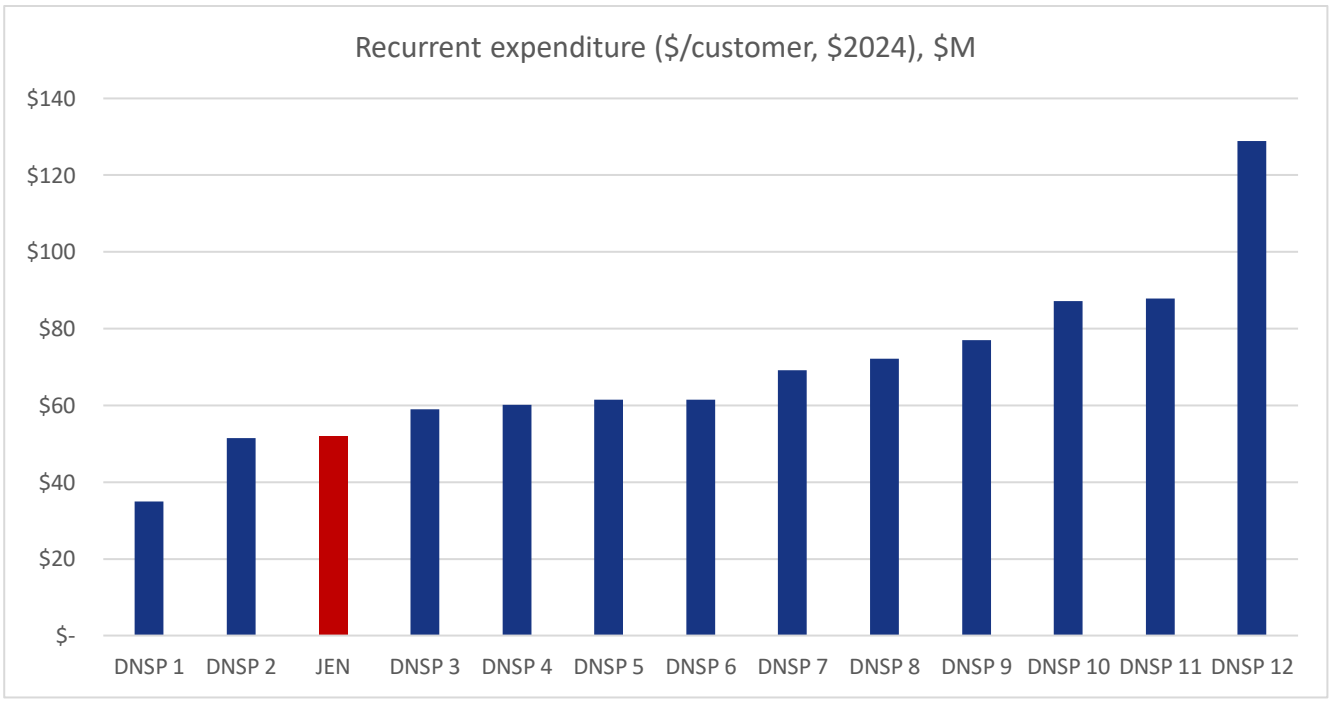


Figure 9 below illustrates JEN's position as one of the most efficient operators in the NEM (based on the data shown in Table 1). Our low average recurrent spend per customer, across the last 5 years, places us among the top-performing businesses in terms of cost efficiency.

Figure 9: Average Recurrent Spend by Customer Numbers compared to DNSPs across the NEM



Our ability to optimise scale by leveraging shared resources across the Jemena group has been instrumental in achieving this. Even when benchmarked against larger organisations, our recurrent expenditure remains

[29] Benchmarking methodology is in line with the AER ICT Guidance Note. UED has been removed as data considered as an outlier.

significantly below the average. This operational efficiency allows us to provide value and maintain consistent levels of service expected by our customers.

Table 1: Data used to calculate Average Annual Recurrent Spend by Customer Numbers compared to DNSPs across the NEM

Organisation	Average Customer Numbers	Average Annual Recurrent Spend ($2024, $M)
DNSP 1	216,719	7.6M
DNSP 2	1,082,421	55.7M
JEN	374,654	19.4M
DNSP 3	900,213	53.1M
DNSP 4	1,782,687	107.2M
DNSP 5	1,568,367	96.3M
DNSP 6	798,352	49.1M
DNSP 7	300,825	20.8M
DNSP 8	929,308	67.1M
DNSP 9	942,308	72.5M
DNSP 10	348,393	30.4M
DNSP 11	710,481	62.4M
DNSP 12	777,014	100.1M

4.4 Major projects and programs

A summary-level assessment has been included in Table 2 to demonstrate the capabilities delivered throughout the current regulatory period.

As well as the detail provided here, post-project implementation reports (PIRs) are available in Appendix A2 to provide further details on the projects that were completed and were over $1M in value.[30]

Table 2: Key capabilities delivered in the current regulatory period

What was planned and delivered	Description
Customer Experience (CX) Uplift Foundation	Responding to feedback from our customers, optimising existing technologies to create a seamless, personalised, customer-focused digital experience to enable customers to self-serve, manage their energy needs and interact with us anytime, anywhere.
Customer Switching & B2B Procedure Changes	The Project Objectives were to implement: • The Customer Switching changes mandated by AEMC. • B2B Procedure v3.5/3.6 changes as mandated by the IEC.
JEN Market & B2B Changes	On 24 February 2020, AEMO published the Notice of First Stage Consultation and the Issues Paper for the Market Settlement and Transfer Solutions (MSATS) Standing Data Review (MSDR). AEMO developed a set of guiding principles for the MSDR to ensure the data is complete, accurate and useful for participants and consumers. The

[30] Per s.2.5 of the Guidance Note.

What was planned and delivered	Description
	Issues Paper detailed proposed changes to add, update or remove fields in the MSATS Procedures. The changes introduced 23 new fields, amended 27 existing fields, and decommissioned 28 fields.
FIRB Compliance - Remote Access	Jemena is required to comply with a number of conditions set by FIRB, including a specific requirement related to how Jemena's control systems are remotely accessed. Jemena was required to implement the Australian Cyber Security Centre (ACSC)'s Remote Access protocol (RAP).
Collaboration Technology Refresh Program	The Collaboration Technology Lifecycle refresh project was established to improve the security posture and maintain the reliability and relevance of Jemena's Collaboration technology via the lifecycle of unsupported environments. This project encompassed the lifecycle of collaboration technology in 56 meeting rooms and 15 collaboration spaces across 5 major sites.
Cloud Adoption (Migration)	Current on-premises IT compute infrastructure was nearing the end of service life and was no longer being supported by the vendor, therefore, needed replacing or upgrading to mitigate security and operational business risks. Rather than replacing on-premises hardware with like-for-like fully supported infrastructure, the option was taken to migrate corporate workloads to the cloud delivering greater business agility at a reduced cost to the customer in the long term.
5 Minute Settlement Phase 3 & 4	Modification to systems to meet new National Electricity Rule obligations to deliver 5-minute interval meter data to market. The change is expected to result in a reduction in the wholesale electricity costs for customers.
The VVC Pilot	The VVC Pilot project was established to validate that the DVM capability could be utilised to monitor and control voltage on the electricity network to maintain acceptable quality of supply to our customers. The VVC solution was established in a small section of the electricity network to validate that the VVC solution would support the DVM capability, where near real-time Advanced Metering Infrastructure (AMI) data is used to feedback signals to dynamically adjust zone substation transformer voltage settings to ensure that network voltages are within regulated limits.

Table 3 details delayed projects and the reasons the projects have taken longer to implement than expected.

Table 3: Projects that were partially deferred in the current regulatory period

What was forecast and delivered	Description
ERP – SAP S4/HANA (Preparation phase only)	Consisting of the SAP ECC upgrade, core functionality migration was planned ahead of declared end-of-support in 2027. Instead, a phased migration approach will cover finance, procurement, human resources, and other corporate functions, leaving the asset and works management modules to be addressed in a future regulatory period. This approach reduces operational risk by upgrading progressively.

5. Next Regulatory Period

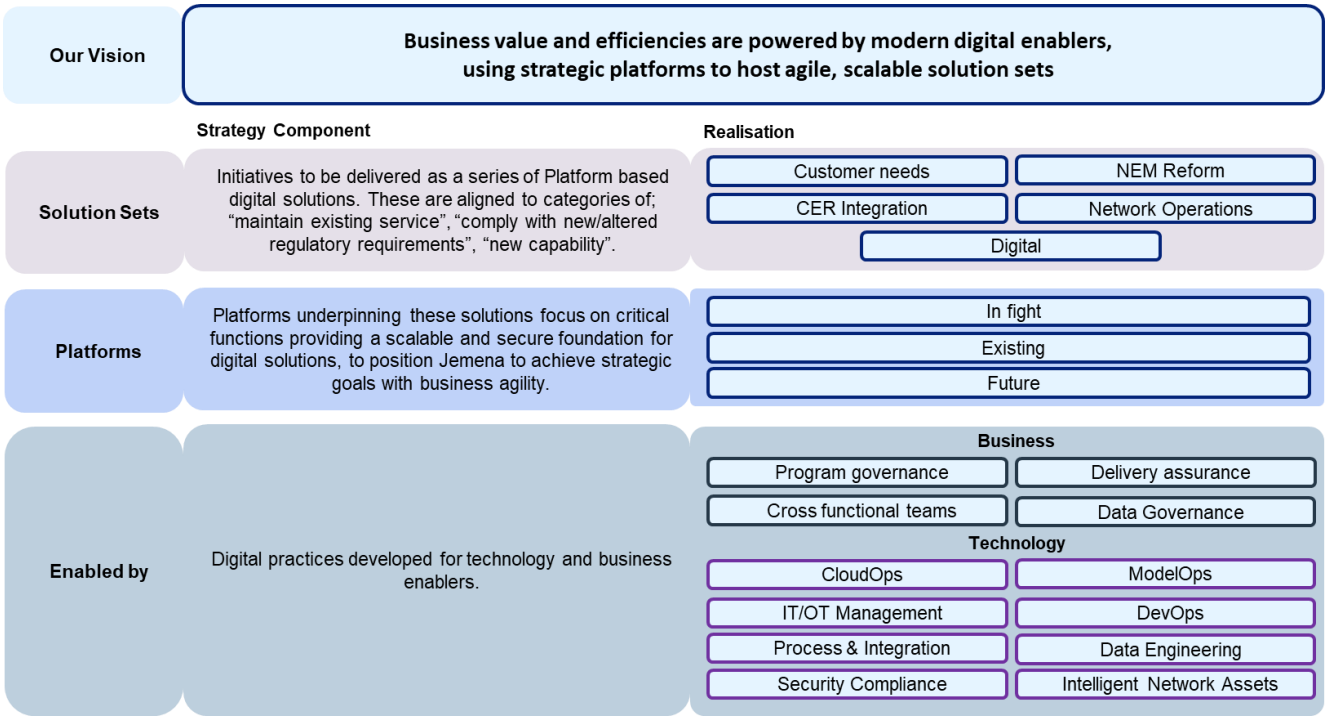
This section explains the key drivers and strategic themes of our forecast ICT totex for the next regulatory period.

5.1 ICT strategy

Our ICT strategy, shown in Figure 10, represents a dynamic response to the shifting demands of the energy market we operate in (as detailed in Section 3) and the evolving needs of our customers (as detailed in 5.2).

Alongside these external challenges that drive adaptability in the provision of ICT-related services, throughout the current regulatory period we have also sought to create a less complex and more scalable set of technologies and platforms that will have longer-term benefits for our customers into the next regulatory period and beyond.

Figure 10: JEN's ICT Strategy Overview



Our ICT strategy is designed to meet the evolving demands of the energy market and the changing needs of our customers by simplifying and modernising our technology platforms. By focusing on agile, scalable solutions and leveraging digital enablers, we reduce complexity and ensure long-term adaptability. This approach delivers efficiencies and business value now, while positioning us to better serve customers in the future, driving sustained benefits beyond the current regulatory period.

In today's digital landscape, it is more important than ever to be smarter and innovative in how we approach new challenges and opportunities. Innovation allows us to uncover new efficiencies, leverage emerging technology and reimagine traditional processes to enhance productivity and effectiveness. An example of innovation can be seen across our proposed Strategic Network Analytics Platform (SNAP), which highlights how utilities worldwide are innovating by investing in improving their analytical capabilities and leveraging data collected to address increasingly complex challenges.

5.2 The voice of our customers

To understand the needs and expectations of our customers and stakeholders and ensure that they would genuinely shape our ICT strategy, we have undertaken an extensive engagement program over an 18-month period, which has tackled head-on the critical challenges associated with the energy transition towards net zero,

and uncertainty surrounding the future role of electricity networks. Figure 11 outlines our customer engagement objectives that helped guide us on our customer engagement journey.

Figure 11: Our Customer Engagement Objectives

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 proposal for the next regulatory period.

With a constantly changing environment and increasing cost of living pressures, providing a fair energy future has never been more important than now. With the increase in customer uptake of renewables and other technologies, people are rapidly changing both how they use electricity and what they expect from the electricity network. This compels us to rethink the best ways to plan for the future and charge for electricity in a way that is fair and equitable for everyone and meets different customer expectations. Throughout the engagement process we asked our customers to think about and make suggestions and recommendations on the question "How should Jemena prepare for a sustainable energy future while meeting customer and community needs today?".

Our customers have spoken, and we listened. Key customer priorities on how we should prepare for a more sustainable energy future while meeting customer and community needs today from customers include:

- **Affordability, equitable and fair tariff reform**:
  Our customers want electricity prices to be affordable. They want us to implement a tariff structure that is fair for different types of customers, such as solar and non-solar.

- **Reliability, resilience, power quality**:
  Our customers want us to prioritise investment in network reliability in order to maintain service standards, power quality and customer experience and accommodate new growth. They want us to prioritise investment in network resilience to help us withstand and recover from the effects of a natural hazards or disasters.

- **Sustainability:**
  Our customers want us to facilitate the transition to renewable energy sources and champion renewable energy in new housing and estates. Customers see us playing a leading role in enabling energy storage and incentivising battery take-up and they want us to prepare for the increase in EV charging. Customers expect our operations to be sustainable and to maximise the use of green energy across the network as much as possible.

- **Corporate responsibility:**
  Our customers want us to continue to provide support for customers experiencing vulnerability and to help protect the land.

- **Digitisation and automation**:
  Our customers want us to digitise and automate the network to make it smarter, more responsive, and more efficient.

- **Ongoing customer service excellence**:
  Customers strongly want us to take a leading role in empowering and educating customers through the energy transition and making communications to customers efficient and accessible. This is a key driver of the initiatives that make up our forecast expenditure for the next regulatory period.

We believe that our suite of ICT initiatives (outlined in Section 7.2) are aligned with these customer priorities. We detail how we address each of these customer priorities in each of the individual Investment Brief Documents (listed in Appendix A1).

5.3 Key ICT principles

When determining our ICT totex for the next regulatory period, the following key principles have been applied to ensure our investments align with organisational objectives and priorities:

- **Reliability and Availability:**
  Systems must be reliable and available to minimise downtime and ensure operational continuity. This emphasises the importance of robust infrastructure, redundancy measures, and proactive maintenance strategies to mitigate the risk of service disruptions and interruptions.
- **Security:**
  Security is paramount to protect data, systems, and networks from unauthorised access, breaches, and cyber threats. This principle involves implementing comprehensive security measures, such as encryption, access controls, intrusion detection systems, and regular security audits, to safeguard sensitive information and maintain the integrity of ICT assets.
- **Scalability and Flexibility:**
  Designing for future needs involves creating ICT infrastructure and systems that can adapt to changes in demand and technological advancements. This emphasises the importance of scalability and flexibility in accommodating growth, evolving requirements, and emerging technologies without requiring extensive rework or costly upgrades.
- **Performance Optimisation:**
  Planning, monitoring, and optimising hardware, software, and network performance are essential to ensure efficient operations and user satisfaction. This shows our commitment to ongoing performance monitoring, capacity planning, and optimisation efforts to identify bottlenecks, improve resource utilisation, and enhance overall system performance.
- **Standardisation:**
  Standardising ICT processes, configurations, and procedures promotes consistency and minimises potential human error. This highlights our commitment to establishing standardised frameworks, best practices, and protocols to streamline operations, facilitate interoperability, and simplify management across ICT environments.
- **Compliance and Governance:**
  Ensuring compliance with relevant laws, regulations, and industry standards is imperative to address obligations. This principle involves implementing robust governance frameworks, policies, and controls to uphold data privacy, security, and ethical standards while adhering to regulatory requirements and industry guidelines.
- **Cost Optimisation:**
  Evaluating the cost-effectiveness of ICT investments and optimising costs while maximising value and performance is essential to achieving financial sustainability. This principle involves conducting thorough cost-benefit and options analyses, optimising resource allocation, and implementing cost-saving measures without compromising quality, security, or service levels.
- **Alignment with Business Objectives:**
  Aligning ICT spend and services with business needs ensures that technology investments contribute directly to organisational goals and objectives. This principle involves close collaboration between ICT and business

stakeholders to prioritise initiatives, allocate resources effectively, and deliver ICT solutions that support strategic priorities and drive business outcomes.

5.4 JEN's key drivers of change

In response to the industry trends outlined in section 3.1, JEN is taking strategic steps to ensure we remain adaptable, customer-focused, and technologically equipped for the future of energy.

5.4.1 NEM Reform

With a constantly evolving regulatory landscape, digital technologies will play a vital role in enabling JEN to meet new obligations. In alignment with ongoing NEM reforms (refer section 3.1.2), our Digital team is expanding its capability to manage the complex new market obligations associated with the energy transition. This increased capability will ensure we can meet regulatory requirements and support a smooth and effective transition to the future energy system, supporting a more modern, secure, and sustainable energy market.

5.4.1.1 NEM Reform Program

The ESB, in collaboration with AEMO, AEMC and the AER, has set a pathway to transition the NEM into a modern energy system fit to meet the policy expectations of shifting towards a net-zero future for Australia.

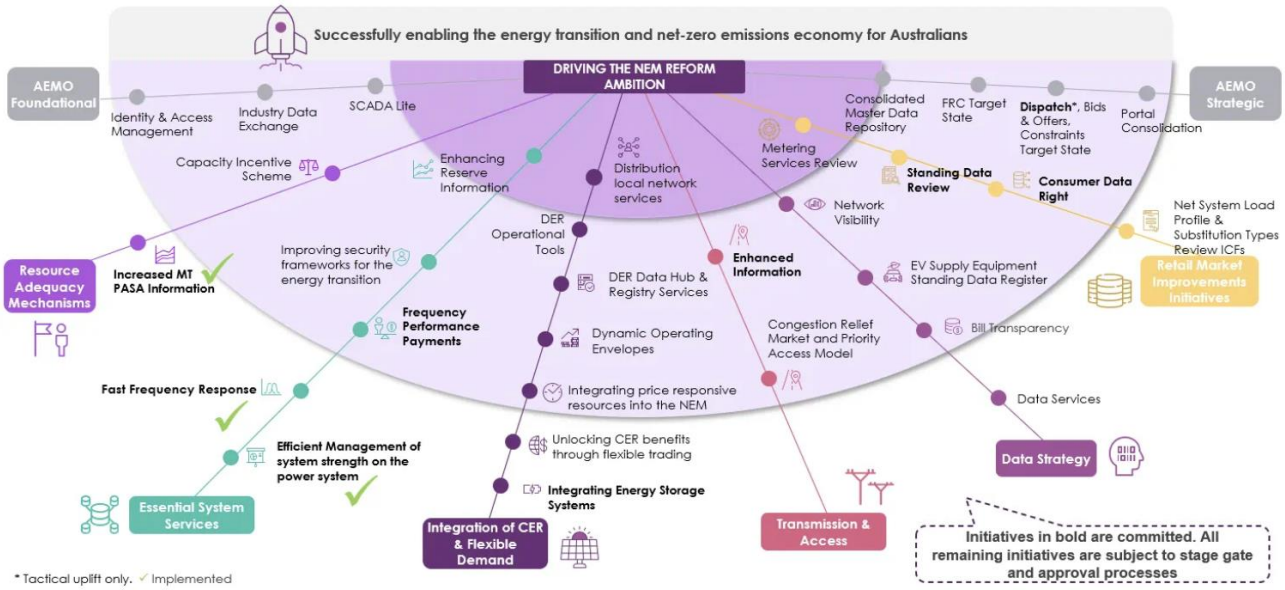
The post-2025 electricity market design addresses essential change as ageing coal-fired generators are retired, replaced by an expanding array of new technologies, including large-scale renewable energy generation and storage systems, complemented by rapid growth in consumer energy options, including rooftop solar.

The ESB defined four reform pathways and a data strategy, and AEMO identified supporting foundational and strategic initiatives. More than 30 projects (or initiatives) are planned within these reform pathways.

NEM Reform is a large-scale, complex, industry-wide program that impacts participants across all areas of the national electricity market. Each initiative supports the transition of the NEM and brings Australia closer to a net-zero future.

5.4.1.2 NEM Reform Roadmap

Figure 12: NEM Reform Roadmap[31]



AEMO has proposed the implementation of the reform initiatives depicted in Figure 12, with a full rollout expected during the next regulatory period. Some initiatives are committed, indicating they will proceed as planned. In contrast, the remaining ones are subject to stage gate approval, meaning their implementation will depend on further evaluations from AEMO and other market participants. This means that whilst there are numerous reform initiatives on the roadmap, it remains unclear which initiatives will directly impact JEN.

The reform initiatives that have been committed will necessitate significant enhancements to our ICT systems, driving increased investment.

In the current regulatory period JEN are investing in 3 reform initiatives that we consider have a reasonably clear scope of work and a high probability of proceeding.

- **Integrating price responsive resources into the NEM:** integrated price responsiveness to establish a voluntary mechanism to incentivise price-responsive CER to provide visibility and participation in the market scheduling process of the NEM (5MW to 30MW).
- **Unlocking CER benefits through flexible trading (FTA):** flexible trading arrangements to enable small and large customers to have their CER separately identified and treated independently in market settlements - allowing them to engage with multiple service providers if they choose to.
- **Market Interface Technology Enhancements (MITE):** IDAM, IDX and portal consolidation were identified as a set of foundational and strategic initiatives within the NEM reform implementation program to provide foundational frameworks that the upcoming reform initiatives can leverage.

'Market Interface Technology Enhancements' and 'Unlocking CER benefits through flexible trading' will both also require investment in the next regulatory period and is included in our forecast.

5.4.1.3 Managing Reform Uncertainty

In light of the ongoing development of final rules and processes around the Post-2025 NEM reforms, we face the challenge of managing uncertainty, especially since many projects have been costed before these requirements are fully defined by AEMO. This introduces potential financial risk—for both JEN and our customers—due to unforeseen changes in requirements, which will affect project budgets and timelines. To mitigate this risk, we have implemented a series of strategies to ensure that we have only included ICT NEM reform programs of work

[31] https://aemo.com.au/-/media/files/initiatives/regulatory-implementation-roadmap/tiles/nem-reform-program-initiative-briefs.pdf?la=en&hash=3A8BF2B887F6AD91DB99F95941E27BDE, Figure 1

that we consider have a reasonably clear scope of work and a high probability of proceeding. For those yet to be defined, we will update our ICT roadmaps—noting that the flexibility of the platform architecture we are implementing allows us to do this efficiently— in our revised proposal to the AER in December 2025 or through the AER's cost pass-through mechanism.

Prioritising NEM Reform Initiatives

As detailed above, we have prioritised the known NEM Reform initiatives that are likely to impact JEN in the next regulatory period based on a structured analysis of potential regulatory changes. Table 4 details the NEM reform programs which we have not costed for the regulatory period but believe, at this early stage, may impact JEN.

Table 4: Unknown NEM Reform Programs

NEM Reform Initiatives	Potential Impact on JEN	Status
Network Visibility[32] Optimise benefits from DER and network assets for all customers by informing market stakeholders making DER planning decisions and managing network capacity risks.	**High**	**Quite Uncertain** Unsure of – Timing – Scope – Will it go ahead
EV Charging[33,34] Ensure that agencies and market participants have sufficient visibility of emerging electric vehicle supply equipment (EVSE) for effective system planning and management.	**Medium**	**Uncertain** Unsure of – Timing (aiming for May 2026) – Scope
DER datahub and registry services[35] Establish a DER Data Hub to provide efficient and scalable data exchange and registry services for DER between industry actors and potential augmentation of DER Register to enable more efficient and permission-based sharing and access to information.	**Unknown**	**Highly Uncertain** No details on: – Timing – Scope – Will it go ahead
Distribution Local Network Services[36] To identify ways to make it easier for DER aggregators to trade local network support services with DNSPs/Distribution System Operators (DSOs), through greater visibility of local network constraints aligning the definitions of local services and how they are traded between regions.	**Unknown**	**Highly Uncertain** No details on: – Timing – Scope – Will it go ahead
DER Operating Tools[37] To identify and develop, in collaboration with DNSPs, new DER operational tools that may be required by each party, which can work together to maintain efficient and secure power system operations at times when up to 100% of system load can be met with DER.	**Unknown**	**Highly Uncertain** No details on: – Timing – Scope – Will it go ahead

32 Network visibility | Australian Energy Regulator - https://www.aer.gov.au/industry/registers/resources/reviews/network-visibility
33 Submission AEMO to AEMC - EVSE rule change - 12 December 2023.pdf - https://www.aemc.gov.au/sites/default/files/2023-12/Submission AEMO to AEMC - EVSE rule change - 12 December 2023.pdf
34 On 8 Oct 2024, AEMO requested the AEMC tract it's EVSE rule change, instead preferring to extend the scope of the DER register data and collection framework to achieve the same outcome as that intended in the EVSE proposed rule change.
35 nem-reform-program-initiative-briefs.pdf (aemo.com.au) pg.38
36 nem-reform-program-initiative-briefs.pdf (aemo.com.au) pg.36
37 nem-reform-program-initiative-briefs.pdf (aemo.com.au) pg.40

NEM Reform Initiatives	Potential Impact on JEN	Status
Bill Transparency[38] Efficient arrangements to provide ongoing transparency of consumer bills and the impacts of different services and circumstances, to support better consumer protections and understanding of consumer needs in the market transition and streamline current inefficient retail reporting.	**Low**	**Quite Uncertain** Unsure of – Timing – Scope

This set of changes represents those known to date. We expect that more reforms will arise leading up to and during the next regulatory period, and these will impact the way JEN interacts with the NEM and its customers. The AEMC has already flagged this, indicating an increase in the amount of market reform, much of which is targeted at CER / DER initiatives.[39]

5.4.1.4 Enhanced Governance through a dedicated Program Office

We have implemented enhanced risk management and governance through a dedicated program office to ensure early line of sight, planning and design of known and unknown (refer Table 4) NEM Reform initiatives in the context of other relevant initiatives, namely those outlined in our CER Integration Strategy. Its core objectives include centralised management of resources, delivery, and financial risks associated with the CER Integration Strategy and Reform initiatives, all structured around an integrated plan. For NEM reform initiatives, this provides:

- Centralised Governance and Risk Oversight: Utilise the program office to track regulatory developments, ensure compliance, and manage risks across all initiatives. The program office will also play a role in identifying synergies between projects, reducing duplicated efforts.
- Cross-Functional Collaboration: Foster stronger alignment between digital, regulatory, and finance teams to ensure all reform initiatives are properly scoped and integrated into financial planning and project deliverability.
- Risk Mitigation: Ensure every project's scope accounts for regulatory uncertainties.

Regular Updates with AEMO and Regulators

JEN engage early and often with AEMO and other relevant regulatory bodies to gain clarity on evolving requirements. This allows for timely adjustments to ongoing and planned projects, ensuring compliance with any new regulations as soon as they are finalised.

Collaborate with Industry Peers

JEN engage with other utilities and stakeholders impacted by NEM reforms to share insights, resources, and potential cost-saving measures for compliance.

As the final rules and processes related to these reforms are established, we will proactively pivot our strategies to ensure compliance with regulatory requirements. This approach will help us stay aligned with the evolving regulatory landscape and maintain our commitment to meeting all necessary standards.

5.4.2 CER Integration

As an electricity DNSP operating in Victoria, JEN plays a key role in facilitating the energy market transformation to renewable energy. Given the uncertainty in the rate of change and direction of the transformation, a least-regrets scenario-based investment approach is needed to manage a smooth transition for customers.

[38] Billing Data Transparency | AEMC - https://www.aemc.gov.au/market-reviews-advice/billing-data-transparency

[39] AEMC, *A consumer-focused net zero energy system, The Australian Energy Market Commission's vision for our shared energy future*, September 2024.

Furthermore, Jemena has its own ambitions to work towards net zero. We have therefore developed a CER Integration Strategy and associated programs of work and initiatives to support the energy transition over the next decade.

5.4.2.1 Our Vision

The energy transition brings significant opportunities and challenges for JEN and its stakeholders. With increased adoption of rooftop solar, batteries, electric vehicles, and communal energy solutions like shared solar and virtual power plants, CER are becoming more accessible.

Consistent with Jemena's sustainability objectives, JEN supports the connection of customers to a renewable energy future. This requires a distribution network that delivers affordable, safe, and reliable electricity aligned with customer expectations and regulatory standards. Our strategy focuses on leveraging new technologies to prepare the network for future demands and improve customer outcomes.

Our CER Integration Strategy outlines a flexible roadmap for the next decade, designed to adapt to shifts in the energy market and maximise customer benefits. Supported by key "signposts"—market developments that indicate future trends—this strategy ensures our activities remain aligned with the evolving energy landscape. The guiding ambitions for the CER Integration Strategy focus on four key themes:

- **Optimise performance** – optimise the performance of current assets in response to customers' affordability concerns, by applying digital technology overlays over the existing assets. This includes leveraging AMI, condition monitoring, data analytics and other machine-learning and automation technologies.
- **Modernise the Network** – enable and support the uptake of CER on the network, including the use of Dynamic Operating Envelopes (DOEs) to remove static export and import limits, reduce CER curtailment, improve CER exports, and improve voltage, supply quality and system security compliance.
- **Support CER uptake** – stimulate the efficient use of CER to support the broader energy market, including data visibility for customers, enhanced tariffs such as for solar soak and EV charging, and use common communication protocols such as CSIP-Aus to support CER aggregation by market service providers.
- **Build organisational capability** – to undertake the activities above, we will build new capabilities across our systems, processes, and people. This requires a focus on a culture that is customer-focused and encourages innovation, with much closer collaboration between the network and ICT functions of the business. It requires investment in advanced systems to manage more complex operations, communications, and data, which will support building skills in big data and cybersecurity, as well as enhancing commercial acumen.

5.4.2.2 The role of ICT to support CER integration

The growing digitalisation and complexity of the energy landscape make collaboration between ICT and Network teams critical for JEN. As the network modernises with smart technologies and automation, ICT delivers the digital capability necessary for real-time data collection, analytics, and machine learning tools to monitor network health and manage load fluctuations. Meanwhile, Network teams oversee the physical infrastructure, ensuring that both components function seamlessly to support renewable energy integration and maintain a resilient, adaptable network.

Cybersecurity is another key area in which collaboration is vital. Introducing Digital systems introduces heightened cyber threats (new attack vectors), requiring ICT and Network teams to work closely to implement robust measures that protect both digital and physical assets. Moreover, customer expectations for real-time energy data and personalised services demand innovative, efficient solutions born from this partnership.

Regulatory reforms further underscore the importance of this collaboration, as new digital systems are needed to ensure compliance and active market participation. These factors drive significant increases in ICT costs, including investments in advanced digital platforms, scalable systems, and cybersecurity. The growing complexity of the network also necessitates highly skilled personnel and continuous development of customer-centric digital platforms.

5.4.2.3 JEN's CER Integration Strategy

Our CER Integration Strategy will be implemented through three programs of work and supporting initiatives which drive JEN's strategic objective of connecting its customers to a renewable energy future over the next decade, ensuring an affordable, safe, and reliable electricity supply that meets customer expectations, regulatory requirements, and community needs.

- **Data Visibility and Analytics (DVA) program** – This program aims to address the identified needs and existing analytics platform limitations and improve the operational management of the network by:
  - Implementing an analytics platform to support several CER Integration Strategy initiatives instead of building siloed platforms for each initiative
  - Facilitating the integration of more CER into our network in the future without compromising the safety and security of our network.
  - Implementing a program of network analytics to improve operational efficiency and effectiveness, improve safety, and respond to emerging customer and regulatory needs over the next 10 years and beyond.

- **Voltage and Power Quality Management Strategy** – This program addresses challenges posed by the growing adoption of rooftop solar and other CER, which have introduced two-way power flows and increased risk of non-compliant voltages. Currently, up to 3.9% of customers experience over-voltage, and 3.6% experience under-voltage, with these issues peaking during periods of high solar export or extreme demand. To resolve these issues and prepare the network for future demands, JEN proposes to implement enhanced Volt-Var control. This new operational technology will dynamically adjust network voltages to maintain compliance with the Electricity Distribution Code of Practice (EDCoP) voltage requirements which would otherwise result in non-compliance if not addressed.

- **Grid Stability and Flexible Services Strategy** – This program will strategically respond to the challenges and opportunities associated with increasing CER penetration and the associated influence on power system security and network operating limits. It will do so by developing a Distributed Photovoltaics (DPV) Backstop Capability,[40] a Distributed Under-Frequency Load Shedding (Distributed UFLS) Scheme and Flexible Services for our customers. This program is designed to be scalable and cost-efficient, minimising lifecycle costs while preparing the network for future needs.

Further details of these programs of work are set out in the CER Integration Strategy[41] and supporting investment briefs.

5.4.3 Building customer capability and energy literacy

With the digitisation of the energy network and current cost of living pressures, it is more critical than ever to invest in platforms and engagement programs that enable customers to take more control of their energy demands. As consumers take on a more active role in energy generation and consumption—through technologies such as smart meters, home energy management systems, rooftop solar, and battery storage—there is an increasing expectation for greater control, transparency, and personalisation in their energy services.

JEN undertook an extensive customer engagement program in 2023 and 2024 to understand customers' energy needs, preferences, and priorities for the next regulatory period. Through engagement, customers told us they are increasingly concerned about the energy transition and find it difficult to engage with the energy system and understand how to access consumer energy resources or take control of their energy usage. Customers have told us we need to help build their energy capability and increase their ability to empower them and support their decision-making in the future.

JEN will need to develop new and expanded ICT capabilities to meet customers' expectations about customer education and how we can support them to electrify their homes and businesses. This includes:

- Increasing customer education through existing ICT platforms and helping to engage customers in their energy usage.
- Developing integrated education programs to generate awareness of energy-saving tips, the energy supply chain, rooftop solar, energy-efficient appliances, pricing, and tariffs, and understanding electricity bills.

[40] This capability is deployed in 2024 with further improved automation work in early 2025.
[41] JEN – RIN – Support – Att 03-01 – CER Integration Strategy - 20250131.

The importance of building customer capability and energy literacy is aligned with the position of the AER, who identified that consumer awareness, understanding and interest is vital for the energy transition.[42] The AER highlighted that clear messaging, accessible and relevant information and collaboration with stakeholders is key to building consumer acceptance and trust during the energy transition.

[42] Australian Energy Regulator, Export limit guidance note, October 2024 - https://www.aer.gov.au/system/files/2024-10/Export%20Limits%20Guidance%20Note.pdf

6. Forecasting Expenditure Approach

For the purposes of developing ICT expenditure forecast for Standard Control Services, we adopt the approach outlined in the AER's ICT guidance note and elaborate further on this approach below. We outline the approach to forecasting ICT expenditure for Alternative Control Services in the AMI and public lighting attachments.

6.1 Opex forecasting methodology

Our opex is classified as:

- **Recurrent** is the amount of ICT opex in our base year which we propose to spend in each year of the next regulatory period.
- **Recurrent operating expenditure step change** for the large non-recurrent projects to be completed in the next regulatory period—which may be new systems or long-cycle upgrades—we will incur additional ongoing recurrent expenditures to support those systems (e.g. licensing) once implemented. Ongoing recurrent expenditure is treated as an opex step change over the next regulatory period.
- **Non-recurrent operating expenditure** incurred in implementing non-recurrent projects (propex), which is adjusted against the base year opex. (refer to section 6.3.1 below)

In forecasting ICT opex, we have applied the AER's preferred base–step–trend approach and considered relevant guidance in the AER's Guidance Note. Applying the AER's base–step–trend approach is the equivalent of a subset of the overall opex forecast, as detailed in the AER Expenditure Forecast Assessment Guideline.[43]

ICT opex is forecast to (i) determine the ICT opex step change costs that form a part of our overall opex proposal and (ii) inform the totex assessment as outlined in the Guidance Note. Aside from the opex step change, our efficient ICT opex forecast is included within JEN's overall base year. Further details on our approach to forecasting our operating expenditure are set out in our opex[44] and opex step change[45] attachments.

Section 7, Forecast ICT Expenditure, outlines our forecast operating expenditure for each of our operating expenditure components in our proposal for the next regulatory period.

6.2 Capex forecasting methodology

Consistent with the AER's ICT guidance note, we forecast ICT capex depending on whether the activities occur on a regular cycle of five years or less (recurrent), or whether they are new or longer-cycle investments of more than five years (non-recurrent).

6.2.1 Recurrent capex forecasting methodology

JEN has not developed a bottom-up model for the many hundreds of systems, processes and activities that make up recurrent capex, instead relying on the AER's Guidance Note approach to establish an efficient cost forecast.

Recurrent capex forecast expenditure is determined by taking the five-year average capex that arises between FY20 and FY25. The forecasting approach aligns with the AER's Guidance Note and works on the assumption that this type of expenditure occurs on a cyclical (recurrent) basis, with cycles occurring between one and five years. We take the capex from FY21 to FY26 as this is the most recent known capex.

Examples of recurrent capex include laptop and system lifecycle costs.

43 AER - *Expenditure forecast assessment guideline – distribution*, August 2022 - https://www.aer.gov.au/system/files/AER - Expenditure forecast assessment guideline - distribution - August 2022.pdf. Whilst this guideline applies to electricity distribution networks, we have applied it to our approach.

44 JEN - Att 06-01 Operating expenditure - 20250131.

45 JEN - Att 06-04 Operating expenditure step changes - 20250131 – Public.

6.2.2 Non-recurrent capex forecasting methodology

Non-recurrent capex forecast expenditure occurs on cycles of more than five years or has not previously occurred at all. This type of expenditure is not present in the current regulatory period and, therefore, cannot form a part of the recurrent capex. (see section 6.3.2 below).

6.3 Non-recurrent projects

With changes brought about by the IFRIC, most modern non-recurrent ICT projects combine opex and capex, and therefore, we combine opex and capex forecasting for many non-recurrent projects.

6.3.1 Non-recurrent project opex (propex)

Per IFRS requirements, any build and implementation costs associated with SaaS should be treated as opex. Further details on our approach to adjusting our base year for non-recurrent propex are set out in our opex attachment.[46]

Note that JEN applies the concept of "control" to determine whether costs fall under this category, which is consistent with KPMG's interpretation of the IFRS rule change.[47] That is, if the answer is no to the following, and JEN is referring to SaaS, JEN considers project-related costs to be opex:

(1) Can JEN deny use/access to others?
(2) If the vendor defaults, will JEN still be able to use/access the product?

In addition, JEN also considers early planning, change management, and training opex regardless of whether it is SaaS or not.

6.3.2 Non-recurrent project capex

The approach to forecasting projects that have non-recurrent capex (and project opex as noted below) is depicted in section 6.4 – Non-recurrent ICT Expenditure estimation.

ICT capex forecast, whilst presented in this document, also forms a part of the capex *attachment.*[48]

Non-recurrent capex is typically associated with design, build, implementation and testing costs associated with non-SaaS (i.e. where Jemena has 'control' per the criteria above).

6.4 Non-recurrent ICT expenditure estimation

In developing project estimates we rely on learnings from past projects to develop an efficient forecast. Those, historical projects have been subject to efficiency schemes such as Capital Efficiency Sharing Scheme (CESS) and Efficiency Benefit Sharing Scheme (EBSS), which gives some assurance that forecasts are also efficient.

6.4.1 Estimation methodology

Project cost estimates are calculated based on the available information and the stage of initiative maturity and classified under non-recurrent capex, non-recurrent opex, and recurrent step opex as outlined in section 7. The estimation method—either proxy-based, bottom-up or market-based—is selected depending on how well-defined the project requirements are, with each approach offering a distinct advantage depending on the context of the project. These are described further:

- **Proxy-Based Estimation**: When project requirements are less developed, proxy-based estimation is used to provide a best-fit cost approximation. By applying the costs from similar past projects with comparable complexity, duration, and scope, this method yields an efficient and reasonably accurate estimate of costs.

[46] JEN - Att 06-01 Operating expenditure - 20250131.
[47] 21RU-005 Cloud computing arrangement costs – Updated (kpmg.com) and Applying IFRS Accounting for cloud computing costs (ey.com).
[48] JEN - Att 05-01 Capital expenditure - 20250131.docx

This allows for cost estimation based on historical benchmarks and reduces risk. It is used mainly for projects over longer time horizons where the future state technology and business requirements are less certain.

- **Bottom-Up Estimation**: For projects with well-defined requirements, scope and solution, a bottom-up approach is adopted. This involves calculating costs for each project element—such as resources (internal and external labour), licences and/or subscription amounts and any other requirements—and then aggregating these for a detailed total. This provides high degrees of accuracy, as it is based on a customised estimate tailored to the specific requirements of the project.

- **Market-based Estimation**: In some cases, we have engaged vendors to provide indicative costs or quotes. This approach enables us to base our budget projections on realistic, market-aligned figures directly from suppliers with relevant expertise. By reaching out to vendors, we can obtain itemised breakdowns for critical aspects of each project, including labour and licensing fees. This process also allows us to clarify any assumptions around project scope and specific requirements, reducing uncertainty in our estimates.

By choosing the most appropriate estimation method, we have achieved efficient cost projections that balance staging and precision based on the maturity of project requirements.

6.4.2 Resourcing

JEN takes a prudent approach to resourcing using a blend of employees (‘internal labour’) allocated to the project, supplemented by consultants and/or contractors (‘external labour’). This approach seeks to deliver the most efficient outcomes when matching the role type and capabilities with the required task.

- **Internal Labour:** To ensure cost efficiency and alignment with project needs, JEN allocates internal resources by matching project roles with the appropriate skill level from our internal team. Where known, project roles were benchmarked based on industry-standard rates obtained from the Hays salary guide FY24/25. This approach allows JEN to control costs by leveraging in-house expertise where possible, ensuring that project labour costs remain competitive and efficient without compromising on quality.

- **External Labour:** Consultants and contractors are selectively onboarded to supplement internal staff for specialised project roles and in times when peak resources are required. Competitive market rates are used to engage these resources, with cost estimations grounded in benchmarking data from the Hays salary guide FY24/25. Additionally, JEN consults industry experts including System Integrators with specialist experience to ensure the most effective resource model, balancing quality and cost. The costs for external labour are thus based on optimal resourcing decisions, ensuring that all tasks are covered by appropriate expertise at a justified rate.

6.4.3 Licence and/or Subscriptions

JEN takes a forward-looking approach to estimating licensing and subscription costs, considering the needs of both current and future project stages. Where licensing fees are already known—typically due to existing contracts or historical payments—these established figures have been used to ensure accuracy and consistency. For cases where licensing costs are new, JEN has engaged vendors directly to obtain quotes tailored to specific project requirements.

6.4.4 Hardware

Where new capability is being implemented, cloud-based storage and processing have been considered in our forward growth projections.

6.4.5 Overheads

No overheads are included in our project estimates for JEN Digital as per Jemena’s Cost Allocation Methodology.

6.5 Non-recurrent expenditure categorisation

We have classified our forecast non-recurrent expenditure to reflect the underlying drivers of our specific initiatives, shown in Table 5: ICT value drivers, as detailed in the Guidance Note.

Table 5: ICT value drivers

IT value driver	Description
Maintaining existing services, functionalities, capability and/or market benefits	• Many of our investments involve implementing and maintaining ICT systems that underpin the basic processes of managing the electricity network and performing the meter-to-market functions. • These investments will not always have a positive NPV, and instead, the justification of the chosen lowest cost option is based on a business case considering various timing, scope options, and/or alternative systems and service providers, with past expenditure factored in where applicable.
Complying with new / altered regulatory obligations / requirements	• Any investment which is specifically required to respond to new or altered regulatory requirements. • It is possible that the costs of such investments will exceed the measurable benefits. As such, the least cost option will likely be the preferred approach to addressing the NER expenditure criteria.
New or expanded ICT capability, functions, and services	• Investments which deliver additional benefits to customers, which are not in response to regulatory requirements. • This expenditure requires justification through cost-benefit analysis to demonstrate benefits exceed costs (that is, a positive NPV). Where benefits exceed costs, consideration has also been given to self-funding of the investment.

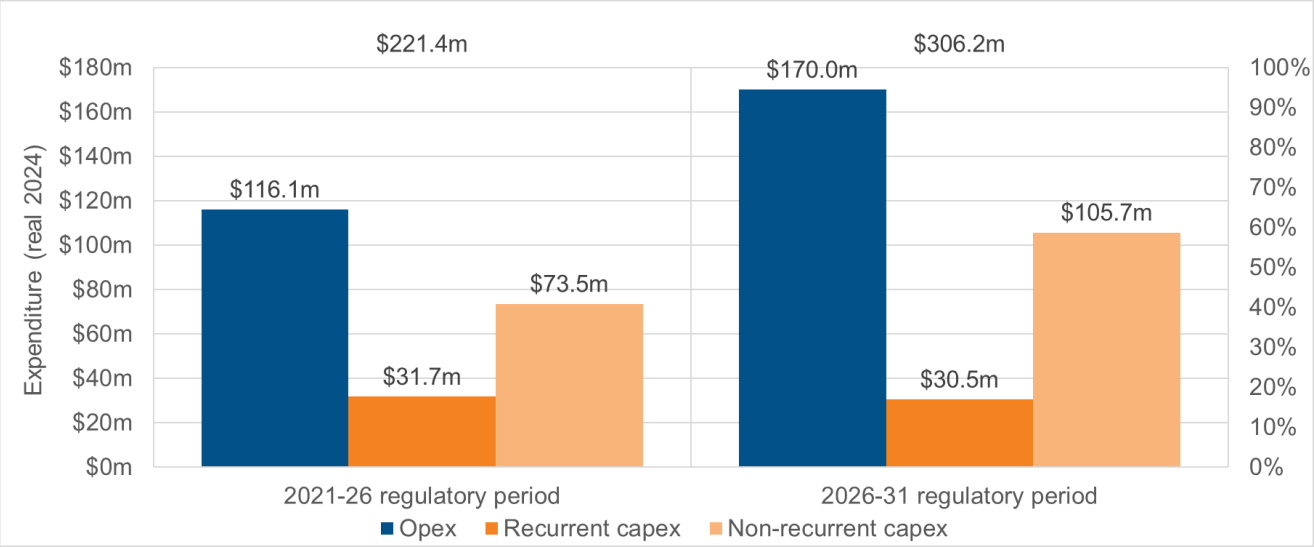
7. Forecast ICT Expenditure

7.1 ICT totex

Consistent with the forecasting methodology approach outlined in Section 6, this section outlines our proposed ICT totex for the next regulatory period.

In Figure 13 we outline the current regulatory period and the next regulatory period ICT totex.

Figure 13: Current regulatory period and next regulatory period ICT totex ($2024)



Overall, there is a 38.3% increase in totex from the current regulatory period to the next regulatory period.

We forecast a total ICT capex of $136.2M ($2024) for the next regulatory period, which is 29% higher than our estimated total ICT capex of $105.3M ($2024) for the current regulatory period. This uplift is largely driven by mandatory market reform, CER integration, customer initiatives and maintaining current capabilities as outlined in section 5.4.

There is a 46.4% increase in opex for the next regulatory period compared to the current period; this is due to:

- Changes in the interpretation of the IFRS standards; a lot more of our project-related costs for SaaS are now treated as opex where they were treated as capex prior to the change.
- Additional opex, such as additional licensing, is required to run and maintain the new capability planned to be delivered in the next period.
- Over the past six years, our analysis indicates increases averaging ~20% for cloud storage usage and compute processing annually. In response to evolving business needs and technological advancements, we've embraced cloud computing as a strategic solution. As a result, our projection for cloud capacity growth stands at a conservative estimate of 15% per year, highlighting overall cost savings in our storage. Despite this, opex is required to fund our cloud storage rather than capex for more traditional on-premises storage and processing.

Non-recurrent capex and opex shown in Figure 13, can be attributed to key assumptions underpinning cost estimates, as shown in Section 6.4. These assumptions are predominantly based on whether the future solution will be on-premises (treated as capex) or a cloud-based subscription model (treated as opex).

7.2 Non-recurrent projects planned

Table 6 provides a summary of the ICT initiatives that are 'non-recurrent' for the next regulatory period. Full Investment Briefs for each of these are attached to this submission. Details of these documents are included in the Appendix: A1.

Table 6: Non-recurrent initiatives planned over the next regulatory period

Initiative	Description
Maintaining existing services, functionalities, capabilities and realise market benefits	
Cloud Capacity Growth	The objective of the opex recurrent step change is to ensure JEN maintains the necessary ICT capabilities to operate the electricity network safely, securely, and efficiently. Jemena's anticipated growth in cloud computing storage and processing means additional recurrent opex will be required to ensure JEN maintains reliable ICT service delivery.
Customer Systems Lifecycle	JEN must regularly maintain its customer systems to ensure we continue to meet our operational and regulatory obligations and to meet customer expectations for accessible, timely information. This investment brief outlines the need to continue to maintain existing systems that provide services to customers. This includes fault reporting tools, contact management systems, connection and application services, and communications.
Cyber Program	The objective of this initiative is to deploy capabilities in step with technology advancement that provide fit-for-purpose protection and response in line with cyber security trends, supporting JEN in promoting efficient, safe, and reliable service delivery to customers.
Digitising Network Switching	The objective of this initiative is to digitise the management of operational instructions and integrate digital switching processes and a non-verbal communication solution for field staff. JEN has been committed to an enforceable undertaking with the Essential Services Commission (ESC) to implement a program of works aimed at mitigating these risks during the current regulatory period and must continue to invest in maintaining this lower level of risk.
Emergency Backstop Lifecycle	This initiative aims to undertake major and minor upgrades of JEN's Low Voltage Distribution Energy Resource Management System (LV DERMS) system, which underpins the mandated Victorian Emergency Backstop Mechanism (VEBM) to ensure ongoing system availability and reliability required to meet the new regulatory requirements.
End User Computing Lifecycle	This initiative aims to undertake the lifecycle replacement of field mobility devices (primarily tablets with some mobile phones that are used for core business applications) and collaboration equipment (e.g., room conferencing and audio-visual equipment) that have not been replaced during the current period.
GIS Lifecycle Upgrade	This initiative aims to undertake a major upgrade of JEN's Geographic Information System (GIS) to ensure ongoing system availability and reliability.
MSI Replacement	This initiative aims to replace the Market System Integration (MSI) platform to maintain ongoing system availability and reliability. This directly impacts critical processes such as life support and remote de-energisation / re-energisation.
Network Operations Geospatial enhancements	This initiative aims to deliver ongoing essential enhancements to the JEN GIS suite of applications by focusing on maintaining the asset data and supporting processes that these spatial systems underpin. This will improve asset data capture, analysis, accessibility, reporting and sharing of information required to continue to promote efficient, safe, and reliable service delivery for our customers.
SAP Migration	The objective of this investment is to mitigate against the disruption of business service and associated impacts on JEN services and customers by proactively

Initiative	Description
	managing the end-of-life support risk associated with Jemena's enterprise resource planning (ERP) information system, with the vendor forecasting the termination of support before the end of the next regulatory period.
Complying with new / altered regulatory obligations / requirements	
Contract Lifecycle Management	The objective of this initiative is to implement a Contract Lifecycle Management System to effectively manage third-party contractors and ensure regulatory compliance ([redacted], modern slavery, mandatory climate-related financial disclosures). This will also help mitigate risks associated with inefficiencies, errors, compliance and regulatory risks, and loss in revenue.
Data Foundations and Governance	This initiative aims to strengthen JEN's data foundations and governance capabilities, delivering maximum value from JEN's data to ensure compliance with various industry-specific regulations and standards related to security of our data.
Enterprise Content Management Uplift	This initiative aims to modernise and consolidate Jemena's enterprise content management ecosystem for staff to maintain compliance with regulatory obligations while delivering efficiency and safety outcomes for customers and other stakeholders through better access, security, organisation, and management of operational and investment content.
NEM Reform - Market Interface Technology Enhancements	The objective of this initiative is to implement Identity and Access Management (IDAM), Industry Data Exchange (IDX) and Portal Consolidation that have been identified as a set of initiatives within the NEM reform implementation program to provide foundational and strategic frameworks that the upcoming reform initiatives can leverage. These initiatives are collectively referred to as Market Interface Technology Enhancement (MITE).
NEM Reform - Flexible Trading arrangements	The objective of this initiative is to implement the required system and process changes to address the recent Flexible Trading Arrangement (FTA) rule change. The AEMC is introducing flexible trading by enabling small and large customers to have their CER separately identified and treated independently in market settlements - allowing them to engage with multiple service providers if they choose to. It also enables minor energy flow metering for connection arrangements not currently considered in the NEM metering framework (Type 8 and 9 meters).
Outage Preparedness and Response	Ensure that JEN consistently meets customer needs and compliance obligations regarding outage communications while also ensuring that underlying systems can accommodate non-standard customer needs.
New or expanded ICT capability, functions, and services	
Customer Education	To develop and implement new and expanded ICT capability to deliver integrated customer education programs that: • builds energy literacy. • builds customer capability to prepare for the energy transition. • enhances customer experience and the accessibility of information for everyone. • supports customers to take on a more active role in energy generation and management.
3D Digital Twin	The solution ingests multiple artifacts such as imagery, point cloud and sensor data to build a 3-dimensional network physical twin along with tools to manage planning and design workflows.
Dynamic Network Planning with Automation	This initiative aims to digitise the process of managing network drawings by removing the manual keying of as-designed and as-built drawings from AutoCAD paper/PDF drawings into the GIS.

Initiative	Description
CER Integration Strategy: New or expanded ICT capability, functions, and services	
Foundational Distributed UFLS (Underfrequency Load Shedding) Capabilities	Implementation of a network and control solution for UFLS to shed load in times of under frequency, allowing network operators to access via a dedicated B2B interface. This enables us to strategically respond to the challenges and opportunities associated with the increasing number of CER in our network.
Flexible Exports	Implementation of a Flexible Export function for generation devices such as Photovoltaic (PV) including the ability to set dynamic export limits.
Flexible Imports	Implementation of a Flexible Import function for load devices such as EV charging including the ability to set dynamic load limits.
Network Analytics Program	Implement network analytics applications (on SNAP) to comply with emerging regulatory requirements, deliver JEN operational and safety improvements and enable JEN to adapt to DER growth.
SNAP - Data Hub	Creating a strategic platform for analytics, model serving, data integration and other use cases using a modern data lake, network model, streaming platform, network analytics development environment and associated Application Programming Interface (API) services to provide foundational capability across the business.
VVC (Volt Var Control) rollout	Solutions to manage voltage and power quality across the network in light of changes due to increased CER/DER penetration, optimisation of active and reactive energy flows and manage voltage compliance.

7.3 Forecast non-recurrent ICT Expenditure

Table 7 outlines our proposed ICT expenditure for non-recurrent projects in the next regulatory period.

Table 7: Proposed ICT non-recurrent expenditure for the next regulatory period ($2024)

Initiative	Non-recurrent capex ($M)	Propex ($M)	Ongoing recurrent-step opex ($M)	Totex ($M)
Maintaining existing services, functionalities, capability and/or market benefits				
Cloud Capacity Growth	0.0	0.0	2.5	2.5
Customer Systems Lifecycle	2.6	0.8	0.3	3.9
Cyber Program	0.0	5.7	2.2	7.9
Digitising Network Switching	11.4	3.7	0.5	15.6
Emergency Backstop Lifecycle	6.1	0.0	0.0	6.1
End User Computing	2.7	0.0	0.0	2.7
GIS Lifecycle Upgrade	3.6	0.0	0.0	3.6
MSI Replacement	1.4	0.0	0.0	1.4
Network Operations Geospatial Enhancements	2.7	0.4	0.2	3.3
SAP Migration	0.0	12.1	0.0	12.2
Complying with new / altered regulatory obligations / requirements				
Contract Lifecycle Management	0.	0.8	0.7	1.5

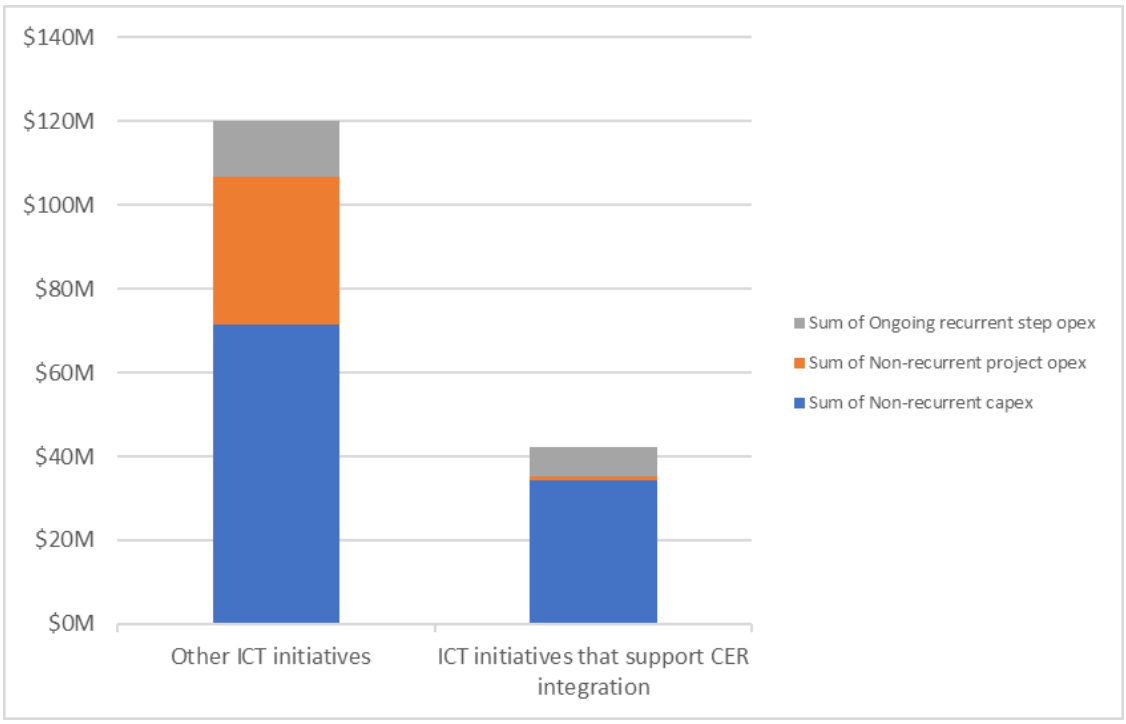
Initiative	Non-recurrent capex ($M)	Propex ($M)	Ongoing recurrent-step opex ($M)	Totex ($M)
Data Foundations and Governance	0.0	1.7	0.4	2.2
Enterprise Content Management Uplift	0.0	3.8	0.6	4.5
NEM Reform - Flexible Trading arrangements	4.0	1.0	4.0	9.0
NEM Reform - Market Interface Technology Enhancements	15.8	0.3	0.0	16.1
Outage Preparedness and Response	2.0	0.8	0.6	3.4
New or expanded ICT capability, functions, and services				
Customer Education	4.3	2.2	0.7	7.2
3D Digital Twin	5.0	0.0	0.1	5.2
Dynamic Network Planning with Automation	9.9	1.7	0.4	12.0
CER Integration: New or expanded ICT capability, functions, and services				
Flexible Exports	13.4	0.0	2.9	16.3
Flexible Imports	9.4	0.0	0.0	9.4
Foundational Distributed UFLS Capabilities	1.9	0.0	0.0	1.9
Network Analytics Program	8.1	0.6	0.0	8.7
SNAP - Data Hub	1.4	0.3	1.3	2.9
VVC Rollout	0.1	0.0	3.0	3.1
	105.7	**36.1**	**20.5**	**162.3**

7.4 Non-recurrent ICT Initiatives aligned with our CER Integration Strategy

As detailed in 5.4.2, investing in ICT is critical to enabling the energy transition, particularly as networks evolve to accommodate DER and CER, such as solar panels, battery storage, and electric vehicles. Digital systems play an essential role in modernising infrastructure, integrating renewable energy sources and ensuring the network remains reliable, resilient, and capable of meeting future energy demands.

Section 7.3 details JEN's forecast non-recurrent spend of $162.3M. A shown in Figure 14, of this forecasted spend, a significant portion—$42.3M—is allocated to initiatives aligned with our CER Integration Strategy. This highlights the integral role of digital innovation in achieving sustainable energy goals and underscores our dedication to leading this transformative journey.

Figure 14: A comparison of ICT initiatives that support CER Integration with other ICT Initiatives over the next regulatory period ($2024)



7.5 Project justification – investment briefs for non-recurrent projects

We have prepared a series of Investment Briefs (refer to Appendix: A1) to accompany this Technology Plan.

The Investment Briefs provide insight into how we will meet our future state challenges through the specific projects within our forecast ICT program.

Each Investment Brief establishes and summarises the overarching objective and problem statements that will be addressed, describes benefits for our customers, as well as the high-level scope, what options have been considered to deliver the most prudent and efficient technology solution. The options analysis provides a preliminary assessment of the options to implement an effective solution to achieve the objective of the Investment Brief. Each is supplemented by a cost-benefit analysis.

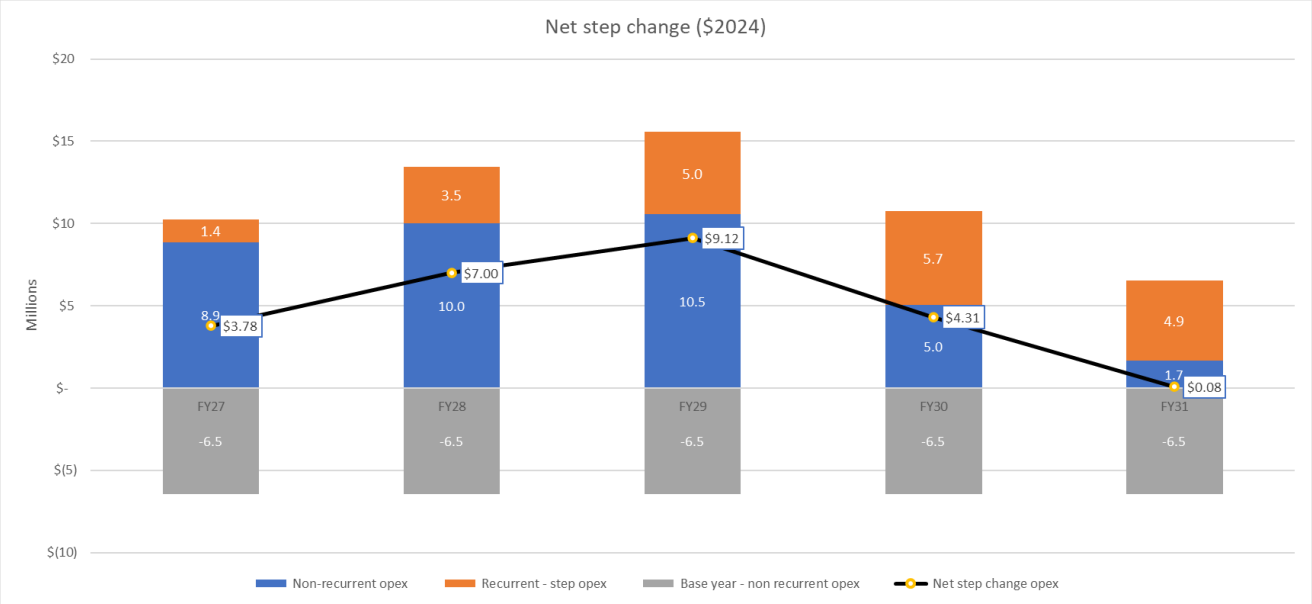
7.6 ICT opex step change

Consistent with the methodology outlined in Section 6.1, we have:

- Removed ICT projects from the base year and added forecast projects (Non-recurrent projects).
- Added incremental opex for new capability required to support the non-recurrent projects moving forward (recurrent step opex).

The resulting net adjustment to our opex forecast is illustrated in Figure 15 below.

Figure 15: Regulatory forecast step opex stacked column chart, by year ($2024M)



Further details on our approach to forecasting our operating expenditure are set out in our opex[49] and opex step change[50] attachments. For further clarity, the graph above is informed by the calculations in Table 8.

Table 8: Forecast ICT recurrent opex step change for the next regulatory period ($2024M and $2026M)

Non-recurrent ICT sub-categorisation	Project name	$2024M	$2026M
Maintaining existing services, functionalities, capability and/or market benefits	Customer Systems Lifecycle	0.3	0.3
	Network Operations Geospatial Enhancements	0.2	0.2
	Cyber Program	2.2	2.3
	Digitising Network Switching	0.5	0.5
	Cloud Capacity Growth	2.5	2.6
Complying with new / altered regulatory obligations / requirements	Enterprise Content Management Uplift	0.6	0.6
	Data Foundations and Governance	0.4	0.4
	NEM Reform - Flexible Trading Arrangements	4.0	4.2
	Outage Preparedness and Response	0.6	0.6
	Contract Lifecycle Management	0.7	0.7
New or expanded ICT capability, functions, and services	Customer Education	0.7	0.7
	Dynamic Network Planning with Automation	0.4	0.4
	3D Digital Twin	0.1	0.1
	CER Integration – Flexible Exports	2.9	3.1
	CER Integration – SNAP - Data Hub	1.3	1.4
	CER Integration – VVC (Volt Var Control) Rollout	3.0	3.2
Total operating expenditure step change (a)		**20.5**	**21.6**

Totals might not add due to rounding.

49 JEN - Att 06-01 Operating expenditure - 20250131
50 JEN - Att 06-04 Operating expenditure step changes - 20250131 – Public.docx

8. Deliverability

8.1 Key principles of ICT delivery success

JEN has a proven track record in successfully and efficiently delivering its ICT program of works, largely as planned, across multiple assets and regulatory periods.

We are well-placed to efficiently deliver all required technology investments to support the delivery of the services our customers expect due to:

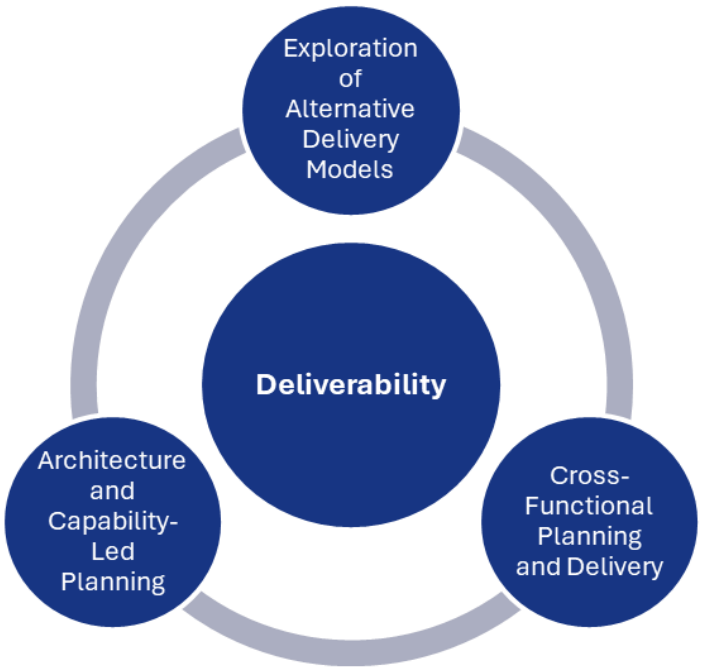
- Our long-term planning, which considers interrelationships between projects and programs of work in the regulatory periods before, during and after the forecast period.
- Our long-standing practice of calling upon specialist external contract labour for ICT project work, providing access to a large pool of resources that is 'elastic' and thereby minimising the potential for resource contention to slow down project progress as well prudency in delivery by having the right capability available at the right time.
- Our approach to setting contractor labour hire rates is dynamic and adaptable, ensuring that our estimates remain aligned with the ever-evolving market dynamics while providing a fair reflection of prevailing conditions.
- Planning and sequencing to ensure reduced contention between projects around resourcing and capabilities and efficient delivery by having the enabling technology in place.
- Sound portfolio performance review via senior management to ensure project success and delivery certainty and efficiency.
- Senior management review, assessment, and approval of project funding to ensure the best investment decision and efficient and effective delivery processes.
- The diversity of ICT capabilities. By their very nature, ICT projects involve key specialties, both within the ICT group and from the business. Diversity within the project mix enables the smoothing of workloads for key ICT personnel and subject matter experts from the business (who participate in projects) across Jemena and over the various planning horizons.
- Given the long lead time involved in preparing this submission, evolving customer needs, emerging technologies, and regulatory changes, we individually assess each proposed project before making a final investment decision; in some cases, this can result in us implementing different solutions (or different timings) to those set out in our price review forecast.

With an increasingly complex landscape driven by external regulatory reforms and internal strategic goals, JEN is committed to delivering a robust ICT portfolio that meets the needs of the next regulatory period.

The dynamic nature of the post-2025 NEM reforms, coupled with maintaining system capabilities and digital transformation efforts within JEN, demands an agile and resilient approach to portfolio management.

To mitigate risk and ensure seamless execution across all initiatives, we have implemented a comprehensive strategy with several key pillars in place as shown in Figure 16.

Figure 16: JEN Deliverability Model



These are described in greater detail in the sections below.

8.2 Cross-functional planning and delivery

To ensure cohesive governance, planning, and delivery across the portfolio, we have an ICT Program Management Office (PMO). Its core objectives include the centralised management of resources, delivery and planning.

The PMO is tasked with analysing the scope and capabilities of specific initiatives in our pipeline. By centralising the assessment of these initiatives, the PMO ensures:

- A holistic understanding of initiatives in the pipeline to enable effective scoping and prevent duplication of effort across programs of work.
- Streamlined and efficient use of resources to minimise unnecessary expenditure.
- Seamless integration with broader portfolios to drive clarity, deliverability, and alignment across initiatives.

This approach enables us to stay responsive to external changes while maintaining a sharp focus on efficient program planning and delivery.

8.3 Program Architecture and Capability-Led Planning

To further support delivery, we have established a robust program architecture governance framework. This governance structure plays a crucial role in aligning the portfolio's architecture with the findings and recommendations of the program office, as well as ongoing internal initiatives.

We take a capability-driven approach to our program architecture. Mapping out capabilities and carefully sequencing initiatives enables us to:

- Identify commonalities across multiple initiatives, ensuring alignment, minimising duplication, and achieving efficiencies. For instance, investments in integration or data infrastructure can be consolidated, reducing costs and accelerating delivery timelines.

- Better manage dependencies between initiatives, ensuring key milestones are met without bottlenecks or delays caused by misalignment.
- Mitigate risks associated with system changes by ensuring dependencies are mapped and understood upfront, enabling proactive risk management during delivery.
- Support the evolution of technology capabilities in a cohesive and efficient manner, while addressing external reform requirements.

This holistic approach ensures that as we advance our systems and technologies, we do so in a cohesive, future-proof, and efficient way, ultimately supporting the broader objectives of our ICT portfolio.

8.4 Exploration of Alternative Delivery Models

In recognition of the need for flexibility and agility, we continue to explore alternative models to support delivery. This includes strategic partnerships that enable us to leverage flexi-resource models. These models offer:

- Access to a wider pool of expertise, allowing for a more adaptable approach to scaling resources based on project demands.
- Greater flexibility in resourcing, particularly for specialised skills that may not be required full-time but are critical for certain phases of the program.
- Enhanced collaboration with external partners, ensuring that we can bring in the right capabilities at the right time without overextending internal resources.

By adopting alternative models, we will be better equipped to manage the peaks and troughs of demand across our ICT portfolio while mitigating risks related to capacity and expertise. Choosing alternative models will only be taken in situations that do not compromise project quality.

These efforts demonstrate our commitment to not only delivering our ICT portfolio but doing so in a way that is efficient, adaptable, and resilient. Our approach ensures that we remain responsive to changing regulatory requirements while maintaining focus on our long-term strategic goals.

8.5 Governance Framework

In alignment with our organisational objectives and strategic goals, this section explains the governance framework established to support our ICT projects and related expenditure from idea to implementation and how we will source and deliver our ICT program in the next regulatory period.

8.5.1 Procurement and contract governance framework

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

8.5.2 Ongoing governance to ensure efficient vendor expenditure

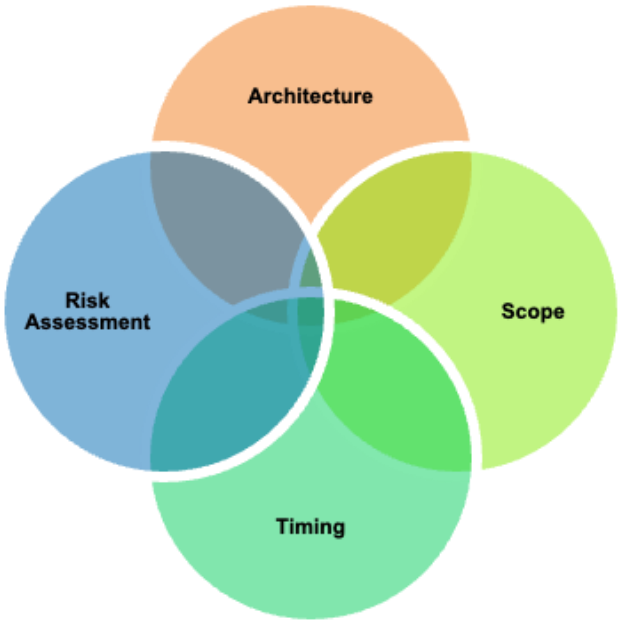
[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

Figure 18: Effective decision-making



[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

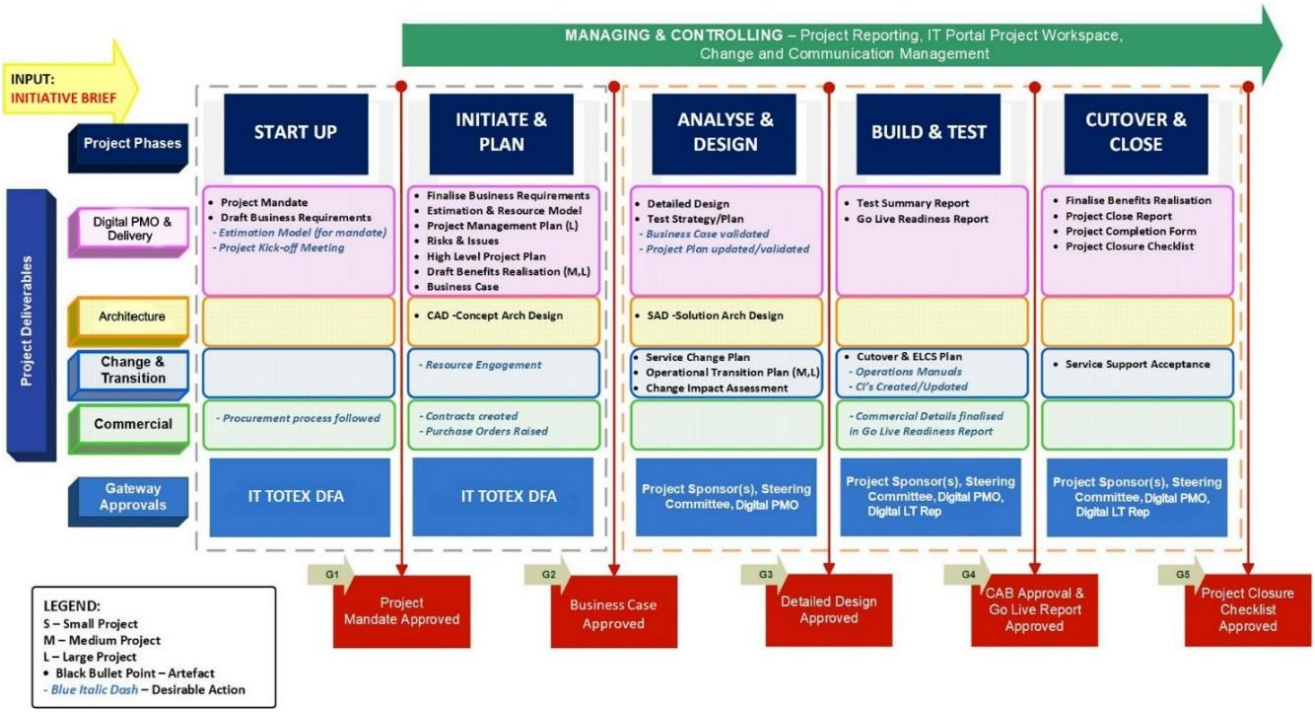
8.5.3 ICT Governance Framework

Our ICT governance framework supplements our core business governance and program delivery model and defines—for ICT projects—who has input, and who is accountable for decision-making processes. JEN's governance framework is an integral part of Jemena's investment and corporate governance approaches and helps drive alignment between ICT decisions and broader organisational goals and strategies. While our core business governance guides decision-making and accountability at the organisational level, project governance ensures that projects align with JEN's strategic objectives, adhere to policies, and are delivered effectively. This includes defining roles and responsibilities, establishing decision-making processes, and monitoring performance. By embedding project governance within broader governance structures, JEN ensures that projects are successfully executed and contribute value in line with overall goals.

We are committed to continuously reviewing and refining our governance framework to identify opportunities for improvement, ensuring it remains effective and aligned with evolving business needs and industry best practices.

We outline the ICT project management governance framework in Figure 19.

Figure 19: ICT Project Management Governance Framework



Regular monitoring and reporting under the governance framework ensures that the senior executives and management have a standard and structured view of the ICT program of work, work-in-progress, and the overall status on which to make decisions based on the most relevant and up to date information, including:

- Overall portfolio performance (including portfolio health, spending, forecast, status, risks, issues, dependencies, and milestones),
- Project status updated for every project, by stage, gate and overall,
- Performance compared to budget and schedule,
- Benefits specification, realisation, and reporting,
- Funding requirements by stage, years, and months,
- Financial forecasts, *and*
- Risks and Issues.

Supporting governance and decision-making forums that assure quality and business outcomes of delivery, include Project Steering Committees and Project Working Groups.

Attachment A
Supporting documents

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A1. Investment briefs

Investment Brief Title	Document Reference
3D Digital Twin	JEN – RIN – Support – ICT Investment Brief - Digital Twin
Cloud Capacity growth	JEN – RIN – Support – ICT Investment Brief - Capacity growth
Contract Lifecycle Management	JEN – RIN – Support – ICT Investment Brief - Contract lifecycle management
Customer Education	JEN – RIN – Support – ICT Investment Brief - Customer education
Customer Systems	JEN – RIN – Support – ICT Investment Brief - Customer systems
Cyber Security Program	JEN – RIN – Support – ICT Investment Brief - Cyber Security Program
Data Foundations and Governance	JEN – RIN – Support – ICT Investment Brief - Data foundations and governance
Digitising Network Switching	JEN – RIN – Support – ICT Investment Brief - Digitising Network Switching
Dynamic Network Planning with Automation	JEN – RIN – Support – ICT Investment Brief - Dynamic Network planning with automation
Emergency Backstop Lifecycle	JEN – RIN – Support – ICT Investment Brief - Emergency Backstop Lifecycle
End User Computing	JEN – RIN – Support – ICT Investment Brief - End user computing
Enterprise Content Management Uplift	JEN – RIN – Support – ICT Investment Brief - Enterprise Content Management Uplift
Flexible exports	JEN – RIN – Support - Grid Stability and Flexible Services Program Investment Brief
Flexible imports	JEN – RIN – Support - Grid Stability and Flexible Services Program Investment Brief
Foundational Distributed UFLS	JEN – RIN – Support - Grid Stability and Flexible Services Program Investment Brief
GIS Lifecycle Upgrade	JEN – RIN – Support – ICT Investment Brief - GIS lifecycle upgrade
MSI Replacement	JEN – RIN – Support – ICT Investment Brief - MSI replacement
Network Analytics Program	JEN – RIN – Support - Data Visibility and Analytics Investment Brief
Network Operations Geospatial Enhancements	JEN – RIN - Support – ICT Investment Brief - Network Operations Geospatial enhancements
Outage Preparedness and Response	JEN – RIN – Support – ICT Investment Brief - Outage Preparedness and Response
Reform - MITE - IDX/IDAM/Portal Consolidation	JEN – RIN – Support – ICT Investment Brief - Reform - Market Interface Technology
Reform - Unlocking CER benefits - Flexible Trading arrangements	JEN – RIN – Support – ICT Investment Brief - Reform - Unlocking CER benefits - Flexible Trading arrangements
SAP Migration	JEN – RIN – Support – ICT Investment Brief - SAP Migration
Strategic Network Analytics Platform (SNAP) - Data Hub	JEN – RIN - Support - Future Networks Investment Brief - Data Visibility and Analytics – Investment Brief
VVC (Volt Var Control) rollout	JEN – RIN - Support - Future Networks Investment Brief - Voltage & PQ Management Program – Investment Brief

A2. Post-Project Implementation Reports (PIR)

Project Title	Document Reference
5 Minute Settlement Rule Change (Phase 3 & 4)	JEN – RIN – Support - ICT PIR 5 Minute Settlement Rule Change (Phase 3 & 4)
Cloud Adoption Migration	JEN – RIN – Support - ICT PIR Cloud Adoption Migration
Customer Experience (CX) Uplift Foundation	JEN – RIN – Support - ICT PIR Customer Experience (CX) Uplift Foundation
Customer Switching & B2B Procedure Changes	JEN – RIN – Support - ICT PIR Customer Switching & B2B Procedure Changes
Digital Collaboration Technology Refresh Program	JEN – RIN – Support - ICT PIR Digital Collaboration Technology Refresh Program
FIRB Compliance Remote Access Protocol	JEN – RIN – Support - ICT PIR FIRB Compliance Remote Access Protocol
JEN Market & B2B Changes	JEN – RIN – Support - ICT PIR JEN Market & B2B Changes
The Volt-Var Control (VVC) Pilot	JEN – RIN – Support - ICT PIR The Volt-Var Control (VVC) Pilot