Jemena Electricity Networks (Vic) Ltd

IT Investment Brief – SAP Upgrade

Non-recurrent – Maintain

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Glossary

Capex	Capital Expenditure
Current regulatory period	The period covering 1 July 2021 to 30 June 2026
CYxx	Calendar Year xx – the period covering January to December
ECC	ERP Central Component
ERP	Enterprise Resource Planning
ICT	Information and Communications Technology
IS-U	Industry Specific – Utilities
Jemena	Refers to the parent company of Jemena Electricity Network
JEN	Jemena Electricity Network (Vic) Ltd.
Next regulatory period	The period covering 1 July 2026 to 30 June 2031
NPV	Net Present Value
Opex	Operating Expenditure
RISE	Realise, Innovate, Sustain, and Enhance
RYxx	Regulatory year covering the 12 months to 30 June of year 20xx for years in the Next Regulatory Period. For example, RY25 covers 1 July 2024 to 30 June 2025
S4/HANA	SAP's next generation High-Performance Analytic Appliance
SAP	SAP accounting and Enterprise Resource Planning software
TCO	Total cost of ownership
Totex	Total Expenditure

SAP Upgrade

Objective	The objective of this investment is to mitigate against the disruption of business service and associated impacts upon Jemena Electricity Networks Vic Ltd. (JEN) services and customers by proactively 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 2026-31 period.		
Non-recurrent ICT sub-categorisation	☒ Maintaining existing services, functionalities, capability, and/or market benefits	☐ Complying with new/altered regulatory obligations/requirements	☐ New or expanded ICT capability, functions, and services
Background	**ERP system is critical to continue business operations**		

ERP system is critical to continue business operations

Jemena employs an enterprise-wide ERP system, meaning JEN's customers enjoy the benefit of a lower-cost system because we are able to share costs across a broader set of businesses.

Jemena relies on ERP software to manage its day-to-day core business operations including, financial, procurement, human capital, metering and billing, as well as performing critical asset management functions. Without these systems JEN's business operations will cease. The robustness and accuracy of this information (and therefore our ERP system) is critical in allowing us to continue delivering safe and efficient services to our customers.

Jemena's current ERP system is reaching end-of-life and end of support

Jemena currently uses SAP IS-U (Industry Specific – Utilities) version within our ECC 6 environment for JEN's Advanced Metering Infrastructure (AMI), which operates on a Microsoft database. ECC 6.0 was originally released in 2005, and Jemena upgraded to ECC 6 in 2011.

In 2019 SAP released a major upgrade of the ERP and IS-U platforms, which is referred to as "S/4". This upgrade is designed to operate with SAP's High-Performance Analytic Appliance (HANA) database platform to increase operating performance in response to growing data and functionality. This means that as Jemena upgrades its SAP systems it will also have to upgrade the underlying database.

SAP announced that it would only support version ECC 6 until 2025, at which point customers would need to migrate to the new S/4HANA platform. However, in February 2020 SAP extended its support from December 2025 to December 2027. After this date SAP will offer an optional extended maintenance phase until December 2030, which will deliver limited functionality at a higher cost than current standard support.

Previous consideration and strategy

JEN previously considered our SAP end-of-life and migration strategy in 2020.[1] This strategy considered 6 options including using 3rd party support and undertaking Greenfields upgrades. The preferred option at the time was to perform a technical upgrade from SAP ECC 6 to SAP S/4 before 2025, on the expectation that support for ECC 6 would end in December 2025. The AER reviewed our decision and considered this approach prudent and efficient.[2]

SAP RISE

In January 2021 SAP released RISE 'Realise, Innovate, Sustain, and Enhance' a cloud subscription service which incorporates SAP S/4 as its core ERP component. The RISE service offering changes the manner in which our critical environment is supported, with SAP taking on the critical administrative support function.

This change in product release, licencing and approach by the software vendor has meant that JEN needed to re-evaluate the most efficient means of managing ERP software upgrades, security and management.

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[1] Jemena Electricity Networks. "JEN – RIN – Support – IT Business Case – SAP Migration 20200131" Public – 31 January 2020, Unpublished

[2] AER 2021, *Final Decision, Jemena Distribution Determination 2021 – 2026*

Customer Importance	An extensive customer engagement program was implemented with JEN residential customers, small and medium businesses, large commercial and industrial customers, stakeholders, and energy experts to shape the 2026-31 Draft Plan. Key customer priorities on how we should prepare for a more sustainable energy future while meeting customer and community needs today from customers includes:
	- Affordability - Affordability is a key priority for customers who face impacts from the rising cost of living and inflation. Customers want us to consider affordability over the short and long-term when making decisions. - Resilience and reliability - Customers want a reliable and resilient network that can withstand and recover from the impacts of more extreme weather events. - A sustainable future - Customers want us to help drive sustainability within JEN and support renewable energy solutions where possible. Customers want us to have sustainable operations and lead the way in meeting emissions reduction targets. - Digitisation and automation - Customers want JEN to digitise and automate the grid to make it a smarter and more efficient network. - Accessible communication - Customers value efficient and accessible communication and want to easily access information on our service and the customer service team easily. - Fairness - Customers want us to consider fairness in the context of the energy transition and its impacts on both existing and future generations, and on our more price-sensitive customers - Education – Customers want us to improve and enhance our education to customers on what we do, energy saving tips, the energy transition and Consumer Energy Resources (CER).
	Our ERP system is critical to the delivery of affordable and reliable services and the provision of accessible communication to our customers as it underpins our financial, metering and billing, human capital, asset management and reporting functions. Without an operating ERP system, our customers' expectation cannot be met.
Key Considerations	In 2022 JEN updated our ERP strategy to convert our existing SAP ERP Licences to S/4HANA through a two-stage approach:
	1. Firstly, migrating our environment to S/4 HANA and maintaining our current service model, an in-house "On-Premises" licence, *then* 2. Converting to SAP's cloud offering RISE, a subscription licence model.
	The primary benefit of this approach is reducing risk through a phased approach to first migrating to S/4 and then to the cloud.
	In 2023 JEN commissioned an external technical migration assessment that focused on the technical migration to S4. The technical assessment reviewed the custom code and functionality in place. This review found a high level of complexity and several technical dependencies and recommended that these dependencies be addressed prior to the migration exercise. This would require additional work to consider these technical issues and complexity before a migration is undertaken.
	JEN also commenced working with SAP toward the end of 2023 to arrange for the S4 licence conversion, maintaining the On-premises Licence construct. However, the initial cost estimates for S4 On-premises Licence conversion increased by around ▮▮▮▮▮▮ in the space of 6 months.
	JEN also considered the RISE service offering ▮▮
	Given these factors JEN pivoted to initiate separate projects to migrate functionality out of SAP, including for our Payroll and Environment Health and Safety functions, which is the most efficient approach.

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[3] Dollar value is in Real 2023$
[4] Dollar value is in Real 2023$

How costs were derived

The extensive planning activities with third-party partners to review the S4 Migration exercise (as detailed above), provided us with a clearer understanding of the project's scope for our recommended option. This in-depth scope assessment has enabled us to take a bottom-up approach to estimating the project costs, ensuring accuracy and alignment with project requirements.

JEN identified key roles essential to the project, allowing us to estimate the necessary internal and external labour requirements. To address capability gaps, JEN are seeking support from a Systems Integration (SI) partner, ensuring comprehensive expertise and support for the project's successful delivery.

The planning activities with third-party partners have identified a number of technical dependencies which must be addressed prior to the actual S4 Migration exercise, which make up the estimates for non-recurrent capex.

The key driver of non-recurrent opex is the project costs associated with the migration from on-premises to SaaS.
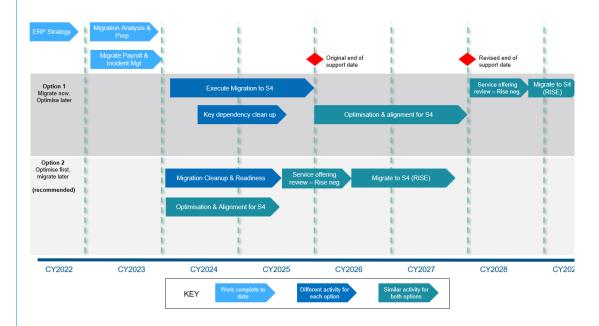
Options

As SAP has extended support of ECC 6 to December 2027, JEN have reconsidered the timing of the previously preferred option outline in our 2020 Investment Brief (to undertake a technical upgrade of SAP ECC 6 to S/4 HANA by 2025).

JEN have identified several options:

(1) Migration by 2026 – maintaining the timeframes set out in our 2020 strategy- not recommended

(2) Delayed Migration and focus on optimisation first – recommended

(3) Replacing SAP ERP with an alternative system – not recommended

The diagram below depicts the timing of options one and two in the context of the original and revised end-of-life dates.

Option 1: Migration by 2026

Description

This option follows our initial approach in terms of timelines. JEN would migrate to the supported S/4HANA by 2026, following which optimisation activity would be undertaken before eventually migrating to the S4 RISE cloud offering.

Benefits

Early migration to S/4 HANA would target migrating well in advance of the revised 31 December 2027 cut-off date for ECC 6 support. This additional time would also provide scope

to address technical challenges with 3rd party systems integrated with SAP that could arise, particularly issues related to security patching and version alignments well ahead of the December 2027 cut-off date.

This option meets the original December 2026 migration date and provides more time for the RISE service offering to be tested with others to ensure service stability.

Risks

This option does not allow for optimisation and stabilisation of the existing ECC 6 SAP and related systems prior to migration. Any protracted problems with migrating third-party applications beyond the SAP support date could render all systems inoperable, as there is no possibility of rolling back.[5] This would mean that the migration is more complex and there are increased risks of system disruption (including disruptions to non-SAP related systems in the Jemena Digital eco-system) to customers as a result.

It also means that it is likely that some components will be migrated in this option and then moved off SAP, potentially adding unnecessary time and cost.

The overall *total cost of ownership* (TCO)[6] is considerably higher (refer "costs" below).

Costs

$2024	RY27	RY28	RY29	RY30	RY31
Total Capex					
Non-recurrent Opex	███████	███████	███████		
Recurrent-step Opex					
Total Opex	███████	███████	███████		
Totex	███████	███████	███████		

This is an Enterprise-wide initiative, which means the costs of operating this system are shared across a broader set of Jemena enterprises. A consequence of this approach is that JEN's customers benefit from (i) lower costs and (ii) greater purchasing power when negotiating vendor contracts.

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Migrating to an interim S/4HANA on-premises solution first and then to SAP's preferred RISE solution also incurs a one-off licence conversion cost of ███████ at the Enterprise level (or ███████ for JEN) during the current regulatory period (not shown above) and additional licensing costs associated with S/4 HANA.[8] (Refer to Attachment A – Total Cost of Ownership).

Summary

This option is not recommended given the additional cost to convert to S/4HANA first, which is significant when assessing from a TCO perspective, and the significantly higher risk profile relative to the alternative.

The net present value over 10 years, taking into consideration savings, ███████████████

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[5] This risk of protracted problems with the migration of third-party applications can be mitigated under option 2.
[6] The total cost of ownership (TCO) is the purchase price of an asset plus the costs of operation. Assessing the total cost of ownership means taking a bigger picture look at what the product is and what its value is over time. In a price reset context, it can mean that the efficient costs span multiple regulatory periods; this could give the appearance that costs within one regulatory period are higher in one option being considered. When considering the National Energy Objective—considering the long-term interests of customers—expenditure beyond a single regulatory period, using the TCO approach, is an appropriate test of efficiency.
[7] In Real 2023$
[8] These costs are avoided under option 2.

JEN considers that it does not reflect good industry practice. Furthermore, it does not provide the most efficient cost.

Option 2: Delayed Migration and focus on Optimisation first

Description

Given the extension of ECC 6 support to 31 December 2027[9], Jemena will use the additional time to undertake several migration readiness and optimisation activities identified as part of the technical assessments conducted by external consultants in 2023 prior to migration to S/4RISE.

These activities include:[10]

- Data Archiving and data quality improvement
- Technical remediation
- Future State readiness (technical dependencies), for example:
    - o Finance – Simplification of structures, removing duplicated processes.
    - o Digital Work Order Management System – ensure compatibility with RISE.

Benefits

This option provides a 'slower but steadier' migration. As a result, any risks associated with the migration can be prioritised and addressed prior to the change to RISE.

The benefits of taking the approach outlined in this option are expected to be seen through the following activities:

- Data archiving and quality assurance – resulting in improved system performance and data accuracy.
- Finance transformation – removal of duplicated processes and simplification of work activities.
- Future state readiness – more extensive and detailed preparation ensuring Jemena is technically "ready" to execute the S4 migration.

By addressing these technical dependencies first, unforeseen costs during migration will be minimised.

Importantly, this option does *not* require an interim migration to S/4 HANA and, therefore, does not incur the associated one-off Enterprise licence cost of ███████ at the Enterprise level ███████ for JEN) or the additional licensing costs associated with the interim S/4 HANA licence in the current regulatory period.

This option will also allow Jemena to avoid being a RISE early adopter and monitor the stabilisation of the service offering over its initial 1-2 years. Whilst this does not impact the opex and capex in the next regulatory period, it does reduce the long-term costs to customers.

Risks

The cyber security threats are ever-changing in their approach, and we are also seeing a change in societal and government expectations. The main risk is that this program fails to keep up with these changes or is not agile enough to adapt as the threats change.

Jemena's cyber-related risk rating will remain "high" (major consequence, possible likelihood).

Costs

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

$2024	RY27	RY28	RY29	RY30	RY31
Total Capex					
Non-recurrent Opex	███████	███████	███████		
Recurrent-step Opex					

| Total Opex | ███████████████████████ | | | | |
| **Totex** | ███████████████████████ | | | | |

This is an Enterprise-wide initiative, which means the costs of operating this system are shared across a broader set of Jemena enterprises. A consequence of this approach is that JEN's customers benefit from (i) lower costs and (ii) greater purchasing power when negotiating vendor contracts.

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Summary

This option is recommended, as it does not incur a one-off conversion cost and has the additional benefit of undertaking a number of S4-dependent activities and optimisation opportunities to minimise migration risk and associated services to customers.

The net present value over 10 years, taking into consideration savings is ███████████

JEN considers that it best reflects good industry practice and provides the most efficient cost.

Option 3: Identify and implement an alternative ERP system

Description

This option entails replacing the entire ERP ecosystem that is otherwise serviced through the current SAP platform.

The costs for this option were not built out in detail on the basis that:

- The costs would be far more than an upgrade program (noting this would involve a whole of business change management, not just a systems upgrade).
- Such a migration could not be achieved before the deadlines noted in options 1 and 2.
- The integrated nature of Jemena's digital ecosystem is such that a major disruption of this type increases operational risk in all other systems.
- The risk profile increases substantially.

ERP replacement projects are known to be extremely expensive and time-consuming, and the effort to cost these in themselves is extremely time-consuming and costly. As an approach to assessing costs, we first investigated similar businesses to determine their costs and then extrapolated this to the JEN context. In their 2024-29 regulatory proposal, Ausgrid identified ERP replacement costs in the order of $149M.[11] Applying the AER's overhead methodology of 75% fixed and 25% variable costs to scale the relative size difference between JEN customer numbers[12] and Ausgrid customer numbers[13], we determined an approximate cost of $125M[14] to replace JEN's ERP system. Given that the costs are approximately 10 times the other options being considered, we decided not to proceed with further investigations on ERP replacement options as obtaining a cost reduction in line with the other options in this investment brief is unachievable.

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[9] Announced by SAP in Feb 2020.
[10] At the time of developing the initial SAP migration business case in 2020, it was not possible to know these risks because of the high-level nature of the program design. Notwithstanding this, Jemena incorporated the detailed technical assessment in its early planning as part of effective risk management and governance to ensure proper sequencing of events and manage expenditure.
[11] Ausgrid, *2024-29 Regulatory Proposal*, 31 January 2023. s. 4.7.2. Figure is in Real $2023.
[12] Customer numbers referenced from Jemena ED 2022-23 - Annual - RIN Response - 31 October 2023 - Consolidated - Public (15977712.1), tab 3.6.8, column E
[13] Customer numbers referenced from Ausgrid 2022-23 - Annual - RIN Response - Consolidated - 31 October 2023 - PUBLIC (15994132.1), tab 3.6.8, column E
[14] $149M x 75% + $149 x 25% x (370,000 / 1,800,000). This value was then converted to Real $2024 assuming a 63% opex, 37% capex split, and applying an increase in 3.83% and 7.83% CPI.

	Summary
	This option is considered infeasible given the inherent costs, and risks and is therefore not pursued as a viable option for assessment.
	JEN considers that it does not reflect good industry practice.
Options Summary	The table below summarises the quantitative and qualitative differences between the analysed options.

$2024	Capex	Opex	Totex	NPV	Residual Risk
Option 1	▮	▬	▬	▬	Moderate
Option 2	▮	▬	▬	▬	Low
Option 3	-125,319,000		-125,319,000	Not applicable	Very High

What We Are Recommending	JEN proposes to proceed with option 2: Delayed Migration and focus on Optimisation first.[15] This option has a lower overall cost and reduces risks associated with RISE, both in terms of the service offering maturity as well as the time available to optimise our ERP before we undertake the migration.
	The Enterprise 'total SAP cost of ownership' business case (which includes the one-off cost) associated with Option 2) is provided in Attachment A of this submission.
	JEN considers that it best reflects good industry practice and provides the most efficient cost.
Dependencies on other Investment Briefs	This Investment Brief is also related and aligned to the following Investment Briefs for the 2026-31 period;
	• Cybersecurity Program - Technology advances, such as the shift to cloud, can generate opportunities for cybercriminals to apply new tactics, tools, and processes. Thus, the cybersecurity program will be essential with the SAP shift to SaaS.
	• Data Governance - Data platform will enable seamless integration with core data, such as SAP. SAP is dependent on the data governance capabilities project proceeding and will need to be revaluated if it is not.
Relationship to ICT Capital Forecast	The supporting modelling for this investment brief is contained in the following model**: JEN – IT Investment Brief - SAP Upgrade – Costs and Benefits Analysis Model**

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[15] This initiative is part of an enterprise-wide approach and was also included in the Jemena Gas Networks (NSW) Ltd. (JGN) Access Arrangement (AA) proposal. The proposed option received approval as part of the AER's 2025-30 Draft Decision.

Attachment A