



SAP S/4HANA lifecycle upgrade

**CP BUS 7.01 - SAP S/4HANA - Jan2020 - Public
Regulatory proposal 2021–2026**

Contents

1	OVERVIEW	3
2	BACKGROUND	6
2.1	General operating environment.....	6
2.2	Customer expectations.....	8
3	IDENTIFIED NEED	10
3.1	Problem statement.....	10
3.2	Product divergence risks	11
3.3	Compliance risks.....	12
3.4	General support risks.....	12
3.5	Network consequences of an outage.....	13
3.6	Desired future state.....	14
4	OPTIONS ANALYSIS	15
4.1	Approach	15
4.2	Options summary	17
4.3	Option 0: maintain two unsupported SAP ECC6 instances (do nothing).....	19
4.4	Option 1: engage third party support for two SAP ECC6 instances.....	20
4.5	Options 2 & 3 SAP-supported models analysis.....	21
4.6	Option 4: replace ECC6 with a new non-SAP solution.....	25
5	RECOMMENDATION	28
5.1	Recommended option.....	28
5.2	Proposed implementation roadmap	29
A	SAP SUPPORT	30
B	RISK MONETISATION FRAMEWORK	31
C	FINANCIAL STANDARDS	33
D	SAP TRANSITION SUPPORT	34
E	WHAT TYPES OF ERP MODELS ARE AVAILABLE?	35

1 Overview

Network	CitiPower, Powercor Australia and United Energy
Title	SAP S/4HANA lifecycle upgrade
Project ID	CP BUS 7.01 - SAP S/4HANA - Jan2020 - Public
Category	IT capital expenditure - recurrent and non-recurrent
Identified need	As confirmed by the vendor, the current SAP ECC6 software version will reach end of life support in 2025. SAP S/4HANA is the next available version and will be the only supported version from this date. In light of this upcoming change, we must plan ahead to ensure that the ERP system remains stable, compliant and fit-for-purpose.
Recommended option	Option 3: upgrade to SAP S/4HANA as a single integrated instance across CitiPower, Powercor and United Energy
Proposed start date	2022/23
Proposed commission date	2024/25
Supporting documents	<ol style="list-style-type: none"> 1. CP MOD 7.02 - SAP cost - Jan2020 - Public 2. CP MOD 7.03 - SAP risk - Jan2020 - Public 3. CP MOD 12.02 - Quoted services labour rate - Jan2020 - Public 4. CP ATT203 - ASIC - Users of financial reports - Oct2014 - Public 5. CP ATT204 - ASUG News - SAP growth of customer numbers - Feb2018 - Public 6. UE ATT048 - IT systems review - Sep2019 - Public

As the joint owner and operator of three major electricity distribution networks we deliver electricity to nearly two million Victorian households and businesses. The IT systems that underpin our network are managed through updates or upgrades to maintain their stability and performance. The scope of this business case covers the lifecycle upgrade of our organisation-wide Enterprise Resource Planning (ERP) solution, SAP.

SAP is used to run our core payroll, HR, finance and network organisational asset management systems. It is a crucial component of our IT architecture and interacts with a variety of other systems. As an ERP solution, SAP has been proven to be both reliable and efficient. Its processes are integrated into all areas of the business, and our employees have an extensive working knowledge of the product and how it intersects with critical business activities.

Significant sunk costs have been invested in the two SAP instances at CitiPower/Powercor and United Energy to maintain currency, and ensure all necessary patches and customisations have been applied.

As confirmed by the vendor, the current SAP ECC6 software version will reach end of life support in 2025. SAP S/4HANA is the next available version and will become the only supported version from this date. In light of this upcoming change, we must plan ahead to ensure that the ERP system remains stable, compliant and fit-for-purpose.

In response to this challenge, the following five options were assessed (table 1).

Table 1 Options Summary, \$m June 2021

Option		Cost	Risk
Option 0	Maintain two (CitiPower/Powercor and United Energy) unsupported SAP ECC6 instances for (do nothing).	0.0	414.8
Option 1	Engage third party support for two SAP ECC6 instances.	14.9	408.6
Option 2	Upgrade to S/4HANA as two separate instances.	60.0	29.2
Option 3	Upgrade to S/4HANA as a single integrated instance across CitiPower, Powercor and United Energy.	51.5	29.2
Option 4	Replace two SAP ECC6 instances with a single instance of a new, non-SAP ERP solution.	69.8	101.6

Note: Options 1-4 include costings for currency maintenance in addition to s4 Hana upgrade.

Note Costs include CitiPower, Powercor and United Energy.

Source: CitiPower

Our assessment found that if the lifecycle upgrade to S/4HANA is not performed:

- maintenance and support costs will increase
- system breakages and defects will increase and become harder to fix
- new functionality will no longer be provided to ensure that our systems, processes, security, and user and customer data is kept safe
- compliance updates for the existing product would no longer be provided, exposing us to regulatory breaches.

Our analysis concluded that option 3 is the recommended option to safely support the use and management of our assets and provide the best customer service.

This option avoids the significant risks of options 0, 1 and 4, and the higher costs of options 2 and 4, allowing us to realise \$5.2m of synergies from the integration of the CitiPower/Powercor and United Energy instances. Option 3 is the recommended option because:

- uninterrupted SAP vendor support will ensure the security of our business processes and customer data from this essential application
- software defects will be addressed, and compliance will be assured
- a single S/4HANA instance harnesses synergy, supports integration of the three businesses, allows new capabilities to be built, and simplifies future ERP maintenance and support needs.

2 Background

2.1 General operating environment

We have successfully run two instances of SAP for many years, one at CitiPower/Powercor and the other at United Energy. Additionally, SAP is acknowledged as an industry standard within utilities organisations and is used by many distributors in Victoria and Australia-wide. It was chosen due to its rich functionality, high reliability and compatibility with multiple platforms and operating systems, e.g. Microsoft Windows.

It is a requirement that our ERP comes from a Tier-1 provider capable of supporting the breadth of functionality required by a major organisation such as ours. The closest Tier-1 alternative to SAP is Oracle which includes comparable ERP features but lacks maturity in the areas of procure-to-pay and asset management.

The SAP platform plays a key role in what we do and provides accurate and real time information to allow us to best serve our customers. It has proven to be a scalable platform that has developed alongside our evolving business needs.

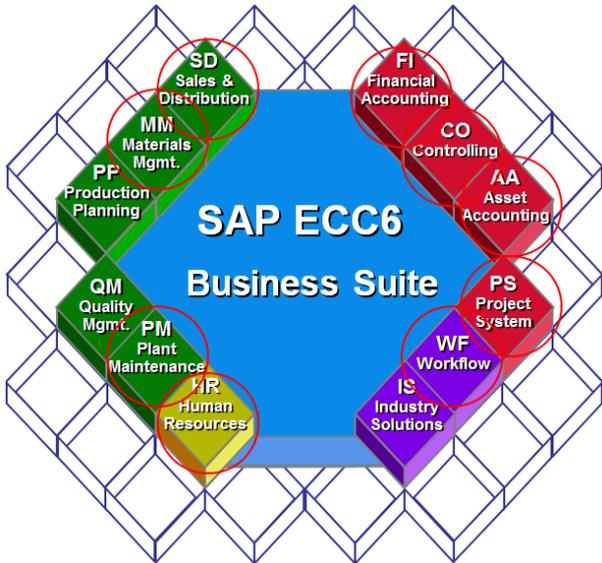
The SAP enterprise management system underpins and knits together many critical functions of our business:

- works management, including dispatch of field crews and subsequent asset updates
- network asset management including planning, maintenance and inspection
- Human Resources (**HR**), including payroll¹
- purchasing and vendor management
- project estimating and planning
- warehouse logistics process execution
- finance & banking
- billing and accounts payable²
- plant and fleet management.

¹ CitiPower and Powercor only.

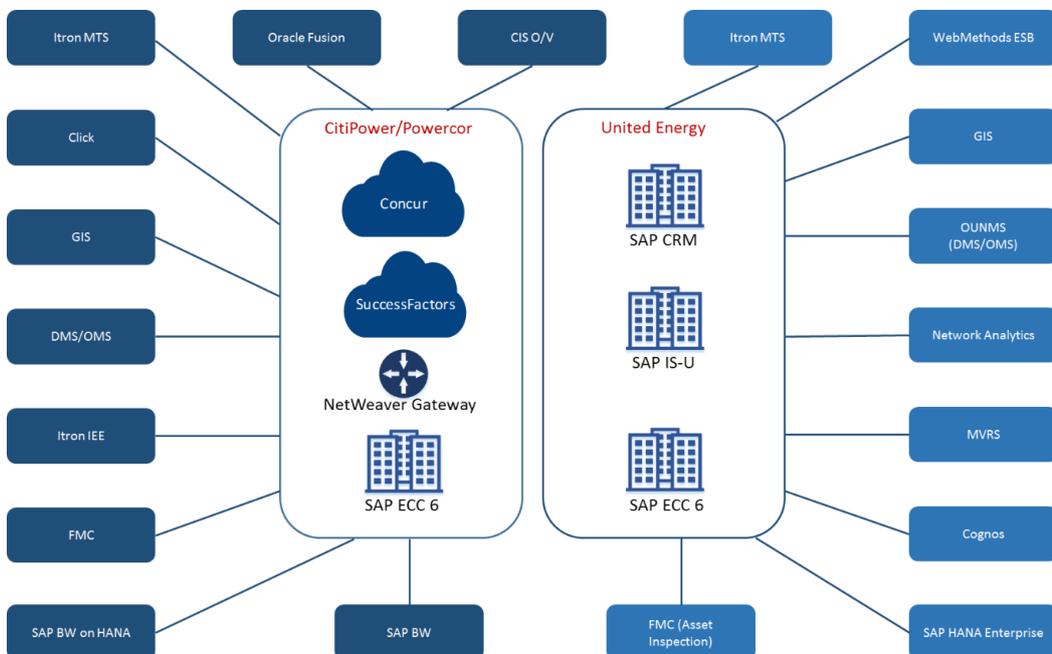
² Excludes network tariff billing.

Figure 1 SAP ECC6 Functions



SAP is a crucial system that sits at the core of our IT architecture. As can be seen from the context diagram in figure 2, it is integrated with many other sets of IT applications, including market systems, customer relationship management, geospatial systems, and business intelligence and reporting functions.

Figure 2 SAP System Interfaces



Source: CitiPower Powercor and United Energy

2.2 Customer expectations

SAP enables us to address our customers' expectations in the following three ways:

Table 2 Customer expectations

Safe and dependable	Flexible	Affordable
SAP's network asset planning and maintenance and inspection functions ensure that poles and wires are operational, managed efficiently and replaced proactively to ensure the network continues to operate in a safe and reliable way.	SAP's works management function ensures field crews can respond to customer requests in a timely way and have the right equipment on arrival. SAP is also very flexible in assisting with compliance, e.g. when new ATO directives are received.	SAP's broad coverage of organisational functions (including HR, payroll, purchasing, warehouse logistics, finance and accounts payable) means fewer smaller systems and associated costs. A simple enterprise platform delivers the most cost-effective outcome for customers.

Source: CitiPower

Industry trends

Due to its high functionality, SAP has become the electricity distribution industry's standard ERP software used throughout Victoria, being also used by Jemena and AusNet services. SAP is also used Australia-wide by electricity distributors, including:

- New South Wales: Ausgrid, Essential Energy, Endeavour Energy
- Queensland: Ergon Energy, Energex
- South Australia: SA Power Networks
- Tasmania: TasNetworks
- Western Australia: Western Power.

Functionality has been specifically tailored by the vendor to meet the needs of the utilities industry, which is evidenced by the broad adoption of the product. This is consistent with worldwide trends, where 45 of the 50 top utilities companies in the world run SAP solutions.³

Regulatory requirements

There are multiple statutory obligations that SAP is required to adhere to on behalf of their clients. This includes both financial and employee-related (HR) compliance.

Financial compliance

SAP Finance and Control (**FICO**) is a core functional component that supports us with analysis and reporting to assist with effective planning and decision-making:

- SAP Financial Accounting allows us to generate the financial information required to meet statutory reporting obligations to ASIC under the Corporations Act.⁴

³ PLATTS, Top 250 Global Energy Company Rankings.

⁴ Australian Securities & Investments Commission, Users of financial reports-List of financial reporting and audit questions (CP ATT203).

- Processes and controls in SAP provide assurance to external auditors on the control environment of our businesses.
- SAP Financial Accounting allows us to generate trial balances and other relevant financial information to produce financial reports that meet International Accounting Standards (**IAS**), and consolidation/company group reporting that meets both internal and external reporting requirements, e.g. shareholders' reporting requirements.
- SAP has the ability to record revenue and costs by separate legal entities, enabling us to meet compliance requirements while ensuring efficiency through a single ERP system, e.g. following ring-fencing guidelines, conforming to statutory reporting for the respective legal entities. For further information on our financial compliance obligations, please refer to Appendix C.

HR compliance

HR compliance includes obligations prescribed by:

- the Australian Taxation Office (**ATO**)
- the Fair Work Commission
- federal and state Governments
- other legislation, e.g. the Victorian Long Service Leave Act 2018, effective 1 November 2018.

SAP must ensure that the systems they build support and endorse meet minimum compliance standards for the countries and industries within which they operate. Essentially this transfers compliance risk from a company, which would otherwise have to spend significant amounts of time and energy on this compliance.

3 Identified need

3.1 Problem statement

The need to upgrade our ERP systems from the current ECC6 SAP version to the S/4HANA version is primarily being driven by the ERP vendor-SAP, and the age of the system within its product lifecycle.

Vendor-driven change

As confirmed by the ERP vendor, the current SAP ECC6 ERP software used to run our core payroll, HR, finance and network/organisational asset management systems, will reach end of life in 2025. This has been communicated globally via formal SAP vendor announcements in relation to maintenance and support (see FAQ in Appendix A).⁵

SAP will commence a staged wind-down of support for legacy non-S/4 instances of their product, i.e. there will be a decrease in the provision of system fixes and support packs. As a result new customers must opt for the next available version S/4HANA product should they wish to receive updates for new functionality or legislative requirements.⁶ SAP S/4HANA will become the only supported version post 2025.

Increasing numbers of other organisations are making the transition to S/4HANA. The number of new S/4HANA implementations increased by 50% in the last quarter of 2017, reaching 1500 in total. An additional 6400 customers worldwide have purchased SAP S/4HANA licenses or subscriptions, demonstrating intent and commitment to an implementation in the near future.⁷

System age

Compounding the problem, the CitiPower/Powercor ECC6 version of SAP was implemented in 2006, which means it will be 19 years old by the end of the 2021-2026 regulatory period. Similarly, United Energy's ECC6 instance was implemented in 2008, making it 17 years old by 2025. This places our ECC6 systems at the end of the IT asset life cycle and in need of a major upgrade, irrespective of the vendor roadmap.

In light of these upcoming changes we must plan to ensure that the ERP system remains stable, compliant and fit-for-purpose.

A reliable, safe and secure IT platform

SAP ERP is a crucial component of our IT architecture and has been proven to be both reliable and efficient. Its processes are integrated into all areas of our business, and our employees have an extensive working knowledge of the product and how intersects with critical business activities.

As with any business, our current and future business needs grow and change over time. We must continue to invest in a platform that allows us to be responsive and flexible in meeting those needs. A solid, safe and future-ready ERP enables us to:

- process high priority and high volume transactional data in real-time
- combine large volumes of structured/unstructured data to support digitally enabled mobile and multichannel applications such as ClickMobile. This is used to support the management of works programs for line maintenance, plant maintenance, augmentation, faults, public lighting faults and connections

⁵ See Appendix A.

⁶ 'Magic Quadrant for Enterprise Asset Management Software, Gartner, October 2018

⁷ SAP S/4HANA Grows to Nearly 1,500 Live Customers', AUSG, February 2018 (CP ATT204).

- perform advanced analytics and modelling using data from diverse sources and devices and ensure our data capabilities are fit for purpose. The data volumes associated with these activities cannot be supported by consumer grade tools such as Microsoft Excel and Microsoft Access
- take up cloud application opportunities for systems that intersect with the ERP
- optimise existing operating processes to replicate, visualise and measure process effectiveness. These insights give us the ability to increase process efficiency by identifying the weaknesses and gaps, and to make real-time cost-benefit decisions via the S/4 ERP advanced analytics capabilities
- attain improved risk management and exception reporting
- ensure compliance with legislative requirements through additional IT system investments.

To achieve the above, our ERP system must remain fully supported.

Non-Vendor Supported Risk Assessment

A non-vendor supported world poses many challenges, including product divergence, compliance, system performance and cost, and system outage risks. These are discussed below.

3.2 Product divergence risks

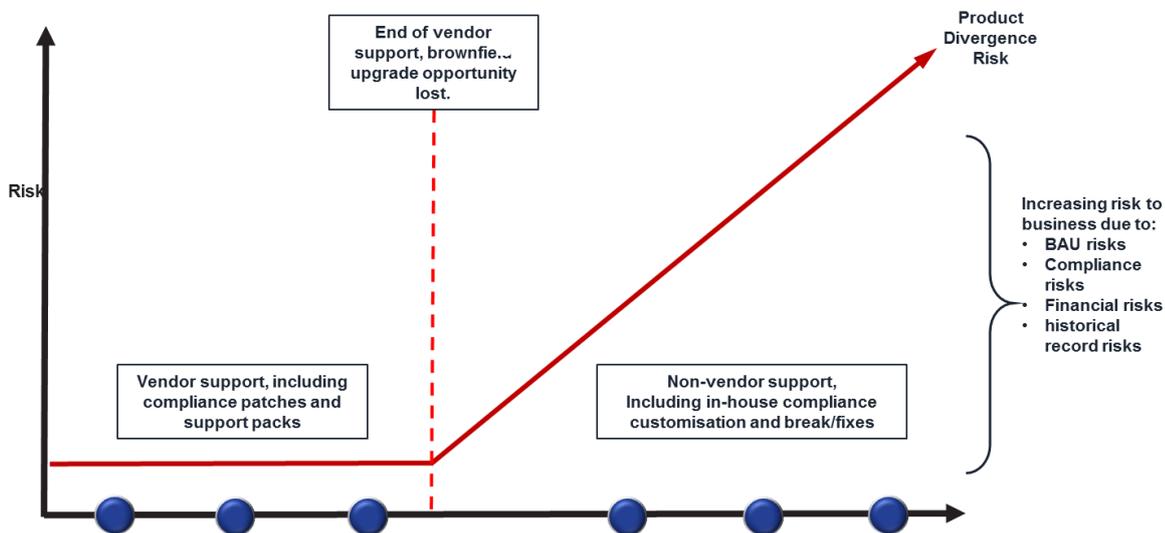
An increased need for custom code creates incremental departures from the standard vendor (SAP) product. Each customisation done outside vendor support changes the core DNA of the software and the option to eventually upgrade the existing product implementation is immediately lost. There is no sliding scale from the vendor's perspective; the existing product is considered unrecognisable and is ineligible for upgrade.

In-house customisations pose a higher risk to the existing product. Increased collateral impacts (break/fix issues) are likely to result, all of which must, in turn, be supported in-house. Our application managed services (**AMS**) agreement with Wipro would be compromised as the product has deviated from what they are contractually obliged to support. This would result in an increase in operating expenditure.

Without enhancement packs and patches regularly provided by the vendor, business operations and processes which underpin our distribution business could be exposed to software defects, increased security risks and loss of critical business data.

As illustrated in the following diagram in figure 3, if the organisation departs from the vendor support model, the risks take immediate effect and increase every year until a supported model is reinstated.

Figure 3 Risk Diagram with/without vendor support



Source: CitiPower Powercor and United Energy

Starting over with a ‘greenfield’ implementation becomes the only available avenue for a return to a vendor-supported model.

3.3 Compliance risks

A move to a non-vendor supported arrangement effectively shifts the risk of non-compliance and the risk of defects realised in achieving compliance from the vendor to us. Compliance breach penalties incurred because of non-compliant custom code become our responsibility.

Without vendor support, compliance work must be done by in-house code customisations. These carry a higher risk of creating defects and failing to meet compliance obligations. In-house development teams will not have the same level of resources available to meet global, national and industry standards. This will result in additional remediation activity at further costs to us. Adverse legal and financial outcomes for non-compliances must be borne wholly by us, with no protections from the vendor.

Compliance risks can be historical where non-compliant code may be remediated in-house and take effect from the point of implementation, but may not retrospectively fix the historical record. Financial and legal audit trails are forever corrupted with incorrect data for the period impacted by the non-compliance. This compromises future planning and may also result in further non-compliances.

3.4 General support risks

In addition to product divergence and compliance risks, there are a number of risks that will increase with time should the non-vendor support model be implemented:

- **Speed degradation:** An ageing SAP system will result in increasingly slower response times for most of the business transactions that keep the business running.
- **Decreasing SAP support:** we currently receive maintenance updates and support from SAP. This will become limited and more costly as time progresses as the vendor will redirect focus to the new SAP S/4HANA version. Standard support will end in 2025.

- **Increasing external vendor costs:** we have a consistent fee structure with our current support model. Maintenance fees will increase each year. After SAP ECC6 standard support ends, external application support vendor costs will continue to rise due to the difficulties in supporting an ageing application.
- **Hardware compatibility:** underpinning hardware supporting the SAP systems must be compatible with the operational software. Hardware periodically requires replacement as it reaches end-of-life, and providers introduce new chipsets which some legacy applications cannot run on. This results in both unsupported software and unsupported hardware.

3.5 Network consequences of an outage

A SAP outage for as little as one hour would impact thousands of dependant processes and would be felt immediately. Reflecting this, our disaster recovery plan acknowledges SAP as having one of the highest system availability requirements, and lowest downtime allowances.

Connections, planned works, fault responses and other customer requests pass through SAP before they can be scheduled. Contracted businesses performing important roles, such as Engineers, Asset Inspectors and Line Workers, are paid via SAP systems. Our employee OH&S and incident reporting connects through SAP, as does analytics and reporting on the location, number, condition and maintenance schedule of our extensive network asset portfolio. This is crucial for the safe and the efficient running of our services.

In the event of a sustained SAP outage, the processes compromised would have an immediate impact on customers, employees and our contracted partner businesses in the form of requests that do not commence, reports that do not run and field crews that are not dispatched (or have been dispatched but cannot access details of work requests to perform their work or report back).

A SAP outage would also halt all payment runs, including significant impacts to payments owed to vendors. Depending on the vendor and amount, this has the potential to result in company fines and reputational issues that could impact our ability to contract optimal resourcing in the future.

These impacts would compound and escalate with each passing hour, and large sections of our business would be forced to halt operations or revert to manual processes within the day, including fault response crews, bushfire mitigation work and customer billing and requests. The disaster recovery plan would be enacted at 16 hours and, if system restoration was unsuccessful, catastrophic failures would occur within a few days, representing serious compromises to core network operations, safety and security.

To best serve customers, we must ensure the ongoing effectiveness of the system. Vendor support underpins system reliability.

3.6 Desired future state

SAP will continue to be at the core of our business processes, centrally integrating with other business supporting systems. In order to meet our customer objectives-operating within a safe and dependable, flexible and affordable framework-it will be necessary to maintain vendor support from SAP. In turn this will ensure we continue to support all aspects of our business, and meet our compliance responsibilities.

Table 3 Desired future state

Current state		Desired future state		Customer objectives met
<p>CitiPower, Powercor & United Energy currently use the SAP ERP platform version ECC6.</p> <p>Enhancement packs and patches are supplied regularly by the vendor.</p> <p>We currently receive maintenance support from SAP.</p> <p>We have a consistent fee structure with our current support model.</p> <p>Underpinning hardware supporting the SAP systems is compatible with the operational software.</p>	→	<p>Continuous vendor support provided to maximise product capability.</p> <p>Continuous vendor support provided for maintenance of defects.</p> <p>Fee structure preserved and renegotiation costs avoided.</p> <p>Hardware and software compatibilities preserved.</p>	→	<p>Safe and dependable</p> <p>We proactively identify and fix problems on the network.</p> <p>Flexible</p> <p>We respond to customer requests for help in a timely way.</p> <p>Affordable</p> <p>Our systems are simpler to operate and able to keep pace with change.</p>

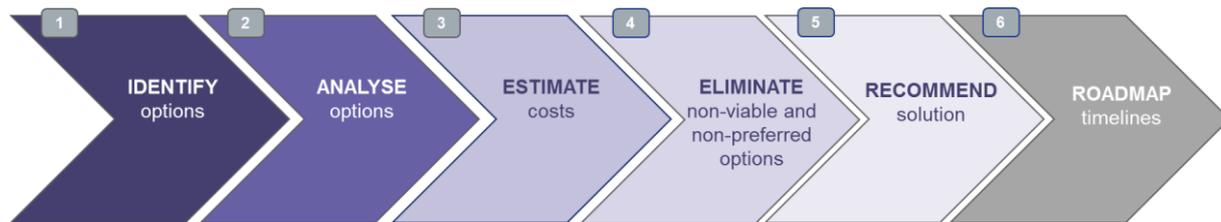
Source: CitiPower

4 Options analysis

4.1 Approach

To address the problem of maintaining or upgrading the existing SAP ECC6 system in an efficient and low cost way, the approach figure 4 has been applied to determine the recommended outcome for CitiPower, Powercor and United Energy.

Figure 4 Option analysis approach



Source: CitiPower Powercor and United Energy

Step	Summary
1 Identify options	Collate a wide range of solutions to address the core issues.
2 Analyse options	Compare options against assessment criteria to determine which will deliver optimum return on investment with minimum risk.
3 Estimate costs	Collate detailed cost estimates to establish optimum cost/benefit to our customers and business.
4 Eliminate non-viable and non-preferred options	Hone options against consistent criteria.
5 Recommend solution	Select a proposal that will best meet customer need and support business strategy.
6 Roadmap timelines	Draft a delivery roadmap to plan resourcing, cost profiling and mitigate delivery risk

Source: CitiPower

4.1.1 Assessment criteria

To identify and assess viable ERP options, we apply a standardised set of criteria to assess the value of investing:

- **Leverage existing platforms before investing in new technology** - Before implementing a new system, we first look whether leveraging existing platforms would minimise cost.
- Investigate solutions with an enterprise-wide lens - Modern, enterprise-wide applications that are complementary to the existing architecture are more robust, allow flexible selection of capability, are more maintainable and have long-term support roadmaps.
- **Consider our current and future needs** - Solutions must be sustainable, scalable and secure.

4.1.2 Initial options development

To identify potential options we need to consider:

- doing nothing, i.e. remaining with current version of SAP ECC6

- upgrading the system to a newer, better supported version
- remaining with SAP or replacing ECC6 with a non-SAP solution
- taking the opportunity to integrate the two separate SAP instances into a single ERP solution across our three networks
- engaging a third party to provide support, or maintaining the existing vendor support arrangement with SAP.

Based on the above, the following initial lists of options were drawn up for assessment.

Table 4 Initial options summary

Option		Summary
Option 0	Maintain two unsupported SAP ECC6 instances (do nothing).	No upgrade. Current product retained. Break-fix support managed in-house. No new functionality.
Option 1	Engage third party support for two SAP ECC6 instances.	No upgrade. Current product retained. Break-fix support outsourced to third party provider. No new functionality.
Option 2	Upgrade to S/4HANA (two instances).	Upgrade 2x existing ECC6 systems to S/4HANA. Method: brownfields conversion. 2x S/4HANA instances maintained under a vendor-supported model.
Option 3	Upgrade to S/4HANA (single integrated instance).	Upgrade and integrate 2x existing ECC6 systems to a single S/4HANA instance across CitiPower, Powercor and United Energy. Method: brownfields conversion. 1x S/4HANA instance maintained under a vendor-supported model.
Option 4	Replace ECC6 with new non-SAP solution.	Decommission SAP and replace with non-SAP ERP Greenfields solution Method: <ul style="list-style-type: none"> • commission new system • integrate satellite systems • decommission old system

Source: CitiPower

4.1.3 Costing method

The options were estimated using a bottom up approach, leveraging information on historical projects relating to the target applications and information on projects of similar nature and scope, such as the SAP R/3

Implementation, SAP R/3 version upgrades, and the migration of R/3 to ECC6, and version upgrades for ECC6. For upgrade costs, estimates built up based on standard project lifecycle phases:

- prepare and analyse
- upgrade
- test
- convert (extract, transform, load)
- organisational change management (OCM)
- deploy
- embed.

For each of these phases, estimates were produced in terms of labour, contracts and material costs. Labour rates were based on a blended external IT labour rate provided by PwC.⁸

SAP currency maintenance

In addition to estimates for upgrades, the approach also included the costs to maintain the currency of the existing ECC6 systems prior to any potential change. Irrespective of which option is selected, it is essential that the SAP system is maintained before and after upgrade to S/4HANA or alternative vendor is implemented and embedded (as applicable).

The currency costs reflect business as usual and include upgrades, hotfixes and patches required to maintain currency, including:

- HR compliance
- payroll compliance (annual tax and statutory changes)
- regulatory standard updates (AEMO)
- enhancement packs
- statutory standard accounting compliance (IFRS)
- SAP org publisher.

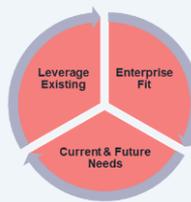
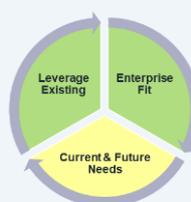
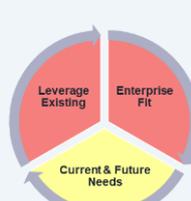
The consequences of not maintaining currency of our two SAP ERP systems is that they go out of vendor support. The risks of failing to maintain currency is equivalent to option 0 above in relation to maintaining an unsupported SAP system. The costs of currency maintenance are provided in the SAP cost model.

4.2 Options summary

An initial assessment of the options against the criteria was undertaken to assess feasibility and suitability. table 5 summarises the outcomes of this analysis.

⁸ See CP MOD 12.02 - Quoted services labour rate - Jan2020 - Public.

Table 5 Initial analysis summary

Option	Analysis
<p>Option 0</p> <p>Maintain two unsupported SAP ECC6 instances (do nothing)</p>	 <p>No short-term change Long-term change not supported High risk support model</p>
<p>Option 1</p> <p>Engage third party support for two SAP ECC6 instances</p>	 <p>Major immediate contractual change Long-term change not supported Very high risk support model</p>
<p>Option 2</p> <p>Upgrade to S/4HANA (two instances)</p>	 <p>Transition period of moderate change Long-term change supported for each organisation Lowest risk (and known) support model</p>
<p>Option 3</p> <p>Upgrade to S/4HANA (single integrated instance)</p>	 <p>Transition period of moderate change Long-term change supported, including leveraging synergies Lowest risk (and known) support model</p>
<p>Option 4</p> <p>Replace ECC6 with new non-SAP solution</p>	 <p>Major immediate and long-term IT, contractual, process and organisational change High technical risk Unknown support model</p>

Source: CitiPower

Table 6 summarises the relative costs and risks of the options considered.

Table 6 Options summary, \$m June 2021

Option		Cost	Risk
Option 0	Maintain two (CitiPower/Powercor and United Energy) unsupported SAP ECC6 instances for (do nothing)	0.0	414.8
Option 1	Engage third party support for two SAP ECC6 instances	14.9	408.6
Option 2	Upgrade to S/4HANA as two separate instances	60.0	29.2
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Option 4	Replace two SAP ECC6 instances with a single instance of a new, non-SAP ERP solution	69.8	101.6

Note: Options 1-4 include costings for currency maintenance in addition to s4 Hana upgrade.

Note Costs include CitiPower, Powercor and United Energy.

Source: CitiPower

4.3 Option 0: maintain two unsupported SAP ECC6 instances (do nothing)

Two separate instances of SAP ECC6 continue to be maintained in-house. The current system remains as is with no vendor-ratified support or patching, and no option to add new functionality or reporting. Continuing with two unsupported SAP ECC6 instances is the ‘do nothing’ course of action.

This represents a departure from the vendor support model, with high risks taking immediate effect as demonstrated by our risk monetisation analysis. Additional risks increase every year until such time as a supported model is reinstated. Upon return to the vendor model the organisation is also liable for arrears support costs for the period that was unsupported.

Table 7 summarises the analysis outcomes for option 0.

Table 7 Option 0 analysis summary

Advantages	Disadvantages	Risks
Lowest upfront capital costs.	Brownfield upgrade opportunity lost (upgrade would need to be a full-cost greenfield implementation).	Financial non-compliances
Low short-term IT and operational impact.	High support fees	HR non-compliances
	Current vendor support ends 2025	Data privacy breaches
	No system fixes or patches	Degraded customer service levels (metering requests, network/supply requests and fault requests)
	No new functionality	Impacted processes due to unrectified defects
	No new reporting capability	Erroneous & inflexible reporting inaccessible enhancements
	Blocks future system and business process convergence	Increased future cost to return to vendor supported model
		Increased probability of system failure (and high cost of emergency replacement)

Source: CitiPower

4.4 Option 1: engage third party support for two SAP ECC6 instances.

When reviewed against the assessment criteria and risk monetisation analysis, this option presents major risks with:

- increased risk of bugs and outage incidents with consequential impacts on integrated systems including:
 - our network management systems which pose risks to network reliability and safety
 - payroll anomalies leading to non-compliance risks and adverse employee impacts
- increased risk on non-compliance as new financial regulations are introduced
- managing the process for departing from vendor support and handing over to limited third party support model.

Recent experience with United Energy engaging third party support for SAP illustrates this. In 21 years of having SAP installed for core operations, CitiPower and Powercor have never allowed a lapse in vendor support. By way of comparison, in a bid to achieve short term reductions in operating expenditure, United Energy departed in 2017 from a vendor-supported model to a third-party support model for a period of nine months. The adverse business outcomes that resulted from this change were deemed to be unacceptable. Specifically:

- support was limited to break/fix support for the current version only, and did not provide the upgrades and enhancements necessary to support United Energy’s emerging requirements
- the ability to execute a long-term IT strategic roadmap for critical business processes was being impeded, including incremental alignment of United Energy systems and processes with CitiPower and Powercor
- a comparison of three years of logged incidents for United Energy and CitiPower/Powercor highlights the significant problems experienced by United Energy while using third party support in the period 2017 through to August 2018, as shown in table 8.

Table 8 Comparison three years of logged incidents for United Energy and CitiPower/Powercor

Year	United Energy Incidents	CitiPower/Powercor Incidents
2017	234	5
2018	254	13
2019*	96	20
Total	584	38

Source: CitiPower

Consequently United Energy returned to an SAP-supported model in October 2018. However, rectification of the contractual damage came at a far greater cost than any short-term savings that had been realised. See the United Energy stability review for further details.⁹

Table 9 Option 1 analysis summary

Advantages	Disadvantages	Risks
Lower cost in the short term	Major immediate contractual change requiring project resource Long-term change not supported Very high risk support model Changing to another ERP it will required On-going support costs	Increased risk of bugs and outage incidents with consequential impacts on integrated systems Increased risk on non-compliance as new financial regulations are introduced Managing the process for departing from vendor support and handing over to limited third party support model

Source: CitiPower

4.5 Options 2 & 3 SAP-supported models analysis

What happens under a vendor-supported model?

SAP continues to run CitiPower, Powercor and United Energy’s core payroll, HR, finance, field, network asset and asset management systems. Whether it relates to salary or leave calculations, tax obligations or statutory reporting, the organisation is required to be legally compliant on all fronts at all times.

As changes are continually occurring in these fields, compliance is maintained by applying SAP-supplied compliance patches every year (or sometimes several times per year), to keep the SAP system in step with the latest legislative changes. These compliance patches are issued by SAP and contain authorised changes to the core code within the software. Due diligence is performed in the implementation of the patches (through internal testing and assurance activities) to ensure there are no unforeseen impacts to adjacent systems.

In addition, SAP-supplied support packs are implemented at CitiPower, Powercor and United Energy every second year.

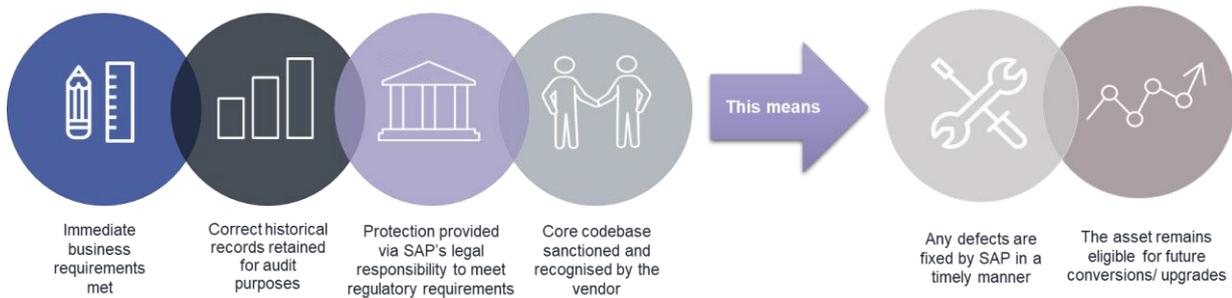
⁹ United Energy IT Systems, FINAL report (UE ATT048).

This vendor support model continues seamlessly if ECC6 converts to S/4HANA prior to 2025.

What value does the SAP vendor-supported model deliver?

The regular implementation of SAP-supplied compliance patches and support packs protects and strengthens CitiPower, Powercor and United Energy’s SAP instances.

Figure 5 SAP vendor-supported model



Source: CitiPower

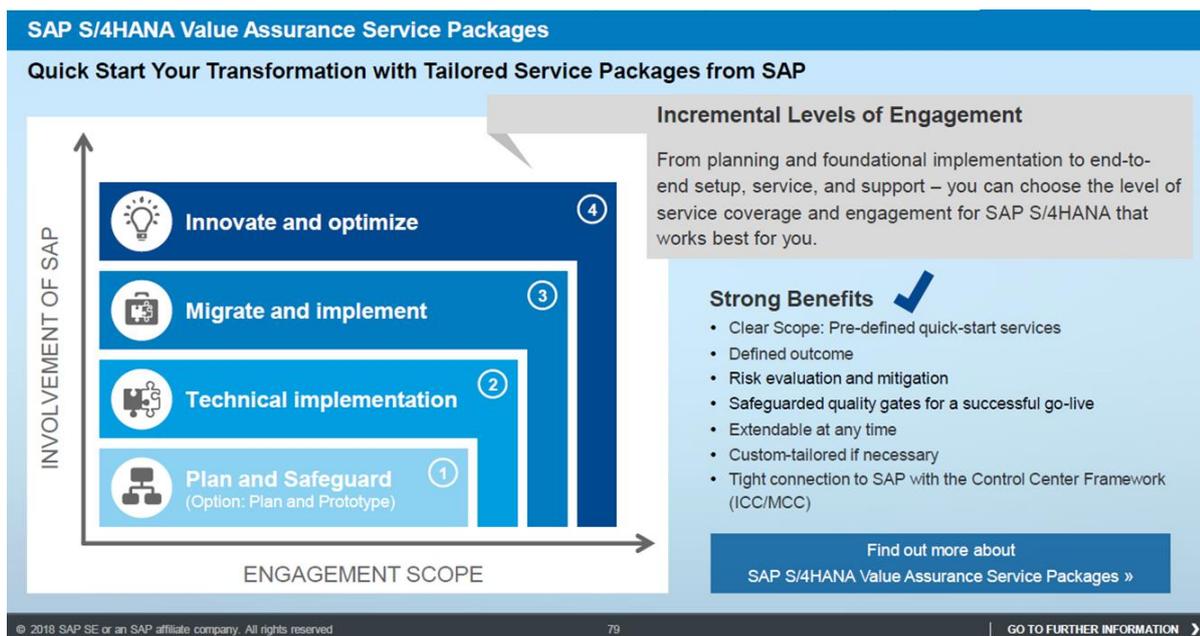
What transition support does SAP provide?

Because our SAP instances have been maintained in line with vendor guidelines, significant vendor support is provided by SAP to ensure a smooth transition through the lifecycle upgrade. See Appendix D for further details.

How would delivery and resourcing risks be mitigated?

To mitigate project scope and delivery risks, our in-house SAP expertise and deep knowledge of our existing product can be augmented as needed with local and global SAP support, ensuring a smooth, targeted and timely implementation.

Figure 6 SAP S/4HANA value assurance service packages



Source: SAP SE

If options 2 & 3 are both SAP-supported, what's the difference?

Table 10 Options 2 & 3 differences

Option		Summary
Option 2	Upgrade to S/4HANA (two instances)	<p>Design & Build Approach: A CitiPower, Powercor system instance and a United Energy system instance built separately, in parallel, to cater for each network's respective business processes and satellite systems¹⁰.</p> <p>Number of deployments: 2</p> <p>Target state: Parallel sovereign systems</p> <p>Outcomes:</p> <p>Limited future flexibility on the choice and integration of satellite systems.</p> <p>Higher support costs compared to single integrated support: two separate instances to be maintained, upgrading equivalent products with similar upgrade roadmaps.</p>
Option 3	Upgrade to S/4HANA (single integrated instance)	<p>Design & Build Approach: Single instance established, with CitiPower, Powercor and United Energy built as separate businesses within the one system instance, allowing business processes to be tailored for each network.</p> <p>Number of deployments: 1</p> <p>Target state: Unified platform</p> <p>Outcomes:</p> <p>Strong future flexibility on the choice and integration of satellite systems.</p> <p>Reduced support costs compared to two instance supports: all future upgrades and maintenance will be delivered through one project, not two.</p>

Source: CitiPower

4.5.1 Option 2: upgrade to S/4HANA as two separate instances

Perform a system lifecycle upgrade for CitiPower, Powercor and United Energy SAP systems to leverage the existing platform, processes and investment. Two separate instances of SAP S/4HANA to be maintained under a vendor-supported model.

¹⁰ Any systems interfacing to the core SAP ERP system.

Table 11 Option 2 analysis summary

Advantages	Disadvantages	Risks
<p>Significant lower cost than departure to non-SAP ERP (option 4).</p> <p>Leverages existing systems and processes.</p> <p>Continuous vendor support post-2025.</p> <p>Customer service levels remain scalable to maintain accurate equipping and timely dispatch of field crews for:</p> <ul style="list-style-type: none"> metering requests (e.g. connections, additions, alterations, abolishment) customer-initiated network and supply requests network maintenance and fault requests. <p>Leverages availability and expertise of outsourced providers (i.e. Wipro) for ongoing support and delivery.</p> <p>Reduced maintenance costs pre-2025 (via existing strategic partnership with SAP).</p> <p>Compliance protections.</p> <p>Data privacy protections.</p> <p>New reporting supported.</p> <p>Future functionality supported.</p> <p>Future system and process optimisation.</p>	<p>Project and business process efficiencies are limited due to the continuation of two separate SAP systems:</p> <ul style="list-style-type: none"> limited future flexibility on the choice and integration of satellite systems higher support costs compared to single integrated support: upgrading equivalent products with similar upgrade roadmaps <p>Higher cost than options 1 & 3.</p> <p>Future maintenance duplications.</p> <p>Limits future system and business process convergence.</p>	<p>Misaligned maintenance schedules (compliance and cost impacts)</p> <p>Unplanned system and process integration impacts.</p>

Source: CitiPower

4.5.2 Option 3: upgrade to S/4HANA as a single integrated instance

Perform one single system lifecycle upgrade for CitiPower, Powercor and United Energy to leverage our existing platform, processes and investment. A single integrated instance of SAP S/4HANA to be maintained under a vendor-supported model.

Table 12 Option 3 analysis summary

Advantages	Disadvantages	Risks
<p>Lower cost than two instances of S/4 (option 2).</p> <p>Leverage and combine common processes (e.g. Billing).</p> <p>Simplified systems to be maintained and supported post-2025.</p> <p>Continuous vendor support post-2025.</p> <p>Customer service levels remain scalable to maintain accurate equipping and timely dispatch of field crews for:</p> <ul style="list-style-type: none"> • metering requests (e.g. connections, additions, alterations, abolishment) • customer-initiated network and supply requests • network maintenance and fault requests. <p>Leverages availability and expertise of outsourced providers (i.e. Wipro) for ongoing support. Reduced maintenance costs pre-2025 (via existing strategic partnership with SAP).</p> <p>Compliance & data privacy protections.</p> <p>Data privacy protections.</p> <p>New reporting capability supported.</p> <p>Future functionality supported.</p> <p>Future system and process optimisation.</p> <p>Project efficiencies leveraged in integrating.</p>	<p>Higher cost than options 0 and 1.</p>	<p>Unplanned system and process integration impacts.</p>

Source: CitiPower

4.6 Option 4: replace ECC6 with a new non-SAP solution

Invest in and implement a new Tier 1 enterprise software system as an alternative to SAP. This would entail a full business process transformation and a rebuild of all system interfaces that would interface to the new system. A single instance of the new ERP solution would be maintained.

Which ERP Model is right for the organisation?

The postmodern model is one where business applications, potentially from independent vendors, are reachable over a network, but appear to the user as a single ERP system. For further details, see appendix E. This model continues to be the preferable ERP model for CitiPower, Powercor and United Energy because it balances the benefits of vendor-delivered integration against business flexibility and agility.

This means that it:

- creates opportunities to standardise systems and associated business processes
- allows the core platform to stabilise satellite functionality, without restricting choice for specialist functions
- allows the organisation to maintain flexibility, using either on premise or cloud solutions, or a hybrid portfolio of both
- promotes ease of system integration, which reduces complexity, cost and risk
- supports simpler vendor relationship management
- represents improved commercial bargaining power with vendor
- promotes simpler vendor roadmap alignment, simplifying planning and strategy activities
- delivers balanced controls and prudent decisions via a joint governance model.

Why is a Tier-1 ERP software provider needed?

A Tier-1 ERP provider is the only option for the businesses' core ERP platform. Non-Tier-1 providers do not have the breadth of functionality to support the postmodern federated ERP model that the network businesses need to support their BAU operations.

Whilst the next closest Tier-1 ERP provider (Oracle) has strength in some categories, the lack of maturity in their product in the Procure-to-Pay and Asset Management space pose unacceptable risks and costs for the network businesses. At an aggregate level, the Oracle suite would likely only cover 70% of our needs, with the remainder requiring 'bolt-on' bespoke applications for core processing.

For the 70% that would be covered, the lower product maturity translates to an increased need for customisations, and more frequent occurrence of technical defects. Both would result in increased maintenance and support costs.

Most importantly, a comprehensive, enterprise-wide system, integration, data and process redesign is required to adapt to an Oracle model. This organisational transformation exercise is equivalent in effort to standing up a brand-new business and represents a significant implementation cost and a high delivery risk.

SAP remains the industry choice for Victorian and other interstate electricity distributors and continues to be the clear Tier-1 provider choice for us. Its ability to support core current and future ERP functions through maturity across its product offering is unparalleled, as is its compatibility with the businesses' existing IT tooling and processes.

Table 13 Option 4 analysis summary

Advantages	Disadvantages	Risks
<p>Tier-1 vendor support model protections.</p> <p>Opportunity to re-engineer systems and processes for a bespoke integrated solution.</p>	<p>Highest cost option.</p> <p>Highest project delivery and ongoing support risks.</p> <p>Major process redesign, major system transformation and full interface rebuild. Major OCM impact, including both operational and technical support staff training.</p> <p>No known Tier-1 ERP alternative available that will provide 100% of the functionality needed (closest competitor may cover 70%, with remaining 30% to be covered by multiple bespoke products).</p>	<p>Customer service level impacts (metering requests, network/supply requests).</p> <p>System integration failures.</p> <p>Increased fault response times.</p> <p>Non-compliances in changeover.</p> <p>Redundant functionality.</p> <p>Functionality not fit-for-purpose.</p> <p>Productivity and efficiency impacts.</p> <p>Increased support costs due to multiple vendors.</p>

Source: CitiPower

5 Recommendation

If the lifecycle upgrade to S/4HANA is not performed, maintenance and support costs will increase and system breakages and defects will increase and become harder to fix. New functionality will no longer be provided to ensure that our systems, processes, security, and user and customer data is kept safe. Without vendor support, compliance patches and enhancements for the existing product are also no longer available. Based on recent experience at United Energy, this has been assessed as an extremely high-risk option, exposing the business to risk of regulatory breaches.

A Tier-1 ERP provider is the only option for our core ERP platform. Non-Tier-1 providers do not have the breadth of functionality to support the federated ERP model¹¹ that the network businesses need to support their BAU operations. Replacement of SAP with another ERP platform was found to be a more expensive option and would require a whole-of-business transformation. SAP continues to be the clear Tier-1 provider of choice for current and future core ERP functions.

5.1 Recommended option

Table 14 Recommended option 3, \$m June 2021

IT capital expenditure	2021/22	2022/23	2023/24	2024/25	2025/26	Total
CitiPower	0.4	2.5	5.4	4.1	0.4	12.9
Powercor	0.4	2.5	5.4	4.1	0.4	12.9
United Energy	0.9	5.0	10.9	8.2	0.7	25.7
Total	1.8	10.1	21.8	16.4	1.5	51.5

Source: CitiPower

Option 3 is the recommended option because:

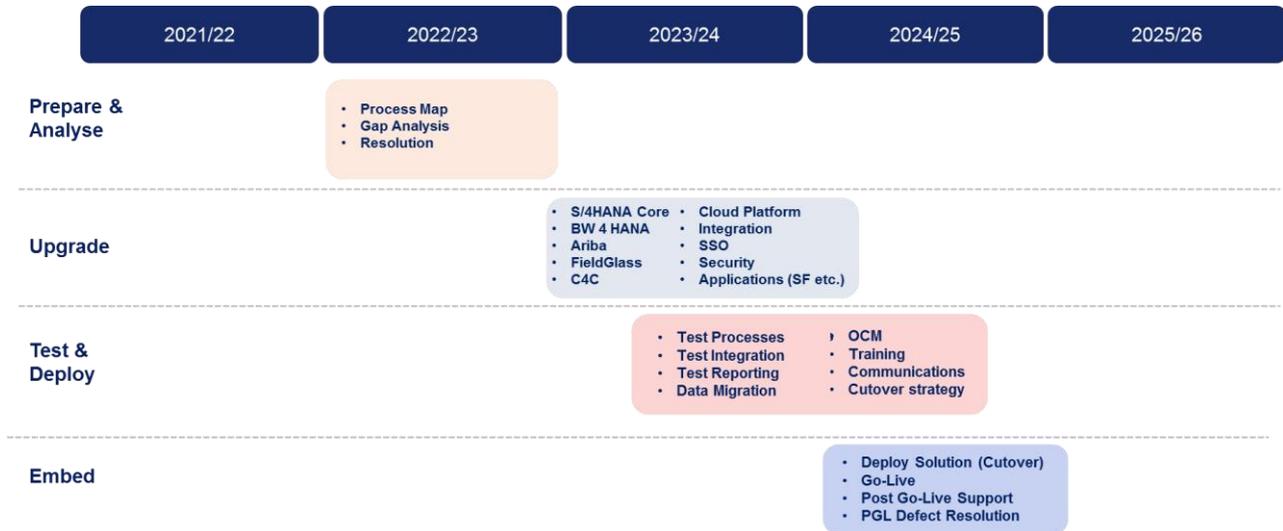
- the uninterrupted SAP vendor support will ensure the security of our business processes and customer data
- software defects will be addressed and compliance will be assured
- a single S/4HANA instance harnesses synergy, supports integration of the three businesses, allows new capabilities to be built, and simplifies future ERP maintenance and support needs
- it allows new capabilities to be built and simplifies future ERP maintenance and support needs
- it avoids the significant risks and operational expenditure of doing nothing (option 0) or a new ERP platform (option 4)
- it avoids the higher capital expenditure of implementing two separate S/4HANA instances (option 2) or a new ERP platform (option 4)
- it best addresses our customers' expectations in that it is the most affordable way to maintain the safety and flexibility that SAP has successfully delivered to customers and the business throughout prior periods.

Refer to Appendix B for a summary of the associated risks involved in the recommended option and the SAP/S4HANA lifecycle upgrade risk monetisation model for further detail.

¹¹ See Appendix E for details.

5.2 Proposed implementation roadmap

Figure 7 S/4HANA project phases and transition



Source: CitiPower

A SAP support

Figure 8 Frequently Asked Questions, Innovations, Mainstream Maintenance and SAP® Enterprise Support 2025. v1', SAP, October 2014

The screenshot shows the SAP Support Portal page for 'SAP Maintenance & SAP Enterprise Support - Prolonged Commitments until 2025'. The page header includes the SAP logo and navigation links for 'Next-Generation Support', 'SAP ONE Support', 'Maintenance 2025', and 'Extension Policies'. The main content area is divided into several sections: an introductory paragraph, a section on 'Mainstream Maintenance' detailing the extension to 2025 for various SAP products, a section on 'SAP Enterprise Support Pricing' detailing the extension of the 22% price cap to 2025, 'SAP's Release and Maintenance Strategy Details' with a list of links, and 'Prolonged Commitment Details' with a link to 'Frequently Asked Questions (FAQ)'. A concluding paragraph at the bottom emphasizes the company's commitment to predictability and protection for investments.

SAP Support Portal Home / Offerings & Programs
Strategy

Next-Generation Support SAP ONE Support **Maintenance 2025** Extension Policies

SAP Maintenance & SAP Enterprise Support - Prolonged Commitments until 2025

As announced on October 14, 2014, SAP underlines its commitment to innovation for SAP Business Suite 7 applications and SAP Business Suite powered by SAP HANA by offering customers choice and a simple, non-disruptive route to the cloud. We will continue to deliver innovations for the on-premise versions of SAP Business Suite 7 and SAP Business Suite powered by SAP HANA. SAP Business Suite customers will benefit from state-of-the-art technologies and business processes. We will deliver such new developments through the SAP enhancement package approach, complemented with quarterly shipments, when and if available, that offer additional and easy ways to quickly deploy SAP innovations.

SAP is complementing its innovation commitment by prolonging mainstream maintenance and according commitments for [SAP Enterprise Support pricing](#).

Mainstream Maintenance:

SAP will prolong mainstream maintenance until the end of 2025 for SAP Business Suite 7 core application releases including SAP ERP 6.0, SAP Customer Relationship Management 7.0, SAP Supply Chain Management 7.0, SAP Supplier Relationship Management 7.0, and SAP Business Suite powered by SAP HANA 2013.

SAP Enterprise Support Pricing:

SAP prolongs the fix of the list price for [SAP Enterprise Support](#) for new purchases at a constant 22 percent until 2025 (previous commitment was until 2016); and prolongs commitment to not increase fees for already existing SAP Enterprise Support contracts beyond 22 percent until 2020 (previous commitment was also until 2016).

SAP's Release and Maintenance Strategy Details:

- ✓ [SAP Business Suite powered by SAP HANA](#)
- ✓ [SAP Maintenance Strategy for SAP Core Applications](#)
- ✓ [SAP Release Strategy](#)
- ✓ [SAP Note 1648480](#)
- ✓ [Product Availability Matrix](#)

Prolonged Commitment Details:

- ✓ [Frequently Asked Questions \(FAQ\)](#)

This long-term maintenance and support perspective demonstrates our commitment to predictability and protection for your investments, giving you additional choice, flexibility, and time to develop your individual approach for innovations and the cloud.

Source: SAP SE

B Risk monetisation framework

Table 15 Risks involved in preferred option

Risk Category	Risk Type	Description of Risk
IT Risks	Outage	<p>An SAP outage can involve both full and partial outages. A full outage will take crucial functions offline (e.g. Finance, Reporting, Field work orders), while a partial outage will affect some parts of SAP.</p> <p>Continuing with SAP support under our preferred option means we can expect low risk levels similar to that experienced at CitiPower/Powercor today (where there has never been a full outage whilst under vendor support and low levels of partial outages).</p>
	Suitability	<p>Suitability issues occur as a result of external changes meaning that while a system continues to work, it is no longer suitable to perform required functions.</p> <p>External changes requiring updates to SAP occur frequently, around three times per annum in a number of areas including HR, payroll, finance and real estate. One major example was when Australia introduced single touch payroll, which resulted in new reporting requirements requiring new functionality to send data to the ATO over the internet. SAP made sure this was incorporated into new systems.</p> <p>With full vendor support, the vendor is responsible for rectifying most suitability issues. The vendor also carries most of the risk, rather than the customer.</p>
	System Sustainability	<p>System sustainability issues (defects) can be common in complex systems such as SAP. Without correcting them, they grow over time resulting in lost staff productivity. This could also have wider consequences. For example, we recently had a superannuation change to calculate Long Service Leave. A system malfunction resulting in incorrect entitlement calculations would have large financial ramifications for employees.</p> <p>Under vendor support, most system sustainability issues would be rectified by the vendor, with a reduction in impacts to the system users.</p>
Business Risks	Reliability Impact	<p>Our field Click crew dispatch system and Salesforce connections system both rely on work orders prepared in SAP.</p> <p>A malfunction in SAP resulting in an inability to log new maintenance activities or to make alterations or log new jobs would require us to revert to manual processes. This would result in overtime and would also affect a small number of jobs (impacting customer supply).</p> <p>With vendor support in place, this has a low level of risk, as issues are likely to be resolved quickly.</p>
	Compliance Risk	<p>Given the breadth of functions carried out by SAP, new compliance requirements impacting our systems occur regularly.</p> <p>In addition, relating to reliability risk above, any impact delaying our ability to process and carry out our connections work may result in compliance issues, given this short turnaround of work has a regulated outcome of 10 days.</p> <p>Under vendor support, SAP develops and issues patches enabling requisite system changes to meet new compliance requirements, carrying most of the execution risk.</p>

Bushfire Risk	<p>As noted in reliability risk above a system malfunction may mean we will be unable to log new maintenance activities, which is critical for bushfire mitigation activities. However, while the overall consequences of a bushfire incident can be large, the quantum attributed to SAP (as opposed to other factors causing a bushfire, such as hot, dry weather conditions) and likelihood is assigned as very low.</p>
Financial Loss	<p>A wide range of unforeseen financial consequences could occur e.g. arising from employee superannuation and payroll issues. For example, in 2016, Queensland Health suffered large consequences from trying to implement a new SAP billing system, resulting in \$35k payroll anomalies, costing an estimated \$1.2bn to rectify.</p> <p>Continuing with SAP support under our preferred option means we can expect low risk levels similar to that experienced at CitiPower/Powercor today, where we have not encountered significant financial losses.</p>

Source: CitiPower

C Financial standards

SAP helps us to meet the Financial Standards listed below

C.1.1 Accounting Standards

<https://www.aasb.gov.au/Pronouncements/Current-standards.aspx>

<https://www.ifrs.org/issued-standards/list-of-standards/>

C.1.2 Tax Standards

ATO mandates that we have a tool that is in the form of record keeping to be called on for any investigative works that are required.

[https://www.ato.gov.au/general/fringe-benefits-tax-\(fbt\)/in-detail/non-profit-organisations/fbt-and-entertainment-for-non-profit-organisations/?page=11](https://www.ato.gov.au/general/fringe-benefits-tax-(fbt)/in-detail/non-profit-organisations/fbt-and-entertainment-for-non-profit-organisations/?page=11)

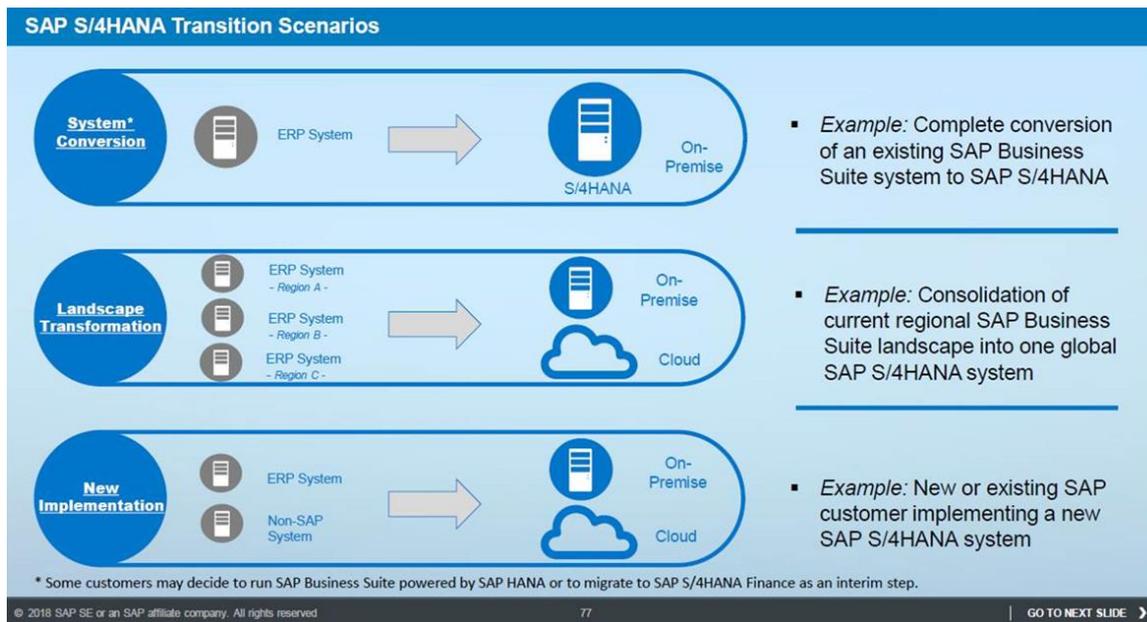
C.1.3 Corporation's Law

<https://asic.gov.au/regulatory-resources/financial-reporting-and-audit/users-of-financial-reports/#2>

D SAP transition support

Because CitiPower, Powercor and United Energy's SAP instances have been maintained in line with vendor guidelines, significant vendor support is provided by SAP to ensure a smooth transition through the lifecycle upgrade.

Figure 9 SAP S/4HANA transaction scenarios



Source: SAP SE

Initial assessments indicate that an S/4HANA transition for CitiPower, Powercor and United Energy would be a hybrid of SAP's System Conversion and Landscape Transformation options, to form a customised 'brownfield' implementation.

The existing on-premise ERP system allows the business to leverage the simplicity of the System Conversion model. The benefits of the Landscape Transformation model can also be harnessed, as our organisation embraces a hybrid on-premise and Cloud S/4 model to best integrate with the surrounding systems.

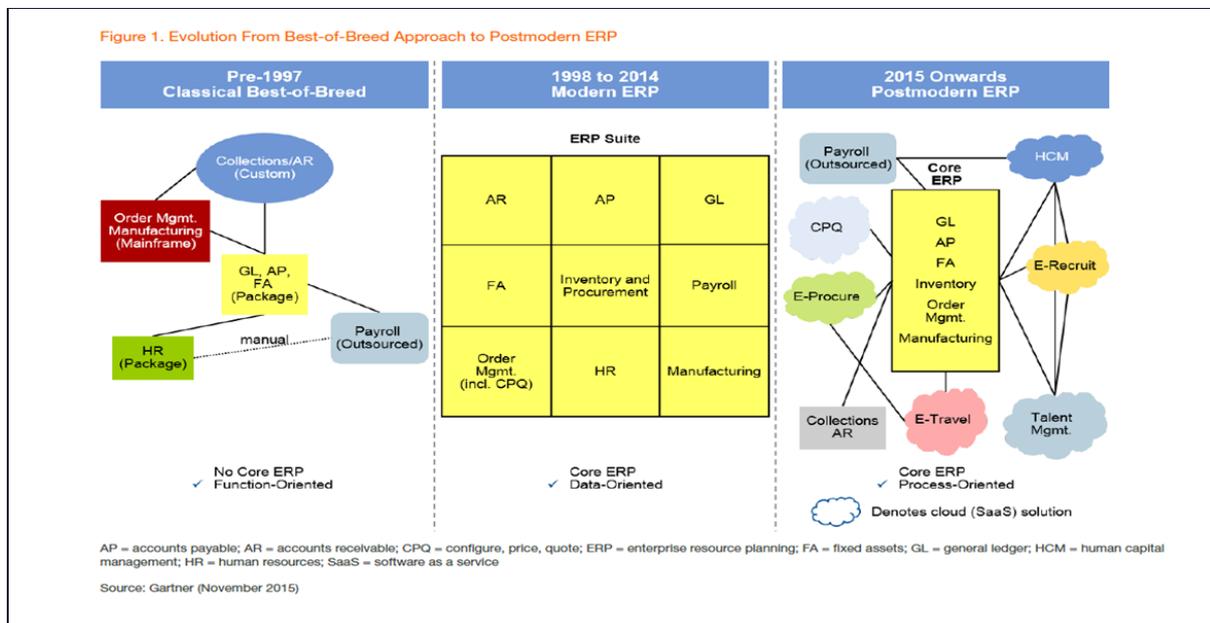
E What types of ERP models are available?

A major lifecycle upgrade is an opportunity to review the organisations' ERP approach and ensure that it continues to deliver value and provide the best fit for the business' current and future activities.

Historically there have been three major categories of ERP model, Postmodern being the most recent one:

- Best of Breed, where Individual business units select bespoke solutions and governance is highly dispersed
- Modern or Traditional ERP, in which one ERP platform is used for all ERP functionality and is tightly governed by IT
- Postmodern ERP¹², where a core ERP platform is used to unify specialist on-premise and cloud-based satellite functionality, which is jointly governed between the business and IT.

Figure 10 Evolution from best-of-breed approach to postmodern ERP



Source: Gartner (November 2015)

CitiPower, Powercor and United Energy all operate on a Postmodern platform, which automates and links administrative and operational business capabilities (such as finance, HR, and purchasing) with appropriate levels of integration that balance the benefits of vendor-delivered integration against business flexibility and agility¹³.

¹² This type of model is also known as a federated enterprise resource planning (**FERP**) model where a number of business application functions, potentially from independent providers, are reachable over a network, e.g. the Internet. Through an ensemble of standardised subsystems, the overall functionality appears to the user as a single ERP system.

¹³ Gartner, <https://www.gartner.com/it-glossary/postmodern-erp>