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Victorian Transmission System 2023-2027 access arrangement proposal. Revised proposal

Information Technology Program for VTS

August 10, 2022

Contents

1. Introduction

APA's enterprise-wide Information Technology (IT) program enables core business information and communications technology to respond in an effective way to the energy sector shift to decarbonisation, decentralisation and digitisation and to protect APA against cyber security threats.

Information technology is necessary to support everyday business functions and technical operations of VTS assets. The shift to digitisation is playing a greater role in more aspects of the day-to-day operations in energy.

Investment in fit-for-purpose information technology is necessary to enable APA to continue to:
- Operate efficiently and deliver reliable, secure and safe services to customers.
- Remain compliant with regulatory obligations including regulatory information notices.
- operate effectively in the complex energy market.

APA's IT program provides enterprise-wide delivery of business transformation, continuous improvement initiatives and technology solutions and maintains and protects APA's operations. The enterprise-wide approach to information technology provides economies of scale and scope in the delivery of services.

The enterprise-wide approach (rather than a stand-alone approach) enables customers to benefit from lower costs. This benefit applies to both customers of APA's regulated and unregulated assets. The economies of scale allows APA to apply the enterprise-wide information and technology systems to support customers and asset management across APA.

The forecast capital expenditure in this revised proposal are based on cost estimates provided by vendors and partners for these projects.

Effective information technology is vital to ensure that we are able to provide information for our customers and community.

The Security of Critical Infrastructure (SoCI) program and Operational Technology programs are discussed in separate business cases.

APA VTS stakeholder engagement discussed the IT program and feedback from stakeholders has been considered in the preparation of this revised information paper.

1.1. Stakeholder engagement

The VTS stakeholder engagement group were presented with information about the IT program and the key drivers for the expenditure requirements.

Feedback we received from the stakeholder engagement group, was to ensure that the IT program was proportionate and efficient. The stakeholders sought assurance that proposed expenditure was efficient and that the APA wide costs were being allocated to VTS in a fair, reasonable and transparent manner.

We have sought to address these issues in this paper.

2. Structure of this paper

This Paper discusses:

- Concerns raised by the AER in the Draft Decision
- Description of IT Governance Arrangements
- Description of investment drivers for IT
- Analysis of IT projects
- Forecasts for VTS and how costs have been allocated.

This Information Paper presents best available information on IT forecasts and expenditure requirements for VTS. The expenditure forecasts have been influenced by increased migration of applications to cloud-based services.

3. The AER Draft Decision

For convenience APA has extracted the relevant elements of the AER's Draft Decision below.

3.1. AER's comments

In the Draft Decision the AER stated the following in regard to information technology and operational technology:

> *While APA described at a high level why it considered the capex was justified, it did not:*
>
> 1. *describe or provide evidence of what was obsolete or needing a routine upgrade*
> 2. *what was required to be cloud based or*
> 3. *which technologies would no longer be supported.*[1]

APA has number the bullet points from the AER's Draft Decision for convenience of reference.

Further the AER state:

> *We are of the view that there is a lack of substantive information on the need for the proposed investment and the benefits of the proposed investment. There is no basis provided for the cost estimates. We are therefore unable to conclude that the proposed capex is prudent and efficient.*

3.2. APA response

3.2.1. Obsolete Systems

The AER's three bullet points were in relation to IT and Operational Technology, for clarity we note that for IT applications where an application is no longer supported (bullet 3) it is obsolete (bulletpoint 1)

That is because where an application is no longer supported it means there are no updates to support the compatibility between that application and any updates for the supporting applications. This introduces increasing stability and security risks for those unsupported applications– so the program is obsolete.

So in relation to bullet point 1 vendors have removed support for the following applications:

- APA Grid
- Economic Resource Planning (ERP), and
- Maximo

These applications are no longer supported by their provider and are not fit for purpose. They introduce security risks and threaten application, and pipeline, reliability. Therefore, these applications must be replaced. More detail on the role of these applications and the need to replace are covered in sections 6 to 10.

[1] P45, AER-Draft Decision – VTS 2023-27 Access Arrangement Attachment 5 – Capital expenditure, June 2022

3.2.2. Cloud based services

The selection of Cloud based services is covered in section 11.1 on page 27 below. Succinctly, cloud based services are being pursued because there is no alternative or the cloud based system offers better cost efficiency, flexibility and stability than the alternative.

3.2.3. Need for the proposed investment

With the exception of Technology Enablement Program the driver for the project is the existing application is, or will be, obsolete.

The technology enablement program's driver is the replacement of three key applications at the same time has provided an opportunity to implement a single approach to common application needs across the three applications. This approach is cheaper, more reliable and more secure.

3.2.4. Basis for cost estimates

The forecast capital expenditure in this revised proposal are based on cost estimates provided by vendors and partners for these projects.

3.3. AER's summary of AEMO feedback

In its submission, AEMO questioned whether the allocation of costs was appropriately reflecting IT for DTS functions versus other APA functions. It noted that the APA Grid system refresh appeared to be meeting obligations outside of Victoria and is not related to being the asset owner of the DTS. AEMO supported the communications upgrade proposed under the Lifecycle Management project.

3.4. APA response

APA notes that in our proposal we had been allocating the cost of APA Grid replacement using its general corporate cost operating expenditure methodology (8.21%). Further advancement in our understanding of the costs of this project has enabled us to, consistent with our AER approved cost allocation methodology[2], allocate costs to the VTS based on a causal basis. For APA grid replacement it is project effort proportions. This means the VTS share of these costs is 5.5%. This reflects that, as identified by AEMO, the VTS will not be using all the elements of the APA GRID end to end replacement but it will be using the invoicing components and those supporting components necessary to make the information in the invoicing component accurate, reliable and secure.

[2] Our cost allocation methodology requires "Costs are allocated on a causal basis, in instances where direct attribution is not possible."

4. Governance of the IT portfolio

APA's has recently refreshed it technology strategy to ensure that it remains consistent with APA's corporate strategy. This refresh has updated and introduced 6 guiding principles to shape and steer information technology.

4.1. Guiding Principles

The principles guide behaviours in selecting, creating, and implementing what Enterprise Program Management Office (EPMO) do to support APA business outcomes.

The APA IT program has six guiding principles

- Enabling Business Transformation - We are strategically aligned, generating shareholder value rapidly. Business agility is paramount.
- Customer & Experience Centric - We work in partnership and collaborate. We look to smarter ways of working and rapid application delivery to support business growth.
- Safe & Secure - Cyber Security is by design, aligned to board risk appetite and we are regulatory compliant.
- Fit For Purpose Solutions - We work together to deliver operational resilient and fit for purpose solutions. We adopt rather than adapt.
- Optimise For Efficiency - We optimise the business and focus on operational efficiencies. We always consider the long-term benefits and test, learn and iterate with agility.
- Data Leveraged as a Critical Asset - We believe in actionable analytics, leveraging trusted data capabilities to deliver insights and help our business see the future.

Broadly this can be represented in the table below

Figure 1: Excerpt from technology strategy

This strategy operates in conjunction with the EMPO project and governance framework to identify, prioritise and deliver APA's IT program.

APA's IT program is undertaken consistent with APA's EPMO Project & Program Governance. This governance framework is described in *VTS – APA EPMO Project & Program Governance Overview – August 2022 – Public.*

4.2. Enterprise Program Management Office

The EPMO is responsible for ensuring projects deliver optimum business value as early as possible and ensuring a continuous improvement focus by creating safe spaces to innovate, learn fast and adjust where required.

APA is embarking on transforming critical applications and IT infrastructure to bring them up to modern good industry practice-standards. The benefits of this transformation will provide better services to customers, enhancing the digital customer experience, and providing timely and more accurate information.

4.3. EPMO portfolio of programs

The EPMO is undertaking a review of back office - Enterprise Resource Planning, and middle office – Maximo and grid replacement. The reviews are aimed at modernising APA's systems to ensure that systems are robust and fit-for-purpose and to meet the needs of customers in an efficient way.

The expectation is that the majority of programs and projects subject to transformation will be shifted to cloud-based solutions.

4.3.1. Asset Management program

A review of APA Asset Management systems found that there were areas for improvement. The findings are summarised in the table below.

	Inside-Out Key findings	Design considerations
Asset management		
Simplify landscape	APA operates a significant amount of paper-based processes due to limitations in current solution capabilities and overly complex requirements Some assets continue to run on their individual legacy solution	Develop a roadmap to transition legacy assets and systems to a new, standardised solution and operating model
Data reliability	Manual processes reduce reliability and availability of asset data Limited integration with finance systems reduces the ability to get automated, accurate and timely reporting	APA needs a holistic data model with well-defined single sources of truth Focus needs to be on data elements with highest impact on integration readiness first

5. Drivers

APA's legacy systems are in need of an upgrade to be fit-for-purpose and a transformation program is underway to modernise and upgrade important systems. Our transformation program is seeking to bring our existing suite of information technology applications consistent with IT industry standards, ISO compliance and international frameworks.

The key drivers for investment Information Technology program going forward include:

- Replacement of obsolete legacy systems
- Routine upgrades and maintenance
- Compliance with new regulatory obligations for cyber security
- Compliance with the AS 2885 the Standard for Gas and Liquid Petroleum Pipelines.

An additional factor that is affecting the expense categorisation (operating expenditure or capital expenditure) of the forecast is the migration of replacement systems to cloud-based services compared to the obsolete system it is replacing. This is discussed further in section 11 below.

5.1. Replacement of obsolete legacy systems and routine upgrades

APA has a number of legacy systems that are out of support and are at end of technical life. The need for replacement of these systems is driven by:

- No longer fit-for-purpose
- Obsolescence including no or limited warranty/ support and service from vendors

Replacement of out-of-date systems are necessary to bring some of our legacy systems to good practice standard.

5.2. Routine maintenance

Ongoing programs will be maintained and updated as required on a routine basis in line with vendor requirements. Ongoing maintenance is required to mitigate the risks associated with system failure. This in turn minimises safety risks to customers and employees, as well as unplanned outages and disruption of supply for customers.

Maintaining and updating business systems in line with vendor requirements is a prudent approach to manage overall lifecycle costs and reduce the risk of failure, and reduce the potential for compliance breaches.

5.3. Security of Critical Infrastructure

APA Group (APA) is currently captured under Security of Critical Infrastructure Act 2018 (the Act) as the responsible entity for 23 Critical Infrastructure assets. The existing Security of Critical Infrastructure Act 2018 (the Act)[3] will be replaced by the Security Legislation Amendment (Critical Infrastructure) Bill (SoCI Amendment Bill) 2020.

The Security of Critical Infrastructure (SoCI) program is discussed in a separate business case (*VTS – 2023-27 AA Revised Proposal – Revised Business Case SoCI legislation – August 2022 - Confidential*).

[3] https://www.legislation.gov.au/Details/C2018A00029

5.4. The Standard for Gas and Liquid Petroleum Pipelines

The AS/NZS 2885 The Standard for Gas and Liquid Petroleum Pipelines is the foundation on which the petroleum pipelines industry which represents good industry practice. It is a driver for gas transmission operations programs and operational technology.

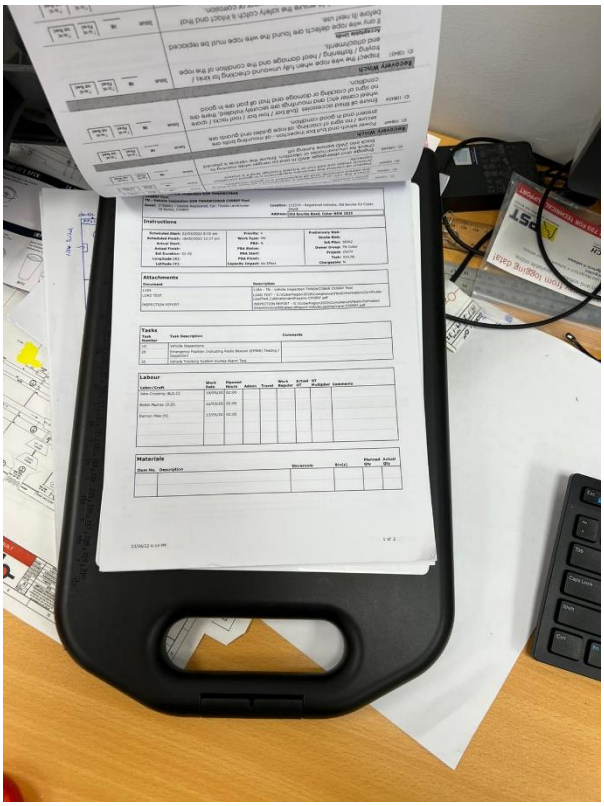
6. Field Mobility

The project will implement a mobile works manager technology solution integrated with Maximo for APA Operations (excluding Networks and non-Maximo sites), enabling the move to automation and works management from paper based manual processes to online systems. The benefits of field mobility include optimising work management and recording of work instructions.

APA's front-line field operations workers are overburdened with manual systems, excessive paperwork, and lack of access to information when they need it most.

A picture of the paper based nature of this process is set out below:

Figure 2: Paper based work orders



This creates duplication, inefficiencies and presents known risks to performing day-to-day work effectively and safely.

By implementing a mobile works manager in the form of Maximo Mobile, field workers will have improved access to secure data residing in the core asset management platform. This will in turn allow better decision making and empower field workers to manage and maintain APA's assets more effectively

It will provide opportunity for the work orders system to be better integration into APA asset management systems. This will allow data to be stored and controlled more effectively, enabling

better decision making and collaboration across all Operations teams. This will result in significant improvements to timely decision making, minimise risk and reduce manual data capture processes.

The scope of the project is to select the most prudent and efficient outcome, it considers the following key focus areas for any option:

- Proposed functionalities in the Work Order execution workflow including:
  - View, execute & update assigned Work Orders and Work Instructions
  - Close-out and complete Work Orders and Work Instructions including approvals
  - Basic inventory management, including stocktaking functionality.
- Credit Card / personal expense claim process simplification (focused on receipt management)
- Collector app (ArcGIS) integration opportunities with Maximo
- Progress Remote Connectivity program
- Progress remote assistance/assessment technology trial to full proof of concept.

The options considered and their reason for rejection are set out below:

- Do Nothing (retain current state)
- Field Mobility project with Mobile Works Manager solution
- Pursue tactical, quick-wins
- 'Piggyback' off Networks Workforce Transformation Program – use same technology solution
- Field Mobility program with full end-to-end mobility

6.1. Options comparison

6.1.1. Do Nothing

6.1.1.1. Pros

Lowest investment required (only to cover current state non-functionality, error-handling and end-of-life app retirement).

Can complete paper forms offline (if forms are physically with technician).

6.1.1.2. Cons

All pain points and issues within the current state remain and potentially increase. This continues the manual processes and the deficiencies outlined.

Current levels of administration time will continue to be absorbed by the business.

Still requires current ongoing investment.

6.1.1.3. Conclusion

Cons outweigh the modest cost savings on the application itself.

6.1.2. Field Mobility project with Mobile Works Manager Solution

6.1.2.1. Pros

Allows immediate focus on a mobile works manager solution which will enable significant productivity increases.

Integrated approach that allows for a coordinated project of works, targeted change management activity and less disruption to field technicians.

Shortest path to the realisation of identified benefits.

6.1.2.2. Cons

Maximo Mobile is a newer product from IBM. While we know of multiple Australian sites implementing Maximo Mobile, IBM has not yet provided formal customer reference sites to APA for review. These will continue to be requested and where possible, existing relationships with other utility businesses will be leveraged to enquire about their experiences with Maximo Mobile.

Reliant on continual product roadmap investment from IBM. The current 3 year product roadmap meets APA's immediate and short-term needs.

6.1.2.3. Conclusion

This is the preferred solution as it enables the earliest and easiest path to implementing a mobile works manager.

6.1.3. Pursue tactical, quick-wins

Implement identified tactical activities commencing immediately, focusing on highest priority 'top 5' improvements to field work practices, as identified by the Publicis Sapient facilitated analysis in mid-2021.

This option would need to leverage APA's in-place low/no code solutions for application building: e.g. using MS Power Platform to build PowerApps, similar to recent HSE apps. Could use a 'rolling mandate' approach noted in Option 5.

6.1.3.1. Pros

Ability to roll out solutions quickly and build credibility with the business.

Allows learnings from Networks Workforce Transformation program to be captured.

6.1.3.2. Cons

Different use cases: Networks Field Crews have high volume, low value work order requirements, with a significant focus on planning and scheduling functionality.

Will not cover all of O&Ms requirements.

Offline functionality is a mandatory O&M requirement and is not possible in the NWT solution.

6.1.3.3. Conclusion

Not deemed acceptable due to substantial differences in requirements and processes.

6.1.4. Field Mobility program with full end-to-end mobility

This option comprised a full end-to-end mobility program implementing all the proposed solutions on the Asset Management roadmap. A Connected Worker Field Mobility Program would have the ability

to be more transformative by improving the end-to-end works management process from planning and scheduling right through to execution and work order closeout.

6.1.4.1. Pros

Potential to achieve highest transformation and productivity gains.

Can design an integrated set of solutions and implement these in a rolling, continuous a manner.

Potential economy of scale efficiencies for a singular, large implementation.

6.1.4.2. Cons

Harder to implement without an overarching field mobility strategy.

Highest cost and longest timeframes (at least twice the time and budget as the recommended option).

Highest risk (multiple systems to be developed / configured / deployed concurrently).

Replacement of Planning and Scheduling tool Viziya is not currently being considered.

6.1.4.3. Conclusion

Not deemed acceptable due to significant costs, long timeframes and risk.

6.2. Overall conclusion

It is recommended to proceed with Option 2, a field mobility project with Maximo Mobile as the Mobile Works Manager Solution for the following reasons:

- Provides operations and maintenance a scalable system, with a seamless Maximo experience.
- Delivers a platform that enables continuous operational improvements.
- Provides core functionality with future optionality to expand in to other Operational functions (i.e. inventory management etc.).
- Addresses the Critical Success Factors from the Proof-of-Concept.
- Alignment of Maximo EAM and Maximo Mobile Roadmaps by the same vendor (IBM).
- Speed of solution delivery resulting in reduced project costs and shorter timeframe to realise benefits.
- Reduced cost of solution through lower license costs as product is an additional module of Maximo EAM.
- No integration costs associated with Maximo Mobile due to native integration with Maximo EAM.

Table 1: APA capital expenditure on Mobility Field Services

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total 2023-27
Field Mobility	$2022, $m	1.9	-	-	-	-	1.9

Table 2: APA operating expenditure on Mobility Field Services

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total 2023-27
Field Mobility	$2022, $m	0.0	0.2	0.2	0.2	0.2	0.9

Table 3: VTS capital expenditure on Mobility Field Services

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
Field Mobility	$2022, $m	0.16	-	-	-	-	0.16

Table 4: VTS operating expenditure on Mobility Field Services

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
Field Mobility	$2022, $m	-	0.02	0.02	0.02	0.02	0.07

7. Grid Solutions

7.1. APA Grid (old system)

APA Grid, is a key enabler for APA's gas transmission operations. APA's grid customer management, billing and operations systems are collectively called the APA Grid. The APA Grid incorporates a database of customer details, relevant contractual information and pipeline details, and is fundamental to the daily operation of APA's assets, meeting regulatory and contractual obligations as well as customer requests.

Customers nominate their daily gas needs through a customer portal. The APA Grid also produces an operational schedule to ensure that customer gas transport and storage needs are met, which is then conveyed to the operational control systems, and then generates invoices at the end of each month.

APA Grid is critical for ensuring that APA meets its regulatory reporting requirements, such as providing capacity information to the Gas Bulletin Board, the Short-Term Trading Market, and to provide the Capacity Trading & Auction platforms to the market.

APA developed APA Grid and the core suite of information technology systems 13 years ago. In the past 10 years, the demands on APA Grid have increased as the gas market has become more complex. APA Grid capabilities have been added to over the years but is now at a point where it has moved beyond its original design life.

Due to ongoing growth in complexity and volume of contract and regulatory changes, there is a growing issue of manual processing of data exacerbating the risk of invoicing errors and regulatory compliance errors.

7.2. Energy Components Grid Solutions (new system)

Energy Components (EC) Grid Solutions is a proposed replacement of APA Grid. At this stage we are in the early phases of scoping this piece of work.

Benefits of the replacing the APA Grid with EC Grid Solutions:

- Reducing system complexity and standardised coding will require less effort to input changes
- Improved customer experience
    - quicker implementation of new products and services
    - improved invoicing accuracy and timeliness
    - simplified daily commercial operation of customer contracts
- Risk reduction
    - market regulatory and contract compliance improvements through better system alignment to requirements
    - reduced dependency on manual intervention and monitoring
- System sustainability
    - reduction in APA specific customisation with more functionality built into the core product and a shift to "EC as a Service"
    - underlying technology – cloud-hosted, containerised, scalable and secure
    - less reliance on IT development resources to conduct business level tasks – contract entry, day of ops management

- improved reporting and data and analytics.

Capgemini have confirmed our assumptions about the cost on this type of implementation for APA. The numbers presented here are our best estimates at this time and we intend to have a preliminary business case in early 2022.

7.3. Options comparison

7.3.1. Do Nothing

Continue with the Status Quo i.e. “Do nothing” / continue to implement minimal improvements within the current architecture and perform upgrades as required. APA total cost of operation for 10 years = $252m

7.3.1.1. Conclusion

If not pursued then increases in cyber-security risk, increased compliance risk, increased customer dissatisfaction risk.

7.3.2. Energy Components Grid Solutions (new system)

Re-implement energy components as a Cloud based solution as proposed under the GSP Program.

7.3.2.1. Conclusion

This resolves the issues with the current system in the lowest cost effective manner.

7.3.3. Progressive version upgrades

Progressive version upgrades complemented with an ongoing program of tactical improvements to the existing solution.

7.3.3.1. Conclusion

This option does not address the increasing cyber and regulatory risk. This option provides no operating cost benefits and does not support APA’s growth Strategy.

7.3.4. Alternate Version

Go to market to test if an alternative system could be delivered more cost effectively.

7.3.4.1. Conclusion

This option has been independently reviewed periodically over the last 8 years. Every review recommended retention of EC as APA’s strategic hydrocarbon accounting system;

- 2014 – ComEcCon Consulting review
- 2016 – Accenture Consulting review
- 2019 – Ironside Consulting review
- 2020 – Tieto GSP review
- 2021 – Capgemini Consulting rev

7.3.5. Conclusion of Options Analysis

The most cost effective option that meets the needs of APA to deliver reliability and efficiency to their customers. Replacing Grid Solutions has a 6% (17m) higher cost than not replacing it but significantly addresses a number of concerns with the existing arrangement.

7.3.6. Stakeholder submissions

AEMO in its submission to APA's initial proposal commented that APA Grid system refresh appears to mostly satisfy requirements outside of the DTS which APA proposes to be funded by the DWGM.

7.3.6.1. APA response

Greater detail has enabled us to revise the cost allocation method for this project see section 3.4 APA response on page 7

7.4. Grid Replacement Expenditure

7.4.1. APA Grid replacement capital and operating expenditure

Table 5: APA Grid Replacement Capital Expenditure

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
Grid Solutions Project	$2022, $m	33.14	24.0	14.86	5.72	1.15	78.9

Table 6: APA Grid Replacement Operating Expenditure

Asset category	Unit	2023	2024	2025	2026	2027	Total
Grid Solutions Project	$2022, $m	0.20	0.20	0.20	0.20	0.20	1.00

7.4.2. VTS Grid Replacement Capital Expenditure

Table 7: VTS Grid Replacement Capital Expenditure

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
Grid Solutions Project	$2022, $m	1.82	1.32	0.82	0.31	0.06	4.34

Table 8: VTS Grid Replacement Operating Expenditure

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
Grid Solutions Project	$2022, $m	0.01	0.01	0.01	0.01	0.01	0.06

8. Economic Resource Planning

Replace APA's existing ERP systems with a set of new cloud-based applications, provided by Workday, and support APA's Finance, Procurement and PSC functions to implement and adopt new operating models and better ways of working.

APA's current ERP landscape is aging, lacks process and data maturity, incapable of scaling to our needs and present operational risks. APA ranks poorly against best practice and our ASX100 peers.

The ERP Program seeks to deliver new systems, data, processes and operating models for APA's Finance, Procurement and People Safety and Culture functions. This includes integrations with key existing systems such as asset management (Maximo), customer billing and Grid solutions. The program will also aim to deliver access to key ERP business data via APA's data warehouse solutions for advanced analytics and reporting purposes.

All key decisions throughout the program lifecycle will be validated against agreed principles to achieve optimal business outcomes, including:

- Consistent and transparent data models establishing a single source of truth,
- Standard, automated business processes that are easily configurable,
- Delivers business value (innovation, growth, and business agility),
- Deployment through multiple system releases, minimising delivery risk and realising business value early and
- Minimising the number of business applications by focussing on core ERP functions as a single solution and carefully considering edge solutions.
- Preference for cloud-based solutions to adopt industry best practice,

8.1. Options comparison

8.1.1. Do Nothing

This option constitutes a baseline of continuing the current ERP systems and processes with only minimal investment. Ongoing APA cost for 10 years is $50.8m. It does not address meet the objectives as set out for this project or address the problems currently faced.

8.1.2. Upgrade with Oracle

Upgrading the existing on-premises Oracle eBusiness solution for financials and procurement capability and moving to Oracle Fusion Cloud along with expanding our investment in Oracle HCM Cloud for our people processes and connect these to the finance and procurement processes. Ongoing APA cost for 10 years is $123.4m

8.1.3. Replace with SAP

Replacing our current ERP Oracle based platform with SAP's cloud offering (S/4HANA, Success Factors, Ariba, Fieldglass, Concur) and, implementing SAP processes for Finance, Procurement and PSC functions; Ongoing APA cost for 10 years is $128.1m

8.1.4. Replace with Workaday

Replacing our current ERP Oracle based platform with Workday's cloud offering (Workday Core, Adaptive Planning, Prism) and implementing Workday processes for Finance, Procurement and PSC functions. Ongoign cost for 10 years is $118.8m

8.2. Overall conclusion

After the initial evaluation stage, the program selected two vendors in SAP and Workday. Oracle was removed from the process with the lowest score based on the evaluation.

The program progressed with the shortlist two providers to the final stage of Joint Solution Design (JSD). JSD consisted of workshops and system proof-of-concept demonstrations, focussing on key business priorities and areas of concern identified during the initial RFP stage.

Following this process, the program is proposing to implement the Workday suite of cloud-based ERP applications. Workday meets APA's business requirements with some known gaps in the Finance and Procurement future needs. These are expected to be addressed by the Workday roadmap over time, but might require some additional off-system business activities in the interim. Workday is a true public cloud offering with an integrated data and process model which is less complex to implement and maintain, with fewer integration points.

Replacing an obsolete ERP is prudent and efficient this is consistent with the long term maintenance of the safety and integrity of the pipeline.

Table 9: APA capital expenditure on ERP

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	3.7	1.4	-	-	-	5.1

Table 10: APA operating expenditure on ERP

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	36.1	20.1	7.3	6.8	5.9	76.2

Table 11: VTS capital expenditure on ERP

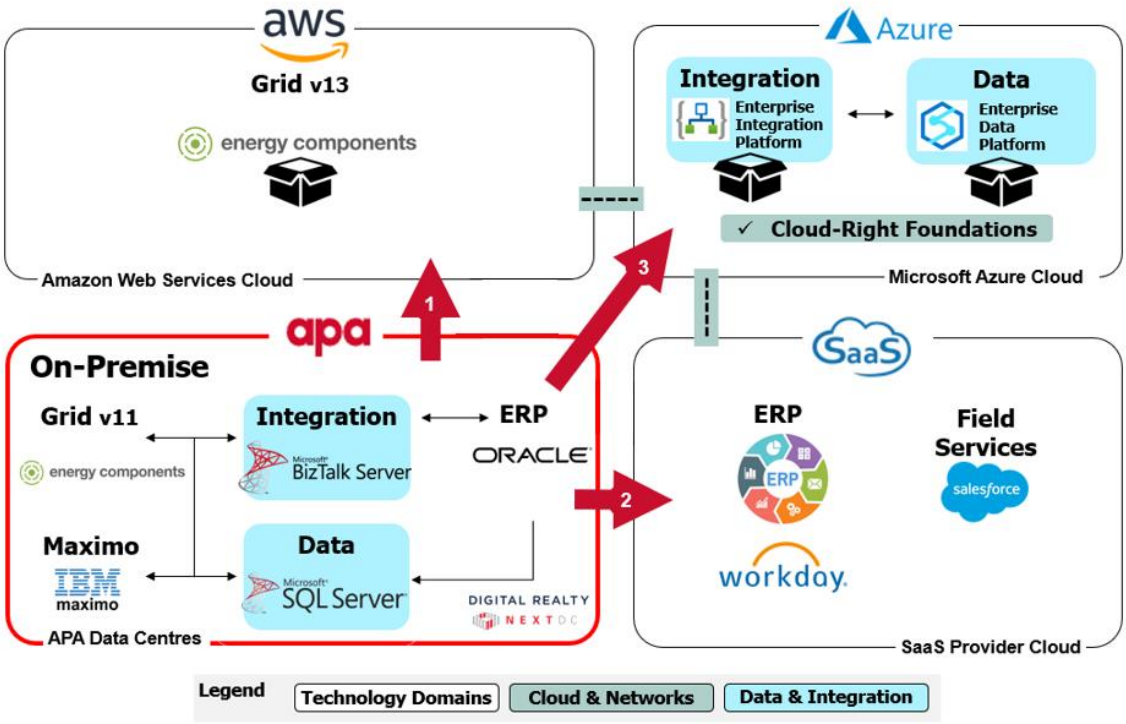
Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	0.3	0.1	-	-	-	0.4

Table 12: VTS operating expenditure on ERP

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	36.1	20.1	7.3	6.8	5.9	76.2

9. Technology Enablement

Today, the core business systems of APA, Grid, Oracle ERP and Maximo are on premise (as shown in the bottom left of the image below). These core business systems are currently supported by our integration and data warehouse solutions which similarly rely on aging 'on premise' technology.



Over the next two years, APA will transition from on premise to a complex hybrid multi cloud architecture. This is consistent with APA IT's 'Enabling Business Transformation' objective through "cloud first" capabilities. Several inflight EPMO programs will transition these core systems to the cloud in the next few years:

The Grid Services Program (GSP) will move Grid to the AWS cloud.

The Enterprise Resource Planning Program (ERP) will move to a cloud-based Software as a Service solution.

Benefits of this transition to the cloud include technology agility.

Rather than each EPMO program addressing their core platform needs the Technology Enablement Program, through a more cost effective and streamline lens, will address these complex technology needs through two program streams;

- Cloud & Networks: This stream will ensure APA can leverage agility benefits of the cloud, while ensuring cyber security and operational risks are mitigated. The program will achieve this by establishing Cloud-Right Foundations that ensure all Azure cloud environments needed for data and integration are "cyber secure by design". It will also establish the required inter cloud networking to ensure end use experience is not compromised by this complex architecture

- Data & Integration: This stream will bring forward modernising the APA data warehouse ensuring the data staff need is available and accessible as well as address the data and integration needs of GSP and ERP programs. A modern data warehouse will provide near real time data processing, supporting improved business decision making and positions APA to accelerate its adoption of artificial intelligence (AI) and machine leaning (ML) technologies.

9.1. Options comparison

9.1.1. Do Nothing

Leave the required technology uplift of cloud, network, data and integration capabilities to individual EPMO Programs.

9.1.1.1. Analysis

This option:
- Encourages implementation of incomplete technology capabilities and point solutions resulting in increased operational and maintenance costs.
- Does not encourage investment in truly enterprise-wide technology capabilities aligned with the APA Technology Strategy or target architecture and risks poor design decisions and inefficient execution across EPMO programs.
- Adds scope and delivery risk to EPMO programs as each must separately design, plan and implement cloud, network, data and integration solutions.
- Misses the opportunity to bring forward the migration of APA's data warehouse that delivers material tangible and intangible benefits.

9.1.2. Technology Enablement Program

Technology Enablement Program to drive the required technology uplift of cloud, network, data and integration capabilities for EPMO Programs.

9.1.2.1. Analysis

This option is recommended because of the following key benefits:
- Moves technology investment away from an ad-hoc, program-driven model and instead towards a sustainable, standardised, cost-efficient model consistent with APA's target state architecture.
- Avoids re-work to retrospectively re-implement systems and processes associated with the delivery of EPMO programs.
- Avoids risk of creating incomplete technology foundations experienced under ad-hoc models of technology investment.
- More flexibly accommodate APA's business into the future.
- Allows for other opportunities to be realised such as bringing forward the migration of APA's data warehouse that delivers material tangible and intangible benefits. Misses the opportunity to bring forward the migration of APA's data warehouse that delivers material tangible and intangible benefits.
- Avoids future costs of up to $26m across future application role outs.

9.2. Overall conclusion

Due to the benefits identified in relation to the technology enable program it is the prudent and efficient option consistent with the ongoing maintenance of reliability on the VTS.

Expenditure on the technology enablement program is prudent and efficient as secure data storage and stable information exchange between systems is consistent with maintaining the integrity of the VTS.

Table 13: APA capital expenditure on TEP

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	4.3	2.5	-	-	-	6.8

Table 14: APA operating expenditure on TEP

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	0.7	0.4	0.1	0.1	0.1	1.5

Table 15: VTS capital expenditure on TEP

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	0.35	0.20	-	-	-	0.56

Table 16: VTS operating expenditure on TEP

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
ERP	$2022, $m	0.67	0.45	0.12	0.13	0.14	1.52

10. Maximo Upgrade

Maximo is essential to the daily operation and maintenance of assets – providing work planning, scheduling, workforce management and inventory. It combines all Energy Assets under the Operations umbrella including Networks, Transmissions, Power Assets and Midstream (Orbost). In addition, Safeguard+, a core component of Maximo, ensures our Health, Safety, Environment and Heritage (HSEH) obligations are managed and monitored. APA Operations rely on Maximo as a critical component of their end-to-end business processes including purchasing, and market interactions via integration with several core systems including Oracle Financials, GIS, J5 and CCB.

The objective of the Project will be achieved by:
- Upgrading IBM Maximo from version 7.6.0.9 to 7.6.1.2
- Upgrading underlying Oracle Databases from version 12.2 to 19c
- Upgrading Microsoft Windows Server from version 2016 to 2019
- Maintaining currency of IBM WebSphere by applying latest hot fixes to version 9.0.5.

Risk reduction is the key benefit of the Maximo Upgrade project.

The delivery of the Maximo Upgrade project will:
- Remove the risk of running unsupported software
- Reduce the risk of the system(s) failing, or the integration between systems not operating as intended, and causing financial or reputational loss as a result
- Reduce security risk by removal of security vulnerabilities
- Reduce the potential for system issues (and improve efficiency) – via the introduction of continuous integration, source code management and continuous build automation tools.
- An improved look and feel to the application that will provide ease of use on portrait format devices.
- New functionality will be available that supports APA's mobility integration strategy.

10.1. Option Analysis

10.1.1. Option 1: Do nothing

The option of doing nothing was considered. This option was discounted because:

- The vendor has stopped standard support for the current version of Maximo v7.6.0.9.
- Maximo Upgraded to v7.6.1.x enables dependent T &T projects to commence without impact.

10.1.2. Option 2: Upgrade directly to Version 8 – Maximo Application Suite

Moving to version 8 will provide new features and keep us on a supportable platform further into the future. While this could be considered a viable option it was discounted because:
- This presents a product and implementation risk as there is minimal version uptake at present, limited vendor experience and APA is advised by IBM that a transition approach is best rather than moving directly to the new application.
- There are associated investment and opportunity delays. Waiting an anticipated 18 months until version 8 is deployed will delay the Field Mobility project and associated benefits.

10.1.3. Option 3: Upgrade to version 7.6.1.2 and evaluate the transition to version 8 (Recommended)

This recommended option places the application back into support as quickly as possible and addresses the most pressing requirement.

10.2. Conclusions

For the reasons above, do nothing is not recommended because the issues with current state will continue to exist, risks will increase over time and the project benefits will not be realised.

It could take up to two years to implement an upgrade to version 8, and the current version of Maximo will still be unsupported during that time.

Conclusion is to upgrade to version 7.6.1.2.

An effective asset management application is key to the ongoing effective or reliable operation of equipment on the VTS. The secure and effective replacement of the current version of Maximo is prudent and efficient and consistent with APA's obligations under the National Gas Rules for maintaining the integrity and safety of the VTS..

10.3. Procurement

Vendors know the environment and are familiar with how APA use the system selection of alternative vendor would include significant risks that does not warrant any potential cost savings. Noting that it is likely that the current vendor with their superior knowledge of APA needs would be likely to win a procurement process.

Table 17: APA capital expenditure on Maximo upgrade

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
MAXIMO	$2022, $m	2.1	-	-	-	-	2.1

Table 18: APA operating expenditure on Maximo Upgrade

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
MAXIMO	$2022, $m	0.0	0.0	0.0	0.0	0.0	0.1

Table 19: VTS capital expenditure on Maximo upgrade

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
MAXIMO	$2022, $m	0.2					0.2

Table 20: VTS operating expenditure on Maximo upgrade

Asset category	Unit	CY2023	CY2024	CY2025	CY2026	CY2027	Total
MAXIMO	$2022, $m	0.0	0.0	0.0	0.0	0.0	0.0

11. Capital expenditure or operating expenditure

11.1. Migration to cloud-based services

Up until recently, APA's IT infrastructure has been based in-house. This is changing with the evolution in the technological architecture of entities across Australia to cloud-based computing. Cloud-based computing is having significant changes in computing business solutions.

Cloud-computing involves hosting information technology services off-premises in a third party databases. The services can include Software-as-a-Service (SaaS), Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS).

APA is currently assessing a range of cloud-based computing solutions for a number of enterprise-wide programs. This reflects that cloud based applications are increasing the only platform being provided by vendors. This transition in the IT market reflects that Cloud computing applications have a number of advantages over more traditional in house approaches, backing up is smoother, recovery and upgrading are easier and more reliable and there is no need to acquire maintain and dispose of physical infrastructure.

As cloud adoption becomes more commonplace and the de facto platform for many application vendors, we have an opportunity to assess whether there is a greater role for cloud hosting to deliver our ICT infrastructure. The shift to cloud migration has been driven by external factors not within APA's control.

The primary driver for reassessing APA's business solutions is a combination of:

- Cloud-based services becoming the primary platform for many application vendors
- Obsolescence and limited vendor support for business critical technologies used by APA.

This explains the cloud-computing solutions being adopted for the obsolescence of Maximo, ERP and APA GRID.

11.2. Clarification to accounting standards

The shift to more cloud-based computing is impacting the allocation of costs between operating and capital expenditure.

The IFRIC Interpretations Committee (IFRIC®) has published two agenda decisions clarifying how arrangements in respect of a specific part of cloud technology, Software-as-a-Service (SaaS), should be accounted for. The agenda decisions do not address the accounting for other components of cloud technology such as Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS).

The first agenda decision, published in March 2019, concludes that SaaS arrangements are likely to be service arrangements, rather than intangible or leased assets. This is because the customer typically only has a right to receive future access to the supplier's software running on the supplier's cloud infrastructure and therefore the supplier controls the intellectual property (IP) of the underlying software code.

The second agenda decision, published in April 2021, deals with specific circumstances in relation to configuration and customisation costs incurred in implementing SaaS:

- In limited circumstances, certain configuration and customisation activities undertaken in implementing SaaS arrangements may give rise to a separate asset where the customer controls

the IP of the underlying software code. For example, the development of bridging modules to existing on-premise systems or bespoke additional software capability.

- In all other instances, configuration and customisation costs will be an operating expense. They are generally recognised in profit or loss as the customisation and configuration services are performed or, in certain circumstances, over the SaaS contract term when access to the cloud application software is provided.

The clarification of accounting standards has had an impact on allocating more costs into operating expenditure and is discussed in this paper.

11.3. IT cost allocation to VTS

During VTS stakeholder engagement stakeholders wanted to understand how the corporate IT costs for VTS were being allocated to VTS. Stakeholders wanted assurance that costs were fair and reasonable.

APA's approach to cost allocation is set out the Cost Allocation Methodology (CAM) document prepared for APA regulatory reporting purposes. The CAM has been developed with reference to the AER's guideline for electricity distribution businesses as set out in "Electricity transmission network service providers, cost allocation guidelines" published in June 2008. The AER's 2008 Cost Allocation Guideline has been used because there are no cost allocation methodology guidelines available for gas transmission businesses.

The purpose of the CAM is to set out the policy for attributing and allocating cost to services in accordance with the National Gas Rules, and for reporting operating and capital costs information to the AER. The CAM provides guidance for APA management and staff in relation to cost allocation principles, policies, and ongoing obligations as they relate to the operations and delivery of the services. APA's most recent CAM was submitted to the AER in April 2021 as part of the information submitted for the VTS Annual Regulatory Information Notice.

Costs are allocated on a causal basis, in instances where direct attribution is not possible. Where a causal basis is not possible to identify which is usually the case with IT (which are not specific to a particular asset) costs are allocated on a revenue-share basis. VTS revenue represented 8% of total APA revenue and shared costs are allocated on this basis. The cost allocation method is a fair and reasonable approach to cost allocation.

However, advancement in our understanding of the costs of GRID replacement has enabled us to, consistent with our cost allocation methodology, allocate costs to the VTS based on a causal basis. For APA grid replacement it is project roll out resourcing proportions. This means the VTS share of these costs is 5.5%.

12. Forecasts for Victorian Transmission System

12.1. VTS and the Information Technology program

APA's enterprise-wide IT program services APA's regulated and unregulated assets. The programs that are discussed in this information paper are used across all of APA's assets.

APA VTS is allocated a proportion of the corporate IT costs. The forecast IT costs include capital expenditure and operating expenditure. These costs do not include SoCI related cyber security costs. SoCI program is discussed in a separate information paper and business case (*VTS – 2023-27 AA Revised Proposal – Revised Business Case SoCI legislation – August 2022 – Confidential*).

12.2. Capital expenditure forecasts

The IT capital expenditure forecasts for VTS are shown in the following table.

Table 21: Capital expenditure on Information Technology programs

Asset category	Unit	2023	2024	2025	2026	2027	Total
Grid Support Project	$2022, $m	1.82	1.32	0.82	0.31	0.06	4.3
ERP	$2022, $m	0.30	0.12	-	-	-	0.4
Field Mobility	$2022, $m	0.16	0.00	0.00	0.00	0.00	0.2
Technology enablement	$2022, $m	0.35	0.20	0.00	0.00	0.00	0.6
Maximo (note exc. AGN prop	$2022, $m	0.17	0.00	0.00	0.00	0.00	0.17
TOTAL IOT	**$2022, $m**	**4.2**	**3.1**	**1.5**	**0.8**	**0.6**	**5.6**

12.3. Operating expenditure forecasts

The IT operating expenditure forecasts for VTS are shown in the following table. These costs are new and incremental costs related to the shift to cloud-based computing.

Table 22: Operating Expenditure on Information Technology

Asset category	Unit	2023	2024	2025	2026	2027	Total
Grid Support Project	$2022, $m	0.0	0.0	0.0	0.0	0.0	0.2
ERP	$2022, $m	3.0	1.6	0.6	0.6	0.5	6.3
Field Mobility	$2022, $m	-	0.0	0.0	0.0	0.0	0.1
Technology enablement	$2022, $m	0.7	0.4	0.1	0.1	0.1	1.5
Maximo (note APA/ AGN split)	$2022, $m	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL IT	**$2022, $m**	**3.7**	**2.2**	**0.8**	**0.8**	**0.7**	**8.1**

13. Information Technology portfolio for VTS program is prudent and efficient

13.1. Approach to estimating forecasts

The forecast operating and capital expenditure is based on best information we have to date about the scope of information, communication and operational business solutions. This is based on vendors and business partners cost estimates for the project.

APA VTS customers benefit from economies of scale and scope in the delivery of services of APA's enterprise-wide approach to IT (rather than a stand-alone approach for each asset). This enables customers to benefit from lower costs for the services that the IT program enables and supports.

APA Group is a listed company and costs are scrutinised by market investors and security holders. This may provide stakeholders with some assurance that the IT costs are proportionate, prudent and efficient.

13.2. Meeting National Gas Rules, Rule 79

Consistent with the requirements of Rule 79 of the National Gas Rules, APA considers that the capital and operating expenditure proposed for the IT portfolio of programs is:

- Prudent – The expenditure is necessary in order to enable VTS APA to support financial reporting systems, market systems and asset management systems. These are systems integral to the proper functioning of an energy business. Upgrading and maintaining information technology is critical to maintaining the safety, reliability and security of APA VTS services. The program is necessary to maintain and improve the safety of the public and personnel. The proposed expenditure is of a nature that a prudent organisation would incur.
- Efficient – The IT program is drawing on expertise from external IT consultants in preparing the scope of APA need. The work is being carried out in sufficient time to replace and upgrade before end-of-life to ensure to disruption to operations. The works will be subject to APA procurement policy and be carried out by suitably qualified external contractors and consultants. APA VTS benefits from economies of scale and scope relative to have to incur IT costs on a stand-alone basis. APA is subject to market scrutiny and greater discipline to minimise costs that slows on to a benefit for customers. The program expenditure (based on current information) is consistent with the expenditure that a prudent organisation acting efficiently would incur.
- Consistent with accepted and good industry practice – Maintaining information, communications and operational technology is accepted as good industry practice. APA operations with AS 2885. APA seeks to reduce risk to as low as reasonably practicable in a manner that balances cost and risk. The projects are conducted consistent with Australian and International IT standards and frameworks.
- To achieve the lowest sustainable cost of delivering pipeline services – The sustainable delivery of services includes reducing risks to as low as reasonably practicable.

Glossary

CAM	Cost Allocation Methodology
EC	Energy Components
EPMO	Enterprise Program Management Office
HMI	Human Manual Interface
IaaS	Infrastructure-as-a-Service
IFRIC®	IFRIC Interpretations Committee
IOC	Integrated Operations Centre
IP	Intellectual property
IT	Information Technology
OT	Operational Technology
PaaS	Platform-as-a-Service
SaaS	Software-as-a-Service
SoCI	Security of Critical Infrastructure