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Information Technology & Operational Technology (ITOT) Plan

Goldfields Gas Pipeline

2025-29 Access arrangement proposal – confidential

January 1, 2024



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1. Introduction

1.1. Purpose

The purpose of the Goldfields Gas Pipeline (GGP) Information Technology and Operational Technology (ITOT) Plan is to provide information and justification for investment in information and operational technology programs and projects for the 2025-29 regulatory period. GGP is fully owned by APA (through a joint venture¹). APA provides the information technology and operational technology to support the operation of GGP.

Goldfields Gas Transmission (GGT) is proposing to invest capital expenditure of \$5.2 million in ITOT and a further step-change in operating expenditure of \$1.9 million for the new Enterprise Resource Planning (ERP) program. The operating costs for information technology programs are already included in the CY2022 operating cost base year. The only opex step change we are proposing is for the ERP program.

Table 1 High-level summary of Information Technology and Operational Technology programs and projects, CY2025-29

(\$000's)	Non-recurrent Capex	Recurrent Capex	Total Capex	Recurrent Opex
Enterprise Programs – Information Technology	3,064	210	3,274	1,928
Operational Technology	1,738	-	1,738	-
Network Refresh	15	142	157	-
Total	4,818	351	5,169	1,928

The ITOT Plan will enhance GGP capabilities to enable efficient operations that will benefit GGP customers by enabling more reliable and effective systems.

GGP benefits from the provision of ITOT by APA corporate services through economies and scale and scope. The costs of ITOT are shared across APA's assets that enables a much lower cost allocation to GGP compared to GGT having to acquire the same ITOT on a stand-alone basis.

The ITOT Plan will enable GGP to continue to provide cost effective service in a way that is reliable, safe, and secure for customers.

1.2. Scope of GGP ITOT plan

ITOT refers to the technology architecture (information, communications and operational hardware, software, and systems) that facilitates creation, collection, processing and sharing of information. The operational technology aspect is focused on physical devices used for communicating, monitoring, and controlling equipment.

¹ The GGP is owned by an unincorporated joint venture, Goldfields Gas Transmission Joint Venture (GGT JV), The owners comprise Southern Cross Pipelines Australia Pty Ltd, Southern Cross Pipelines (NPL) Australia Pty Ltd and Alinta Energy GGT P/L. On 1 November 2023, APA acquired Alinta Energy Pilbara Holdings Pty Ltd including Alinta's share of the GGP. APA Group now owns 100 per cent of GGP and we are evaluating longer term plans for the future of the GGT JV.

The GGP ITOT sets out business cases for ITOT projects as classed into program categories of:

1. Enterprise Technology (corporate wide transformation – Technology Enablement Program & Enterprise Resource Planning, Grid Solutions)
2. Operational Technology
3. Network refresh.

There are close inter-relationships between operational technology and cyber security, but this ITOT Plan does not cover cyber security. Cyber security is subject of separate business cases submitted as part of the GGP proposal.

1.3. Summary of ITOT

A summary of the ITOT programs and projects is shown in Table below. The projects are a mix of recurrent and non-recurrent, APA enterprise-wide and GGP-specific initiatives.

Table 2 Summary of Information Technology and Operational Technology programs and projects, CY2025-29

\$000's	Drivers	Non-recurrent Capex	Recurrent Capex	Total Capex	Recurrent Opex
Enterprise Programs – Information Technology					
Technology Enhancement Project (TEP)	Shift to cloud-based environment to replace ageing legacy environment	145	-	145	-
Enterprise Resource Planning (ERP)	Shift to cloud-based environment to replace ageing legacy system	118	-	118	1,928
Grid Solutions	Shift to cloud-based environment to replace ageing legacy system	2,801	-	2,801	-
Enterprise Asset Management System Upgrade (Maximo)	Upgrade to replace near obsolete system	-	210	210	-
Sub-total		3,064	210	3,274	1,928
Operational Technology					
OT Field code management system replacement	Obsolescence. Upgrade as per vendor recommendation, safety & reliability	62	-	62	-

Facilities Engineering Data Uplift	Reliability	39	-	39	-
OT Service, data, and configuration uplift	Improved regulatory data quality	19	-	19	-
IOC Grid Ops, pipeline modelling and outage management	Reliability, regulatory compliance, customer experience	124	-	124	-
OT predictive analytics and events system	Reliability, asset optimisation, early risk identification, emissions reduction	53	-	53	-
OT Lifecycle – Obsolescence and asset inventory	Obsolete technology, reliability, minimise operational risk	458	-	458	-
Unified Operations Platform	Operational risk management, reliability and maintenance, asset optimisation	371	-	371	-
Smart gas detector integration	Safety, time savings	5	-	5	-
OT Lifecycle SCADA & HMI	Obsolete technology, maintain reliability and security	610	-	610	-
Sub-total		1,738	-	1,738	-
Network Refresh					
Network Refresh	Obsolescence, efficiency, reliability, security	15	142	157	-
Sub-total		15	142	157	-
TOTAL		4,818	351	5,169	1,928

1.4. Cost allocation approach

GGP benefits from APA corporate services such as ITOT and GGP is allocated a portion of APA's shared corporate costs. For financial accounting purposes, corporate expenditure is recorded at the APA corporate level and is not directly recorded among its assets. However, as corporate expenditure provides a shared benefit to these assets, APA allocates each asset a portion of this expenditure.

APA shared corporate expenses are allocated to each asset on a revenue basis. That is, the revenue earned by GGP relative to the total revenue of all of APA's assets. APA applies this approach consistently for all assets, including other regulated assets. The revenue-based approach is an approach that has been accepted by regulators.

Further information can be found in:

- GGP-AA5-Attachment 6.1-Cost allocation method-1 January 2024-Public
- GGP-AA5-Attachment 6.1-Cost allocation method-1 January 2024-Confidential
- GGP-AA5-Attachment 10.5-ITOT architecture vision-1 January 2024-Confidential
- GGP-AA5-Attachment 10.6-Technology enablement program - Business showcase-1 January 2024-Confidential

2. APA Technology Strategy

2.1. Technology transformation

In recent years, APA has been transforming its ITOT environment across key technology areas. The ITOT transformation is in response to a combination of external factors including a shift to cloud-based computing; and internal factors driving the need to update ageing and obsolete legacy technology.

ITOT is necessary to support everyday business functions and technical operations of all of APA's assets. The shift to digitisation is playing a greater role in the day-to-day operations in the energy sector. The transformation program is seeking to uplift the existing suite of information technology applications to be consistent with IT industry standards, ISO compliance and international frameworks.

APA's enterprise-wide information technology program is seeking to enable core business information and communications and operational technology to respond in an effective way to the energy sector shift to decarbonisation, decentralisation, and digitisation and to protect APA against security threats. The ITOT plan complements APA's cyber security program.

APA's ITOT 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.

2.2. Governance

Prudent governance and decision-making architecture have been established to guide APA technology and large enterprise-wide transformation programs.

The governance framework is supported by principles to guide behaviours in selecting, creating, and implementing, to support APA business outcomes (shown in Figure 1 below).

The APA IT program has six guiding principles:

- Enabling business transformation
- Customer & experience
- Safe & Secure
- Fit for purpose solutions
- Optimise for efficiency
- Data leveraged as a critical asset.

Figure 1 Technology Guiding Principles

1. Enabling Business Transformation	2. Customer & Experience Centric	3. Safe & Secure	4. Fit For Purpose Solutions	5. Optimise For Efficiency	6. Data Leveraged as a Critical Asset
1.1 - Technology investments are driven by strategic business needs and align to business capabilities 1.2 - Business defined functional requirements drive projects and products 1.3 - Processes are documented, simplified, optimised and automated 1.4 - Process automation and integration should be through the orchestration of APIs and microservices 1.5 - Short term tactical solutions not aligned with our strategy should be avoided 1.6 - Experimental, or immature software will not be used in business-critical operations	2.1 - User interfaces are responsive and provide a seamless experience 2.2 - Best-of-fit solutions over best-of-breed 2.3 - We focus on cost efficiency and enhancing the user experience 2.4 - Solutions must be loosely coupled 2.5 - API's and microservices are preferred 2.6 - Event-based > transaction based 2.7 - Functional and data integrations are near real-time where appropriate 2.8 - Functional integration is via middleware	3.1 - Security and privacy is by design from the outset 3.2 - Users are authenticated and managed centrally 3.3 - Single Sign On is preferred 3.4 - Both internal & external threats are addressed 3.5 - System access is based on least privilege 3.6 - Solutions are compliant to APA's policies & standards 3.7 - Protection is proportionate to the level of trust required 3.8 - Appropriate lifecycle governance throughout 3.9 - Change management is a shared responsibility	4.1 Cloud-right (AWS or Azure) 4.2 - SaaS > PaaS > IaaS > on premise 4.3 - Configuration > customisation 4.4 - Solutions are fault tolerant at all architecture levels 4.5 - Solutions are delivered according to the Business Impact Assessment 4.6 - Solutions are standardised, flexible and scalable 4.7 - The solution must be supportable (APA and/or vendor)	5.1 - We lifecycle manage, consolidate and rationalise systems and technologies in line with our strategic roadmaps 5.2 - We maximise reuse where there is capability alignment. Reuse > buy > build 5.3 - Solutions must be highly capable, trusted, resilient and consider the long-term 5.4 - Leverage vendor and product capabilities over the development of in-house applications 5.5 - Leverage the current technology when best for fit over deploying new technologies	6.1 - Data should be classified appropriately and validated at the point of collection 6.2 - User access to data is brokered 6.3 - Data should be sourced only from authoritative data sources 6.4 - There must be a clearly defined source of truth 6.5 - Data is encrypted, protected from exposure and unauthorised use 6.6 - Data is governed, catalogued, has ownership, stewardship and retained only for as long as required 6.7 - Data integration is via the enterprise data platform

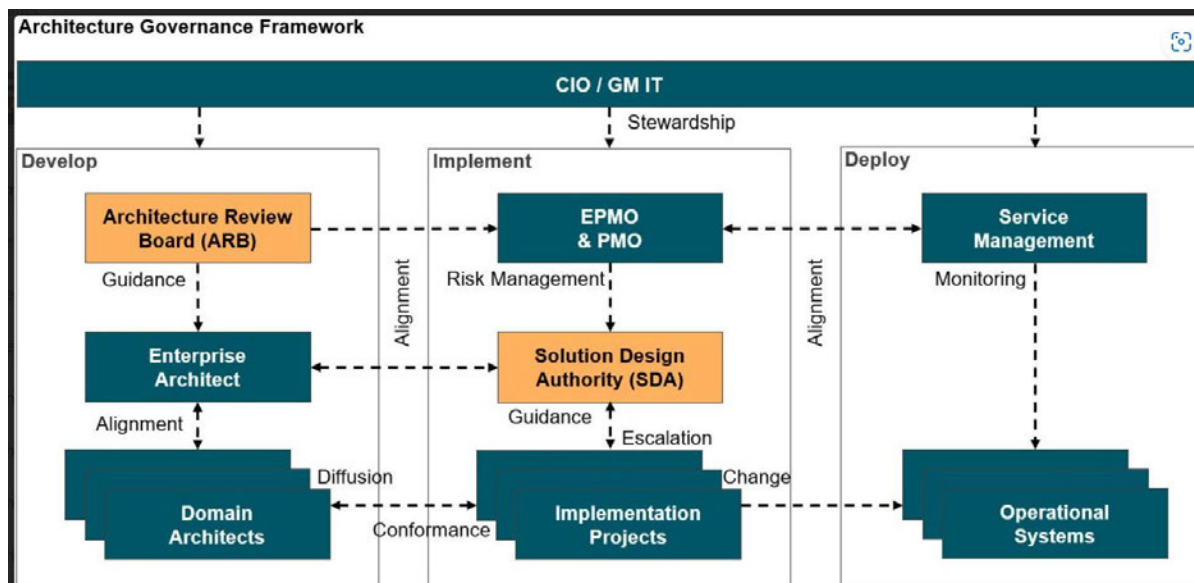
Source: APA Guiding Principles, January 2023

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.

This strategy operates in conjunction with the Architecture Governance Framework to identify, prioritise and deliver APA's information technology programs. The Architecture Governance Framework is illustrated below.

Figure 2 Architecture Governance Framework



The Architecture Review Board ratifies enterprise roadmaps, approves reference architecture/ standards, ensures compliance with Technology Guiding Principles and best practices. The Architecture Review Board adds value to APA by driving technology reuse, identifying synergies, and providing direction on strategic enterprise solutions, while reducing deployment cost and risks.

Further information can be found in:

- GGP-AA5-Attachment 10.5-ITOT architecture vision-1 January 2024-Confidential

3. Programs & projects for GGP

APA is transforming the technology environment to ensure efficient and effective support for everyday business functions and technical operations of all of APA's assets.

The guiding principles in developing the ITOT programs are:

- Fit-for-purpose to support GGP requirements
- Operate efficiently
- Deliver reliable, secure, and safe services to consumers
- Remain compliant with regulatory obligations
- Operate effectively in the complex energy market.

3.1. Information Technology

APA's enterprise-wide information technology program enables core business information and communications technology to respond in an effective way to the energy sector shift to decarbonisation, decentralisation, and digitisation.

APA's technology 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.

GGP customers will benefit from the key technology transformation programs which are modernising and upgrading important systems.

These programs include a new Enterprise Resource Planning (ERP) platform, a Technology Enablement Program (TEP), which includes establishing core capabilities and services in the cloud, and Grid Solutions - APA's hydrocarbon accounting system.

Each of these programs will fundamentally impact the way data is created, managed, and used across APA including for GGP.

APA's ITOT 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 higher reliability and security at lower costs.

Replacement of out-of-date systems is necessary to modernise legacy systems.

3.2. Operational Technology

Operational Technology (OT) is the connection of site equipment to the remote facility. This technology is required to operate any physical plant in the field. Some key responsibilities OT has at APA includes:

- Automatically controlling equipment on site
- Enabling digital lockouts on site to ensure field staff can safely perform maintenance
- Field staff to take control of the site (if required)
- Remote staff to operate the site.

Operational technology is used by operators and engineers to collect data as it pertains to the management of APA's fleet of assets and asset lifecycle management such as:

- When equipment requires servicing
- When the plant is not operating as expected.

Operational technology is an essential support to the business physical operation of sites to maintain safety and reliability of services, as well as supporting commercial operations through the collection of customers metering data.

3.3. Network Refresh

Ongoing renewal of hardware and networks will continue and be updated as required on a routine basis. Renewal of hardware and networks is often prescribed by 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.

Network and hardware renewal occurs on an ongoing basis. The operating expenditure for network and hardware refresh is captured in the 2022 operating expenditure base year. There are no additional costs proposed for the refresh program.

4. Technology Enablement Program

4.1. Background

APA's legacy information technology capability is ageing, inflexible, and costly.

Currently core APA business systems are supported by integration and data warehouse solutions which rely on ageing 'on premise' technology. Existing on-premises data warehouse and data capabilities are heavily siloed with gaps in digital data capture, data quality, data governance, real-time access, and self-service reporting.

The legacy information technology environment is no longer fit-for-purpose. Consistent with APA's strategic technology themes, including 'Fit For Purpose Solutions' and 'Optimise For Efficiency', the Technology Enablement Program (TEP) promotes a 'cloud first' approach.

TEP provides the underpinning platform where core APA business systems will transition to cloud-based environments within the coming years. APA will transition from on premise to a hybrid multi-cloud architecture. This includes Enterprise Resource Planning Program (ERP) which will move to a cloud-based Software as a Service solution (discussed in Section 5).

TEP project commenced in 2023 and will be business-as-usual by 2025. TEP was not submitted as part of the GGT's 2020-24 access arrangement proposal and was not included in ERA's approved forecasts in the 2019 Final Decision.

4.2. Drivers and scope

The TEP project will enable cloud infrastructure to provide secure, scalable, and flexible solutions for GGP. TEP moves technology investment away from an ad hoc, program-driven model towards a sustainable, standardised, and cost-efficient model.

Helping achieve APA's Vision

To enable its vision of being world class in energy solutions, APA must have **world class technology infrastructure**. TEP is accountable for delivering that infrastructure, in line with our goal of becoming a '**Cloud First**' organisation and laying the '**brilliant basic**' foundation for our technology.

TEP is driving the technology uplift of **secure cloud, networks, data** and **integration capabilities** to meet the needs of high priority strategic programs (GSP and ERP) and growing business demand for cloud-first technologies.

TEP moves technology investment away from an ad-hoc, program-driven model and instead towards a sustainable, standardised, cost-efficient model.



TEP Purpose

"Build the foundational cloud infrastructure to deliver on APA's technology vision and provide secure, scalable, flexible solutions for people and projects across APA"

Source: APA

The paradigm shift to cloud-based computing has accelerated the need for change in technology strategies. The drivers for change are to enable the information technology environment to shift from being low agility, costly, inconsistent, and fragmented to one that is nimble, scalable, has effective security controls and is standardised, centralised, and well governed.

Customers will benefit from increased security and services as well as improved data. The case for change is summarised in the diagram below.

The Case for Change



Source: APA

4.3. Options identification and assessment

4.3.1. Do Nothing Option

Do nothing entails leaving required technology uplift of cloud, security, network, data, and integration capabilities to individual Enterprise Project Management Office (EPMO) Programs to undertake separately.

Pros

No new expenditure required.

Cons

This option:

- Encourages implementation of incomplete technology capabilities and point solutions resulting in increased operational and maintenance costs; 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, security, data, and integration solutions
- Diverts investment towards point solutions, rather than future ready enterprise capabilities
- Does not align with the Technology strategic direction and APA’s Technology vision.

A summary of the untreated risk² assessment is provided in the following table.

Table 4.1: Risk rating – untreated risk

Untreated risk	Health & Safety	Environment	Operations	People	Compliance	Rep & Customer	Finance	Risk
Likelihood	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	High
Consequence	Significant	Minimal	Major	Minor	Significant	Significant	Significant	
Risk Level	Moderate	Negligible	High	Low	Moderate	Moderate	Moderate	

4.3.2. Technology Enablement Program Option

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

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

Cloud & Networks:

- This stream will establish a strategic enterprise ready AWS environment and cloud foundation which is secure, scalable, and capable of meeting the needs of APA’s multi-energy businesses including GGP. The initial focus is on the ERP programs
- A strategic cloud management toolset will also be established that targets AWS and will monitor, manage, and orchestrate resources in the cloud. It will provide automated and simplified cloud financial management driving improved financial accountability and business value uplift and optimise cloud resource tagging to enable accurate show back and cost reporting.

Data & Integration:

² Untreated risk is the risk level assuming there are no risk controls currently in place. Also known as the ‘absolute risk.’

- This stream will design a strategic Enterprise Data Platform and Enterprise Data Catalogue in AWS which is secure, scalable, and capable of supporting APA’s long term enterprise analytics ambitions.
- It will also underpin the ERP programmes data requirements before being more widely adopted across APA.

Pros

The Technology Enablement Program will enable 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 accommodates APA’s business into the future and enables the implementation of a “test and learn” approach throughout the design and implementation phase
- Realise business benefits through technology enablement and uplift of related capabilities.

Benefits of this transition to the cloud include technology agility across APA ITOT. GGP and customers will share the benefits of cost-efficient, streamlined approach to cloud technology.

4.4. Forecast expenditure for CY2025-29

The allocation of shared costs to GGP are shown below.

Asset Category	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total (CY25-29)
Non-recurrent	613,665	144,763	-	-	-	-	144,763
Recurrent		-	-	-	-	-	-
Total	613,665	144,763	-	-	-	-	144,763

The operating costs are already included in the CY2022 operating cost base year.

Further information can be found in:

- GGP-AA5-Attachment 10.6-Technology enablement program - Business showcase-1
January 2024-Confidential

5. Enterprise Resource Planning

5.1. Background

APA has undertaken a transformation of the Enterprise Resource Planning (ERP) landscape to replace the ageing legacy system. The legacy system lacks process and data maturity and is incapable of scaling to meet business needs and address operational risks.

APA is implementing a new enterprise-wide ERP systems with a set of new cloud-based applications, provided by Workday, and will support APA's Finance, Procurement and People Safety and Culture functions to implement and adopt new operating models and better ways of working.

The ERP Program seeks to deliver new systems, data, processes and operating models for APA's Finance, Procurement and People, Safety and Culture (PSC) functions. This includes integration with key existing systems such as asset management (Maximo), and customer billing. 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.

A modern ERP platform will enable APA to:

- Scale its corporate systems, data, and processes to respond to the changing needs of its customers and communities whilst achieving higher levels of efficiency and effectiveness in operations and the back office
- To drive business insight and automation to support customer service.

Sponsored by the CFO, APA established an ERP Program in October 2021 to explore the opportunity to transform and mature our corporate functions in how service is delivered enterprise wide, including updating our ERP system platform.

The ERP Program entails uplifting capability, leading practice processes, automation, optimised operating models and efficient organisational design. A modern ERP with updated configurable “out-of-the-box” business process and data maturity positions will create operating efficiencies in our corporate functions.

The ERP Program seeks to deliver new systems, data, processes and operating models for APA's Finance, Procurement and PSC functions. This includes integration with key existing systems such as asset management (Maximo), customer billing and payroll. 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.

The ERP will benefit the business of GGT in operating the GGP at a lower cost than having to modernise legacy systems on a standalone basis.

5.2. Options identification and assessment

The ERP Program identified several options to address the business problem. These options were agreed by the ERP Steering Committee and business stakeholders.

Four different options have been analysed using the following criteria:

- Alignment with APA Strategy
- Agility – how the solution enables timely and cost-efficient change in response to customer and community expectations
- Delivering on Business Vision and Program Objectives – how the solution supports the APA business vision and requirements
- Implementation cost and total cost of ownership (TCO)– cost to implement and operate the solution
- Financial Benefits – expected savings
- Business Risk – how the solution addresses existing business risk.

5.2.1. Do Nothing Option

This option constitutes a baseline of continuing the current ERP systems and processes with only minimal investment.

Pros

No increase in expenditure.

Whilst not requiring a significant investment upfront, maintaining, and operating aging and disjointed systems is expected to incur additional cost over time.

Cons

Do nothing does not address the business problem, is not aligned with APA's strategy, does not address the underlying business risk and as such is not recommended by the ERP Program.

5.2.2. Upgrade with Oracle Option

This option involves:

- Upgrading the existing on-premises Oracle eBusiness solution for financials and procurement capability and moving to Oracle Fusion Cloud
- Expanding our investment in Oracle HCM Cloud for our people processes and connect these to the finance and procurement processes.

Pros

This option would address the business problem and deliver benefits. It is aligned with the APA strategy, albeit with some concerns based on issues with the already implemented Oracle HCM components.

Cons

This option would address the business problem and deliver benefits. It is aligned with the APA strategy, albeit with some concerns based on issues with the already implemented Oracle HCM components. The Oracle solution was evaluated through the ERP solution RFP. It is considered sub-optimal in supporting business vision and program objectives, due to its complex internal architecture and deficiencies in user experience.

Furthermore, the recent implementation of Oracle HCM components at APA has not been regarded as successful by the impacted functions and user groups, indicating a high risk of a difficult implementation journey should Oracle be adopted for the ERP program.

Whilst this option would protect APA's existing investment in Oracle products, it is not recommended by the ERP Program due to shortcomings in system functionality and user experience as well as the anticipated implementation risk.

5.2.3. Replace with SAP Option

This option involves:

- Replacing the current ERP solution with SAP's cloud offering (S/4HANA, Success Factors, Ariba, Fieldglass, Concur)
- Implementing SAP processes for Finance, Procurement and PSC functions.

Pros

This option would address the business problem and deliver benefits. It is aligned with the APA strategy. The SAP solution was evaluated in-depth by the ERP Program in collaboration with the vendor during a five-week Joint Solution Design activity.

Cons

Whilst providing excellent system functionality for all in-scope functional areas, SAP consist of multiple applications with a complex internal architecture and a disjointed user experience. In particular, the PSC processes, focussing on employee and manager self-services, are not expected to fully provide the step forward expected by APA's business. The system complexity is expected to result in increased implementation and support cost in comparison with the other options, resulting substantial business risk.

Furthermore, SAP's commercial offering is by far the most complex due to the granularity of subscription components and associated metrics, requiring significant effort by APA to manage. SAP is the most expensive of all options, however it could also release the highest financial benefits due to its extended functional coverage.

In summary, this is option is not recommended by the ERP Program as it is perceived inferior to Option 4 (Workday).

5.2.4. Replace with Workaday Option

This option involves:

- Replacing the current ERP solution with Workday's cloud offering (Workday Core, Adaptive Planning, Prism)
- Implementing Workday processes for Finance, Procurement and PSC functions

Pros

This option would address the business problem and deliver benefits. It is aligned with the APA strategy. The Workday solution was evaluated in-depth by the ERP Program in collaboration with the vendor during a five-week Joint Solution Design activity. The program further assessed the Workday functionality and capabilities during Phase 0, which confirmed a good fit with business requirements.

Workday provides the most modern unified solution architecture that was developed exclusively for the cloud, including an integrated data and process model which is less complex to implement and maintain, with fewer integration points. It also provides an excellent user experience and is expected to best support APA’s workforce in the field through access via a single mobile application.

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 initially. The identified gaps are expected to defer some of the financial business benefits. Workday offers a comparatively simple subscription model with metrics that can be managed without major effort.

The overall price for the initial five-year subscription period and the associated implementation cost are significantly lower than those for the alternative options.

Considering the identified functional gaps and associated reduced financial benefits, Workday is still considered to provide the best the best fit-for-purpose ERP solution to support APA’s future growth. High levels of agility are expected to be achieved due to Workday’s unified architecture, allowing fast changes to configuration and integrations. The ERP Program recommends selecting this option for implementation.

5.3. Summary of options assessment

The below table summarises the outcome of the options analysis and recommendation. The program proposed to implement Option 4 (Workday) for all APA business units, including Networks.

Criteria	Option 1 Do Nothing	Option 2 Upgrade Oracle	Option 3 Implement SAP	Option 4 Implement Workday
Strategic Alignment	Not aligned with APA strategy as underlying business problem and risk is not addressed.	Medium alignment with APA strategy – ERP product is viable but not optimal in comparison with SAP and Workday.	Good alignment with APA strategy due to comprehensive set of ERP functions enabling efficient back-office operations and better support for APA workforce.	Good alignment with APA strategy due to modern ERP architecture enabling efficient back-office operations and great user experience for APA workforce
Agility	Not supporting change and innovation as current systems require significant effort and time to implement changes.	Relatively complex solution requiring deep technical skills – whilst supporting change, this options is not optimal compared with Workday.	Relatively complex solution requiring deep technical skills – whilst supporting change, this options is not optimal compared with Workday. Product innovation has been focussed on transition of the product to cloud.	Modern cloud architecture with configurable solution, enabling fast response to change. Fast product innovation over the last 5 years, expected to continue.
Business Vision and Program Objectives	Not supporting objectives of the ERP Program.	Evaluation of the Oracle product capability showed some deficiencies across Finance, Procurement and PSC in terms of functionality and user experience in comparison with Workday and SAP.	Excellent functionality addressing the majority of APA requirements. User experience is good but inconsistent. Mobile capability is not yet harmonised.	Excellent and consistent user experience across all functions, including mobile solution. Some deficiencies in non-critical Finance and Procurement functionality that are expected to be addressed through product improvements over time.
Implementation Cost and TCO	No change to current status.	Medium implementation and solution support cost estimates. Lowest product price.	Highest implementation and solution support cost estimates due to complex solution and also highest product price.	Relatively low implementation and solution support cost estimates. Good negotiated product price. Additional functional FTE required initially to cover some functional gaps.
Financial Benefits	No financial benefits.	Lower financial benefits in comparison to SAP due to less comprehensive functionality.	Maximum financial benefits expected due to most comprehensive produce functionality.	Lower financial benefits in comparison to SAP due to some functional gaps.
Business Risk	Significant ongoing business risk due to mis-alignment with APA strategy, ongoing process compliance issues and ongoing fragmentation of business data.	Ongoing business risk will be reduced but solution complexity will limit agility.	Ongoing business risk will be reduced but solution complexity will limit agility.	Expected significant reduction of ongoing business risk due to product functionality, increased agility and alignment with strategy
Summary	not recommended	not recommended	not recommended	recommended

- Red = does not meet APA business need
- Amber = meets APA business need with some restrictions
- Green = meets APA business need fully or only with minor restrictions

As highlighted above Workday has been assessed as a good fit for APA to address its ERP business requirements during the selection phase. This has been validated during Phase 0 (Discovery Phase) of the ERP Program and there are no major issues preventing the adoption of Workday as APA's future ERP product. Whilst some functional gaps have been identified during Phase 0 within the Finance area. None of these gaps are assessed as critical and processes will be delivered by the program to ensure business continuity. As such, at the end of phase 0 the program was approved to continue with the delivery of the Workday solution.

Following the approval of the preliminary Business Case, in June 2022 the program has executed a 5-year agreement for subscription to Workday software and cloud services. The program has also selected Accenture as the System Implementation partner to provide implementation and integration services.

The program has commenced planning and design activities in September 2022 and is targeting to complete implementation by late 2024.

5.4. Forecast expenditure for CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	1,143,443	117,926	-	-	-	-	117,926
Recurrent							
Total	1,143,443	117,926	-	-	-	-	117,926

The allocation of shared opex costs to GGP are shown below

Opex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent							
Recurrent	543,155	469,291	427,364	380,609	333,680	317,532	1,928,476
Total	543,155	469,291	427,364	380,609	333,680	317,532	1,928,476

6. Grid Solutions

6.1. Background

APA Grid is APA's grid customer management, billing, and operations systems. It enables the daily operation and invoicing of gas transmission customers, as well as being the system used to manage market regulatory and contractual compliance for gas transmission assets.

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. 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 14 years ago. It has been heavily customised over time and requires significant manual interventions. It remains on a "best endeavours" basis extended vendor support for major issues only.

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. This is impacting APA's ability to:

- Meet customer demands for shorter more flexible, multi-asset services across bi-directional assets, as well as addressing dissatisfaction in relation to invoicing accuracy and usability of the current system
- Avoid the increasing cost and risk of operating the current highly customised solution with over 80 supporting off-system spreadsheets and manual interventions required to complete contract entry, daily operational tasks, as well as 250+ manual adjustments for each monthly invoicing run.
- Mitigate critical regulatory compliance and cyber security risks including the risk of errors in invoicing that make it to the customer, and the risk of breaching market rules / regulations including Short Term Trading Market and Capacity Trading and Auction.

An Initiation Phase has been completed including a proof of concept that confirmed that the Energy Components (EC) Version 13 (V13) software is able to support APA's critical and complex use cases.

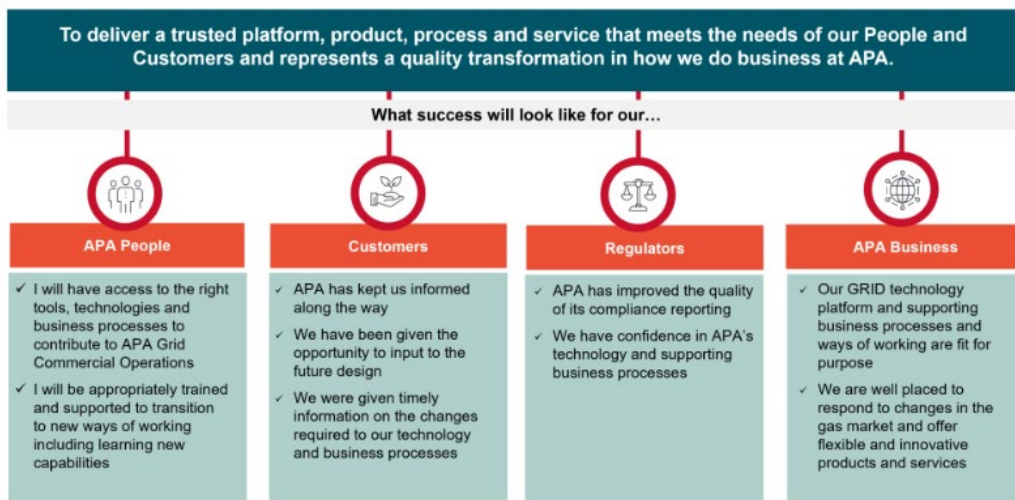
6.2. Description of Grid Solutions Project

The Grid Solutions Project (GSP) is a multi-year digital transformation program designed to modernise the way APA executes its customer contracts and regulatory compliance and reporting.

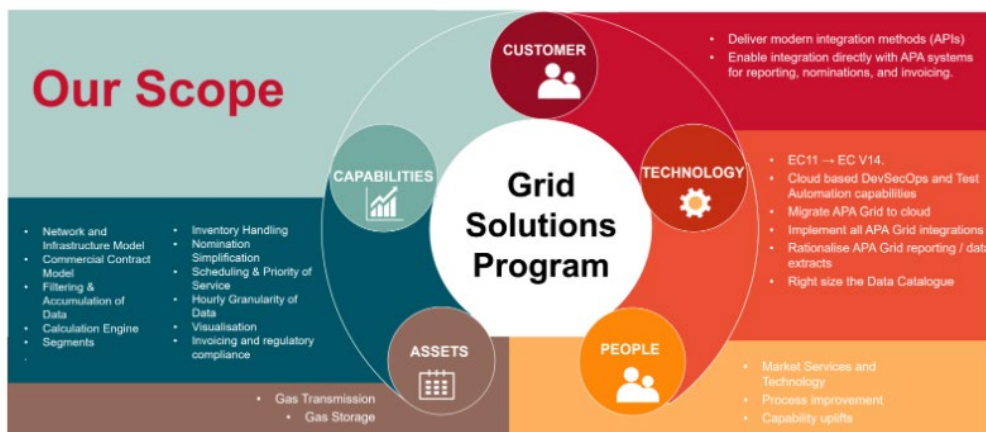
This will be achieved through a redesigned suite of technology, process, and people to better support the daily operation and invoicing. GSP includes an upgrade of Energy Components software.

GSP will implement a re-architected, cloud-based solution based on EC v13 including all associated interfaces, cyber security standards, standardised code libraries, reporting and organisational changes. Information about GSP is summarised in the diagrams below.

Our vision



What will GSP deliver?



GSP is the proposed replacement of APA Grid. The benefits of replacing the APA Grid with EC Grid Solutions include:

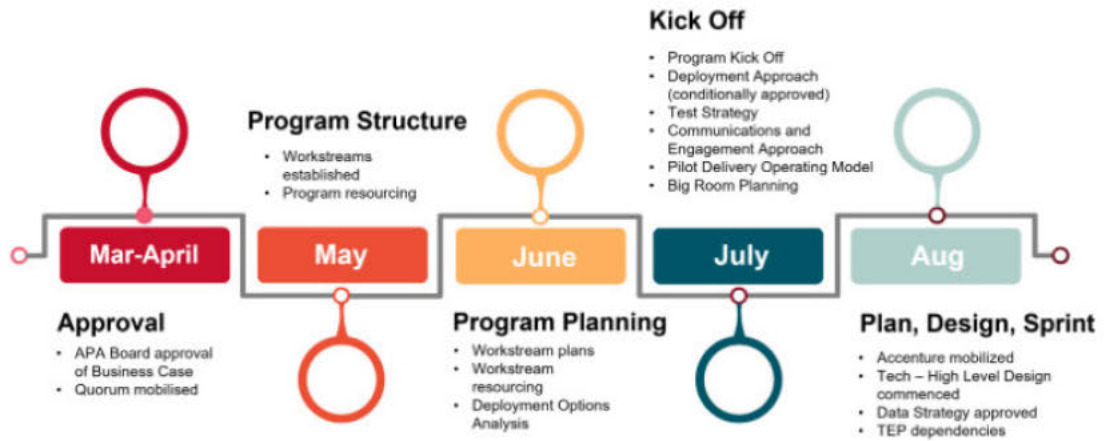
- Reduced effort to input changes due to reduction in system complexity and standardised coding
- Improved customer experience and satisfaction:
 - improved invoicing accuracy and timeliness
 - simplified daily commercial operation of customer contracts
- Reduced risk of regulatory breaches, significant reputational damage, and fines:
 - risk of “errors in invoicing that make it to the customer” from “Moderate” to “Negligible”, uplifting operational excellence
 - market regulatory and contract compliance improvements through better system alignment to requirements
 - reduced dependency on manual intervention and monitoring
- Reduced risk of a successful cyber-attack, and reduced recovery time if an attack is successful:
 - There is cyber security risk due to Energy Components (EC) (software) V11 being “end of life” and on extended support from the vendor for major issues only on a best endeavours basis
 - GSP will address findings from a 2021 PwC Resilience Review that identified that APA Grid is currently unable to meet the business’ disaster recovery requirements (maximum allowable outage of one hour and maximum loss of data is 30 mins)
- System sustainability:
 - reduction in APA specific customisation with more functionalities built into the core product
 - 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.

The delivery of GSP will provide a secure and scalable solution that provides the flexibility to meet changing regulatory obligations and align to the business’ disaster recovery requirements.

The GSP business case has been prepared by PricewaterhouseCoopers (PwC) and undergone an external assurance review by Capgemini, with recommendations incorporated into the final investment request. The business case was endorsed by the SteerCo on 13 May 2022.³

³ SteerCo is chaired by the Program Sponsor, Group Exec Operations.

2023 Achievements so far...



Capgemini has confirmed our assumptions about the cost of this type of implementation for APA.

6.3. Options identification and assessment

As part of the Initiation Phase, the following options were analysed resulting in the recommendation to proceed with GSP.



6.3.1. Assessment

APA procured the EC software over 14 years ago as the result of a global request for proposals process in which over 10 companies provided submissions. Since then, five independent reviews have been undertaken, all of which recommended retention of EC based on the assessment that it continues to be the global “best of breed” in this specialised hydrocarbon accounting domain.

- 2014 – ComEcCon Consulting review – Independent review of people, system, process, and benchmarked costs. EC endorsed as the best solution.
- 2016 – Accenture Consulting review – Assessment of Total Cost of Ownership (TCO) of 4 strategic options. Acknowledgement of technical debt and resulted in ELT decision that EC is the preferred strategic platform.
- 2019 – Ironside Consulting review – Brief assumed retention of EC and focused on how to optimise value from EC. Resulted in recommendations relating to structure, resourcing, and adoption of Agile which have since been implemented.
- 2020 – Grid Services Framework (GSF) review – Roadmap developed for re-architecting EC to meet today’s needs - Recommendation to retain EC and undertake a pilot for re-architecting EC which was successfully completed Feb 2022
- 2021 – Capgemini Consulting review— Recommendation to maintain EC as APA’s strategic hydrocarbon accounting system.

APA has also developed a strong working relationship with the vendor (Quorum), undertaking co-innovation and product development activities. Quorum has confirmed the EC platform as a strategic product for their group that they will continue to develop.

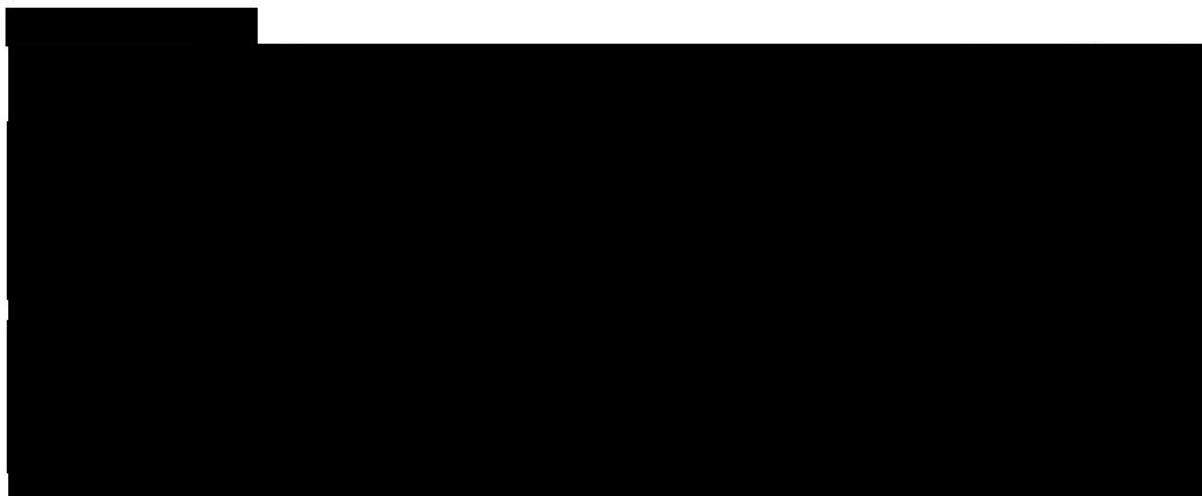
Due to multiple independent reviews status as a “best of breed” solution, APA’s deep knowledge of the software (including the successful pilot completed in Feb 2022) and strong working relationship with Quorum, the Grid Leadership Team have unanimously agreed to base the GSP solution on EC V13.

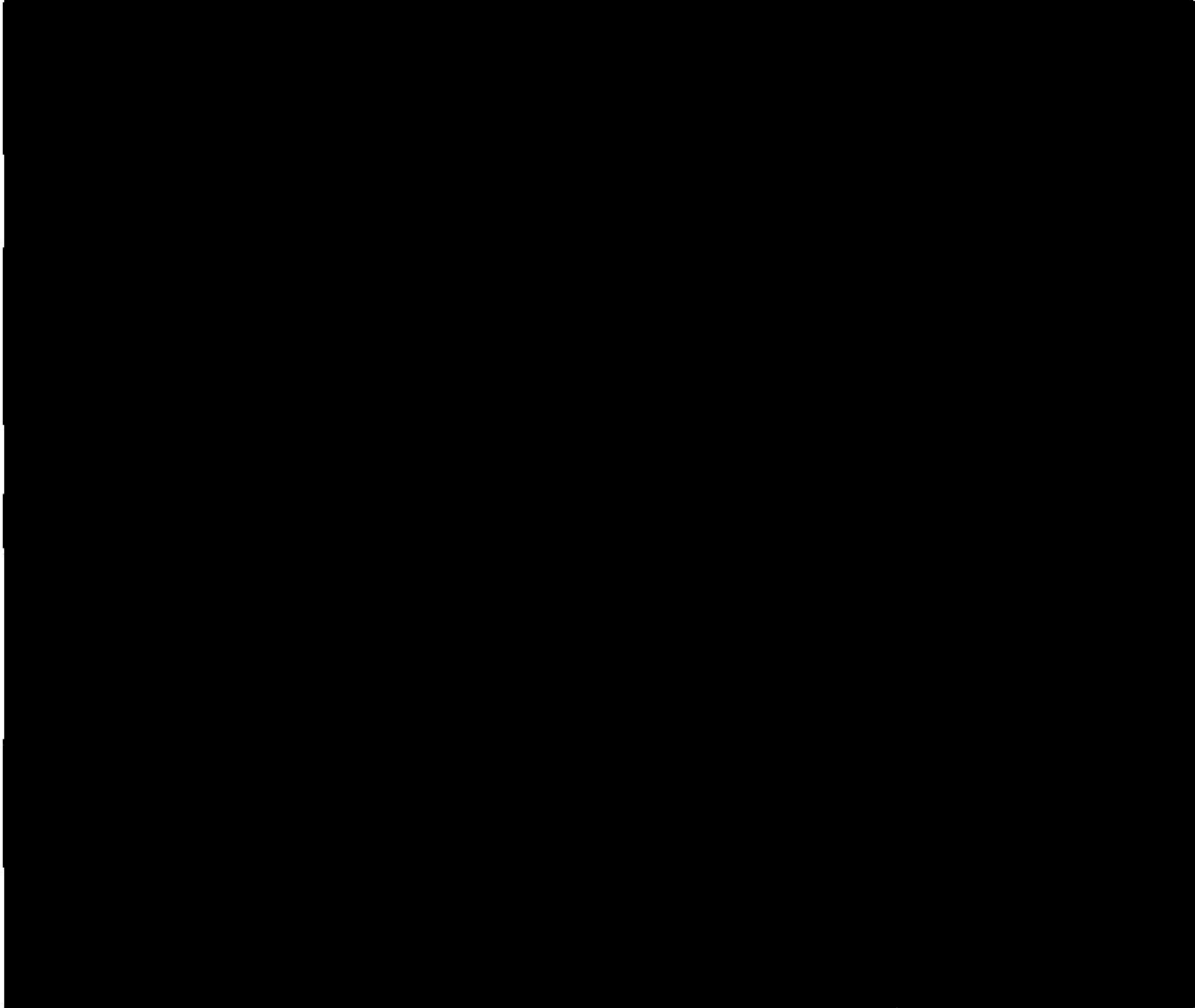
6.4. Governance

For a program of this scale and complexity, a multi-layered governance and assurance model has been adopted to ensure success including:

- Governance - A dedicated Program Steering Committee, inclusive of an independent advisor, accountable for overall alignment of program outcomes and delivery. The membership consists of the following voting members and subject matter experts.
- Assurance - A number of governance and quality assurance mechanisms to ensure program success, including:
 - A full-time Program Director
 - A refreshed Design Authority
 - Independent QA reviews at key milestones (x6)
 - A governance structure that blends IT and business stakeholders
 - A significant initiation phase to enable detailed scope, cost, and schedule planning
 - “Best of breed” vendor approach across workstreams, with APA and independent advisors providing governance and quality assurance
 - Engagement of a specialist delivery partner accountable for test leadership, testing, release planning and cutover management to ensure successful implementation of each release.

6.5. Risk Measures and Corporate Risk appetite





6.6. Cost assumptions

Ref	Assumption Descriptions
1	Vendor cost estimates for EC, integration, hosting, DevOps, and data & analytics are from quotes provided by the relevant vendors expected to deliver the implementation of the work stream (Quorum - formally Tieto, Versent, Lab3)
2	Financial benefits will start to be realised post program closure (October 2025)
3	[REDACTED]
4	Estimates are inclusive of inflation forecasts for future years
5	A risk-based approach has been taken for contingency calculation multiplying: <ul style="list-style-type: none"> • The maximum forecast slippage per work stream based on the risk profile identified in the GSP Risk Workshop • The middle point between the maximum and mean monthly burn rate per work-stream

6.7. Forecast expenditure for CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	2,525,985	2,004,130	797,280	-	-	-	2,801,410
Recurrent	-	-	-	-	-	-	-
Total	2,525,985	2,004,130	797,280	-	-	-	2,801,410

The operating costs for APA Grid are already included in the CY2022 operating cost base year.

7. Enterprise Asset Management - Maximo Upgrade

7.1. Background

Maximo is essential to the daily operation and maintenance of assets – providing work planning, scheduling, workforce management and inventory. It combines all APA energy assets under the Operations umbrella including Networks, Transmissions and Power Assets. In addition, Safeguard+, a core component of Maximo, ensures our Health, Safety, Environment and Heritage (HSEH) obligations are managed and monitored.

GGP Operations relies on Maximo as a critical component of end-to-end business processes including purchasing via integration with several core systems including Oracle Financials, GIS (Geospatial Information System) and J5.

In addition, a core component of Maximo, Safeguard+, provides APA with the platform to undertake company-wide safety management related activities such as safety incident management and safety investigation management. Safeguard+ ensures our HSEH obligations are managed and monitored.

APA is currently using an older version of Maximo at APA which means APA does not receive product fixes and enhancements, and as a result, are more at risk of security vulnerabilities.

This initiative seeks to upgrade the version of Maximo used by GGP.

The risk of not upgrading core asset management and maintenance system has been assessed as high. This is primarily driven by operational and financial risk.

In the event of failure of this system, application will be vulnerable to security breaches, and operational staff will be unable to fulfil regulatory, operational and safety objectives. This will have adverse effects across the business due to not reliably knowing true state of the asset.

7.2. What does the Maximo Upgrade Project involve?

The Maximo EAM application and its related technology was upgraded in early 2023 to the next version, which will bring it into standard support from the vendor and in turn reduce our cyber risk.

The upgrade will ensure we have a modern and secure platform that supports the management of APA's assets and is able to integrate with key strategic solutions such as ERP and Networks Workforce Transformation. It is also an enabler for other strategic initiatives such as the Field Mobility project, which will introduce a Mobile Works Manager solution for APA's Field Technicians.

7.3. Options identification and assessment

7.3.1. Option 1: Do-nothing

The Do-nothing option maintains operation of the current version of Maximo.

Pros

- No need for additional expenditure.

Cons

- The vendor has stopped standard support for the current version of Maximo v7.6.0.9. This may result in additional fees to vendor to maintain the system
- The issues with current state will continue to exist. Operational risks are likely to increase over time and the project benefits will not be realised
- Greater risk of regulatory breaches because of asset not being maintained at an optimal level
- Risk to staff safety because of inability to support HSE controls
- Significant additional cost because of incremental remedial cost for both IT systems and operational assets not being maintained as per vendor product release cycle.

This option was discounted after weighing pros and cons.

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

Version 8 of Maximo will be available in 18 months.

Pros

- Moving to version 8 will provide new features and keep GGP on a supportable platform.

Cons

- 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 realisation of associated benefits.

7.3.3. Option 3: Upgrade to version 7.6.1.2 and evaluate the transition to version 8

This option is a transitional approach in consideration of version 8 not being available for 18 months.

This option places the application back into support as quickly as possible.

Pros

- Remove the risk of running unsupported software
- Reduce the risk of the system(s) failing, or the integration between systems not operating as intended (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.

Cons

- Version 7.6.1.2 is missing the new features in version 8.

7.4. Conclusion

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

The preferred option 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 at GGP. 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 network. Risk reduction is the key benefit of the Maximo Upgrade project.

It is proposed that a major capital expenditure upgrade to Maximo commence in 2024 (outside the AA5 regulatory period) and continue into 2025. A minor upgrade is proposed in 2028.

7.5. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	59,825	-	-	-	-	-	-
Recurrent	74,781	74,781	-	67,537	67,537	-	209,855
Total	134,606	74,781	-	67,537	67,537	-	209,855

There are no proposed shared opex costs for the CY2025-29 period.

8. OT Field code management system replacement

8.1. Background

The existing control code management system (Versiondog) is nearing end of life⁴. This project seeks to identify a replacement and migrate from Versiondog to the new system.

It is essential that the control code, being the code that operates inside remote telemetry units, programmable logic controllers and safety systems that control site assets, is correctly backed up and monitored for changes to ensure the safety of the asset.

This program will utilise previous control code requirements and identify any new requirements to perform an options assessment. After the options assessment the new software will be purchased and installed in APA including all associated migration activities (e.g. training).

It is an essential requirement that the code used for the asset is correctly stored, maintained and updated with controls in place. This project assists ensuring upgrade projects can safely upgrade the site or reinstate the site in case of an unplanned control device failure.

This project applies to all APA assets. This software is licensed and installed in APA's servers (not-cloud).

This is a new project to commence. Recent related projects for Versiondog have been focused on collecting asset code which can be migrated to the new system.

8.2. Drivers

The drivers for this project are:

- Safety – Ability to ensure code version site acceptance tested is the same version that can be used in a recovery scenario
- Operational reliability – this system is essential to ensure outage durations are low in the case of a control device failure.

Governance / Strategy

Control code management is listed as an Operational Technology (OT) Enabler that enables OT software and hardware to continue to operate successfully. It is part of the OT strategy to ensure this enabler is maintained at the current or uplifted capability level.

8.3. Options identification and assessment

Option 1 (Not selected) – Continue to use software past end of life.

This is not considered an option as the vendor may discontinue providing a licence for the software and thus will be an unsupported application (and unacceptable risk in the event of a software failure)

Option 2 (selected) – Assess replacement software and migrate

This option ensures we can transition to supported software prior to the end of support for the existing software.

⁴ The vendor has provided an official date as to when application support will no longer be provided

8.4. Forecast expenditure for CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	-	15,442	23,163	15,442	7,721	-	61,769
Recurrent	-	-	-	-	-	-	-
Total	-	15,442	23,163	15,442	7,721	-	61,769

This upgrade is a one-off project.

Ongoing costs for licensing and support are expected to be in line with the existing system (no expected additional costs).

There are no shared opex costs proposed for the CY2025-29 period.

9. Facilities Engineering data uplift

9.1. Background

This project is to connect rotating machine data from the field to enable proactive and reactive engineering support. The project includes:

- Connection of additional (high resolution) data from on-site rotating machines
- Data modelling so data can be accessed and compared across the fleet.
- Visual screens to assist rapid fault finding in the event of a trip.
- Availability Metrics to move towards reliability centred maintenance.
- Expanding outage management capability beyond a reactive approach.

The project is important for GGP as the asset includes many rotating machines essential to operating the asset to expected performance (linepack and throughput). The outputs of the project contribute to the overall reliability centred maintenance work to minimise operational downtime.

The reliability centred maintenance program may be dependent on some of the information this project will create.

This is a corporate project that applies to all assets. It is an ongoing program.

9.2. Drivers

The drivers are:

- Reliability and maintenance - Reduce operability risk (reduce number of trips)
- Operability & Revenue - Reduce revenue impact of outages (reduction in outage duration)
- Support emissions reduction - through provision of data that enables emissions optimisation

This project was created after a variety of events occurred:

- Rotating assets tripped and could not be fault found without intentionally causing a second trip event on site. This was causing additional damage and had significant delays to site reinstatement.
- Unit availability tracking was being done manually and did not include enough information to support reliability centred maintenance, leading to higher maintenance costs and important assets not receiving adequate attention (in contradiction of said asset's explicit requirements)

9.3. Options identification and assessment

Option 1 (not selected)– Do nothing

This option was not selected as other options provide significant benefits

Option 2 (selected)– install data connectivity and unit availability information to rotating units.

This option was selected as it is required to achieve the planned benefits.

9.4. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	39,532	30,267	9,265	-	-	-	39,532
Recurrent	-	-	-	-	-	-	-
Total	39,532	30,267	9,265	-	-	-	39,532

This uplift is a one-off project cost.

There are no shared opex costs proposed for the CY2025-29 period.

10. OT Service, data and configuration uplift

10.1. Background

The core OT systems currently rely on experts extremely familiar with the software and implementation at APA. The project includes creation of current state information to ensure support can be maintained in the event of staff attrition.

APA Engineers identified that OT data across all uses was not meeting expectations. This project identifies the requisite data requirements and puts changes in place to ensure that data quality can be uplifted, supported and maintained at the expected level.

It was identified that the upgrade of gas transmission sites requires significant manual design work. The project includes configuration automation to ensure repetitive work on new projects (such as lifecycle upgrades) can be performed rapidly and consistently. At the completion of this project, master data management ensures the data service requirements can continue to be met.

This project ensures that OT services for GGP can continue to be provided in a cost effective manner including cost effective provision of related projects.

This project reduces costs of OT work on projects related to the asset.

This is a corporate project applicable to all APA assets. The project is continuing from past years.

Drivers

The OT team has several projects categorised as a technology capability uplift, jointly working on increasing OT's and operation's ability to manage all assets. These uplifts typically involve existing APA systems, people, processes, and data and include such items as data quality monitoring, architecture improvements, reliability improvements and feature additions to existing systems.

The project will achieve an improvement in regulatory data quality and reduction in risk by improving underlying systems to be more consistent and stable i.e., to accurately report data without losses or data outages. The drivers of such improvements include OT systems':

- Capability to reduce risk
- Improve asset performance, and
- Enable business capability uplift.

It's important this project is carried out in the 2025-29 period as:

- Incumbent data quality is not meeting expectations and requirements to create the necessary reporting
- Continued OT service and support during the period is reliant on documentation being available and accessible

10.2. Options identification and assessment

Option 1 (not selected) – do nothing

This option is not selected as the risk related to service is essential to ensure OT is able to support the OT core systems to the expected level.

Option 2 (selected) - uplift

Prior to determining the scope, many items were identified and prioritised. This option is only carrying out essential work prior to reviewing if further development is necessary.

10.3. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	9,265	9,265	6,177	3,088	-	-	18,531
Recurrent	-	-	-	-	-	-	-
Total	9,265	9,265	6,177	3,088	-	-	18,531

11. Integrated Operations Centre Grid Ops and pipeline simulation

11.1. Background

APA currently monitors and manages operational information in a central location. This is called the Integrated Operations Centre (IOC). The IOC is tasked with physical and commercial operation decision making of APA energy assets (gas and selected electrical assets). It is critical for the business to have access to accurate and timely asset and commercial data, for day-to-day operational needs.

Since April 2020, APA has invested \$2.192 million on IOC enhancements to deliver improvements to current business processes and systems. The key objectives of the IOC grid ops program are:

- Standardise and simplify work processes for informing operational business decisions.
- Integrate the existing operational platforms into a single point of access, for the integration of multiple information sources and support rapid decision making.

This program to date has successfully partnered with the IOC management team to develop and implement business change and value through incremental delivery. To date the program has delivered:

- Improved tracking and monitoring of asset configuration, ensuring flow setpoints align to Energy Component (EC) Nominations.
- Developed and implemented a tool to track and monitor key delivery streams so they are aligned to commercial contract requirements (Grid Configuration Tool).
- Enhanced visibility of transmission assets to enable better decision making.
- Improved visibility of market conditions to the Commercial Operations team by embedding market indicators into PI Vision.

The 2023 Grid Ops program proposes to continue to deliver OT information and decision-making improvements and enhancements for the IOC in consultation with the business.

Drivers

This project is a key enabler of GGP, directly impacting how nominations are managed, delivery to contracts is tracked and customers are correctly notified of impacts. This project is aligned to the IOC operations strategy.

The drivers are:

- Reliability of asset operations (early identification of issues, improved risk awareness)
- Regulatory compliance (providing accurate capacity figures during outages)
- Customer experience
- Asset optimisation (information to support decisions to move gas into the optimal location for minimising compressor operation)

This project's scope is continually aligned with the most urgent and impactful requirements of IOC operators and commercial operations.

11.2. Options identification and assessment

Option 1 (not selected) – Do nothing

This option was not selected due to lack of clear benefits to commercial operations and asset optimisation.

Option 2 (selected) – IOC operational enhancements

This option was recommended based on clear benefits.

11.3. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	33,973	33,973	27,796	24,708	24,708	12,354	123,538
Recurrent	-	-	-	-	-	-	-
Total	33,973	33,973	27,796	24,708	24,708	12,354	123,538

The project is ongoing

There are no shared opex costs proposed for the CY2025-29 period.

12. 6 OT predictive (forecasting) analytics and events system

12.1. Background

This project is delivering a system specifically designed to work with OT data from the operations historian (OSI PI) system. The system will utilise real-time data and provide indication on the future of that data for multiple purposes throughout operations.

This project will assess the preferred software, undertake installation, and provide an initial configuration for creating predictive (future) data and events.

The system is expected to be utilised for multiple business purposes such as:

- Linepack prediction (preventing pipelines from being constrained)
- Flow prediction (preventing flow constraints)
- Equipment health trending towards unhealthy (for early maintenance to prevent outages)
- Nominations predictions (to optimise movement of gas prior to demand)

This project is important to GGP as it will assist improving the reliability and performance of operations related to GGP.

This project relies on:

- A strong understanding of data and uses of data by business SMEs.
- Data models for similar equipment.
- Quality data history to provide cleansed training data.

The project is an important step in moving towards proactive actioning, however, it is planned to occur after other efforts have been made to ensure business readiness.

This project is a corporate project and applies to all assets. This is a new program of work.

Drivers

In the past five years APA has made significant progress on understanding and utilising operational data. The operations historian system has provided the capability for users to understand and develop data models that apply to specific uses. Risk management within the business has improved and is now at the level to identify specific areas of interest. It has long been known that the performance of any predictive system is based on the quality of inputs and requirements by technical experts, and these are now competent and capable within the business to support the next stage of data utilisation.

The drivers are:

- Reliability and maintenance
- Asset optimisation
- Operational Risk (early risk identification)
- Emissions (optimisation of rotating machinery).

This project is identified as a step change in technology capability for utilising operational data. It is expected that the business capabilities are well established prior to utilising this new technology.

12.2. Options identification and assessment

Option 1 – do nothing

This option was selected in past years due to lack of business readiness. The business has now transitioned and begun to request the features that would be made available by a predictive system.

Option 2 (selected) – install new predictive analytics system

This option introduces benefits specific to asset optimisation, operational risk and reliability.

12.3. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	15,442	24,708	18,531	9,265	-	-	52,504
Recurrent	-	-	-	-	-	-	-
Total	15,442	24,708	18,531	9,265	-	-	52,504

The project is a new project.

There are no shared opex costs proposed for the CY2025-29 period.

13. OT Lifecycle – Obsolescence and asset inventory

13.1. Background

This project is establishing OT Obsolescence management in APA. This includes writing a clear plan on how obsolescence is managed including RASCI information. The strategy includes details such as the need for routine processes outside of the project and an OT asset inventory to support those processes.

It's been determined to install an OT asset inventory and provide clear responsibilities and governance to relevant teams in the business. The project includes initial configuration of the asset inventory to support information entry but will not include site assessments or population as that will occur during other projects.

This project is important to GGP as all sites include OT equipment that have an obsolescence lifecycle that needs to be managed to minimise risks relating to asset operability.

This project is dependent on APA business structure and responsibilities to ensure the benefits can be achieved.

This is a corporate project applicable to all APA assets.

This program commenced in 2024 and is expected to continue for installation and delivery of the OT asset inventory.

13.2. Drivers

The OT team was contacted by engineers responsible for maintaining facilities and performing upgrade works, who indicated that obsolescence is not yet managed formally enough nor are risks understood well enough. This project was set up to ensure known risks could be properly assessed, managed, and prevented from reoccurring in the future.

The drivers are:

- Reliability – ensuring asset reliability is maintained at the correct level
- Risk – ensuring operational risks are known and managed at the correct level
- Obsolete technology – ensuring the business has the tools to collect and store information about technology
- Lifecycle – to minimise long term expenditure (install devices with a longer operational lifespan)

This project has been identified as one of the most important OT projects to minimise operational risk and asset lifecycle costs.

13.3. Options identification and assessment

Option 1 (not selected) – do nothing

This option was determined to be inappropriate due to known operational risks.

Option 2 (selected) – establish strategy, risk assess and install OT asset inventory

This option was selected as it significantly contributes to the expected benefits. This option ensures that business process is established and has the requisite technology to fulfill the expected information needs preventing OT equipment from becoming obsolete and unsupported.

13.4. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	91,500	183,000	183,000	91,500	-	-	457,500
Recurrent	-	-	-	-	-	-	-
Total	91,500	183,000	183,000	91,500	-	-	457,500

The project is a new project. This project is a one-off cost as it is establishing business process and technology.

There are no shared opex costs proposed for the CY2025-29 period.

14. Unified operations platform

14.1. Background

This project is delivering an upgrade from a SCADA system to an integrated platform to enable operators to work with data and work processes in one environment. The project seeks to integrate functionality and features from multiple APA operations systems. This option includes assessing, selecting, installation and initial configuration of the platform. The assessment includes a review of APA's operations capabilities requiring significant uplift, such as dedicated outage management which is currently managed through multiple systems. This is expected to uplift outage management, incident management, work order management and engineering support for operations.

GGP's operation platform will be significantly enhanced by the introduction of this capability.

This project is dependent on the maturity of APA's OT / IT architecture capabilities as well as business users having clear readiness to adopt and improve the way work is performed. The project is additionally dependant on the OT / IT domain security and architectures being set up to enable movement of data between key systems.

This is a corporate project that applies to all assets. This is a new program of work.

Drivers

This project was identified by industry experts presenting new ways of operating to APA that expands and improves the current model of working between many systems. A review of APA's operations was conducted that resulted in an understanding and representation of pain points related to moving data manually between people and systems. The output of this prior work provides a target state that may be achieved by implementing platform technology.

The drivers are:

- Operational Risk management
- Reliability and maintenance
- Asset optimisation

This project is part of the overall operations transformation.

14.2. Options identification and assessment

Option 1 – Do nothing

This option is not preferred as it does not enable transformation or resolution of the significant number of identified pain points, limiting the platform's ability to perform operations effectively.

Option 2 –install new platform

This option includes detailed requirements, architecture, installation and configuration.

Option 2 will provide a detailed software selection process and staged approach to installation, cutover and testing.

Option 2 introduces new benefits that are not achievable without platform type integration. These include end to end workflow, stronger risk awareness, reduced errors from data handovers and a capability uplift with respect to the data creation, presentation and user operation.

14.3. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	-	-	30,885	108,096	154,423	77,211	370,615
Recurrent	-	-	-	-	-	-	-
Total	-	-	30,885	108,096	154,423	77,211	370,615

The project is a new project. This project is a one-off cost as it is establishing business process and technology.

There are no shared opex costs proposed for the CY2025-29 period.

15. Smart Gas Detector integration

15.1. Background

This project is establishing the use of smart gas detectors in the field with connection to a central server or via a cloud service. Smart gas detectors enable the ability to automatically perform on-site indication for field staff and additional safety such as man-down alerting. These features reduce or remove the requirement for manual phonecall check-ins. This project supports field operations and the IOC to improve safety and reduce time spent with the check-in process.

This project is a one-off cost as it is establishing use of a new technology.

This is a corporate project applicable to all APA gas transmission assets. This project includes rollout for GGP.

Drivers

In past financial years a pilot was created to test the technology and APA's success with its use. After the pilot it was determined that there was adequate value to proceed.

The drivers are:

- Improved safety
- Time Savings - Reduced check-in management.

15.2. Options identification and assessment

Option 1 – do nothing

Current state is these gas detectors are being used in the region that has purchased them with access to the cloud service in the IOC.

Option 2 – utilise smart gas detector technology with additional features

This option introduces remote worker check-ins into APA's other existing systems such as J5 and IVMS to enable the targeted benefits. The current technology would also be set up to enable other regions to expand the use of the gas detectors.

15.3. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	4,633	4,633	-	-	-	-	4,633
Recurrent	-	-	-	-	-	-	-
Total	4,633	4,633	-	-	-	-	4,633

The is a new project. There are no shared opex costs proposed for the CY2025-29 period.

16. OT Lifecycle SCADA & HMI

16.1. Background

This project is to support the upgrade and replacement of existing on-site SCADA Human Manual Interface (HMI) systems and associated servers. This includes moving to the latest version of SCADA used by the IOC, upgrading the site screens and data to match the IOC and add any identified improvements the site requires since it's last upgrade.

The server upgrade includes the replacement of hardware and upgrade of windows versions to the latest as well as associated cyber hardening activities.

This project is dependent on resourcing availability and is typically scheduled to be performed in conjunction with a site control system upgrade.

This project specifically applies to GGP assets.

The project can be considered new, however past SCADA upgrades have been performed on targeted sites as part of separate projects.

Drivers

Part of ensuring operational risks have controls in place includes lifecycle upgrades of SCADA systems on site. As every site ages the operating system and software versions become out of date. Additionally, SCADA system configuration does not include operability improvements that have been performed in the IOC. These lifecycle projects are scheduled for all sites to ensure risk controls are maintained.

SCADA HMI systems are used to ensure sites can be operated remotely and correct maintenance lockouts can be put in place when performing work on site.

The drivers are:

- Reliability
- Risk
- Security
- Comply with legislation / regulation
- Obsolete technology.

16.2. Options identification and assessment

Option 1 – Delay replacement

Option 2 – Change site architecture to remove HMI

Option 3 – Lifecycle upgrade of sites (Selected)

Option 3 is selected as this is APA's current strategy for the lifecycle of SCADA HMI's installed on site.

16.3. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	-	122,000	122,000	122,000	122,000	122,000	610,000
Recurrent	-	-	-	-	-	-	-
Total	-	122,000	122,000	122,000	122,000	122,000	610,000

The project is a new project.

There are no shared opex costs proposed for the CY2025-29 period.

17. Network refresh

17.1. Background

This section discusses APA approach to refresh program for Technology Services & Operations IT (Network Refresh). Network Refresh relates to networking systems, corporate WAN and SCADA WAN telecommunication services, and the Zscaler cloud-based security platform.

The discussion covers the following key areas:

- **Network Infrastructure Management and Support:** Encompasses all costs associated with the management and support of networking systems across the organisation. This includes updates, security patching, and technical support for several categories and classes of hardware.
- **Telecommunication Services:** Reflects expenses related to the Corporate WAN and SCADA WAN telecommunication links encompassing fixed, mobile and satellite data services and the associated vendor support costs. This category includes costs for deploying, managing, securing, and maintaining these services, ensuring the connectivity and safety of assets, the workforce and corporate offices.
- **Zscaler Management:** Encompasses all costs associated with the management and support of the Zscaler cloud-based security platform. This includes policy updates for both ingress and egress traffic, security patching, and technical support for this critical security platform.
- **Vulnerability Management:** Involves costs associated with identifying, evaluating, treating, and reporting security vulnerabilities in hardware and software systems.

Additional areas include:

- **Data Centre and Runtime Costs:** Operational costs of data centres, including energy, cooling, and space rental, as well as expenses for running network infrastructure.
- **Software Packages:** Costs for various software packages used across the organisation, including both standard and custom-developed software.
- **Vendor Support for Infrastructure and Data Services:** Expenditures for external vendor-provided technical support and maintenance services for network infrastructure and telecommunication services.
- **Eventing Monitoring and Alerting:** Costs related to monitoring systems and networks outside regular business hours, including the deployment of alerting mechanisms for immediate issue response.
- **Software Licensing and Maintenance:** Expenses for licensing software and hardware products and ongoing maintenance fees.

A significant portion of these projects are attributed to infrastructure refresh initiatives, essential for maintaining systems within vendor-specified life cycles. These initiatives are vital to ensure optimal

performance, security, and compliance with contemporary technological standards. This strategy not only improves operational efficiency but also adheres to industry best practices, thus bolstering the reliability and integrity of the TSO's technological infrastructure.

Drivers

Two primary streams of work that are integral to the operational framework of our organisation are the Stay in Business (SIB) ongoing runtime; and Life Cycle Management. These streams ensure the continuous, efficient functioning of our systems and align with APA asset management standards and regulatory compliance requirements.

SIB ongoing runtime

This stream covers the continuous operational costs associated with running our systems. These costs include, but are not limited to, expenses related to system maintenance, software updates, and the everyday functioning of our IT infrastructure. The focus of SIB is to ensure that our systems are running efficiently and effectively on a day-to-day basis, thereby supporting the smooth operation of our organisation.

Life Cycle Management Costs: Network Infrastructure Refresh / Obsolescence. Circa \$3M per annum that is cycled out in line with Hardware/Vendor Lifecycle Management best practices (average 7 Years)

Life Cycle Management

Life Cycle Management is a structured, strategic approach that spans a five-year rolling cycle, as mandated by our asset management standard. This stream involves the periodic assessment and updating of our technological assets to keep them in line with current vendor specifications and industry best practices. The primary objective is to ensure that our systems and infrastructure are not only up-to-date but also capable of operating safely, reliably, and securely. This proactive management helps in pre-empting potential issues, thus minimising risks and ensuring compliance with relevant standards and regulations.

Many of the initiatives undertaken within these two streams are designed to enable our organisation to operate in a manner that is safe, reliable, secure, and compliant with our regulatory obligations. By adhering to these structured processes, we ensure the integrity and robustness of our IT infrastructure, which is pivotal to our operational success and long-term sustainability.

17.2. Risk assessment strategy

Regular risk assessments are a critical component of our operational strategy, embedded as a standard practice in each initiative. These assessments help in identifying, evaluating, and mitigating risks that may arise during the lifecycle of technology products and services. The key areas of focus in our risk assessment include:

Product Lifecycle Management Risks

One of the principal risks involves the failure to maintain technology within specified product lifecycles. If our technology systems are not regularly updated or replaced in accordance with their lifecycle, it could lead to a host of issues. As technology reaches its obsolescence, its reliability tends to decrease due to component wear and tear. This can result in increased downtime, inefficiencies, and potential security vulnerabilities.

Operating on outdated technology not only hampers our operational capabilities but also poses significant risks in terms of support. Older systems gradually lose vendor support, making it difficult, if not impossible, to address technical issues effectively. This can leave the organisation vulnerable to operational disruptions and security breaches.

Cloud-Preferred Strategy and Associated Risks

The organisation has adopted a cloud-preferred approach, where suitable, to leverage the benefits of cloud computing such as scalability, flexibility, and cost-efficiency. However, this approach also carries its own set of risks that need to be assessed and managed.

Risks associated with cloud computing include data security and privacy concerns, reliance on third-party service providers, and potential challenges in data migration and integration. Ensuring robust security protocols, maintaining data integrity, and establishing clear service level agreements with providers are crucial to mitigating these risks.

The ongoing risk assessments aim to proactively address these issues by implementing strategic updates, adopting new technologies, and ensuring compliance with the latest industry standards. By doing so, we not only enhance our operational efficiency and reliability but also safeguard the organisation against potential risks and vulnerabilities.

17.3. Options identification, assessment, and preferred option

When identifying and assessing options for each funded initiative, we follow a rigorous process that aligns with our organisational business standards. This process is designed to ensure that every option is thoroughly evaluated in terms of suitability, reliability, security, and compliance with our established goals and regulatory requirements.

Options identification and assessment:

- **Comprehensive evaluation:** Each potential option is subjected to a comprehensive evaluation process. This involves assessing the option's compatibility with existing systems, its impact on current operations, and its potential to enhance operational efficiency.
- **Alignment with business standards:** We ensure that each option is aligned with our business standards. This includes evaluating how well the option integrates with our existing policies and procedures, and its ability to meet our strategic objectives.
- **Reliability and security considerations:** Key considerations in the assessment process include the reliability and security of the option. We focus on options that promise enhanced stability and lower risk of disruptions, alongside robust security measures to protect against data breaches and cyber threats.
- **Compliance with Regulations:** Compliance with relevant regulations and industry standards is non-negotiable. Each option is evaluated for its ability to help us meet our compliance obligations, particularly in areas related to data privacy, security, and operational integrity.

Preferred Option selection

After a thorough assessment, the preferred option is chosen based on its ability to best meet our organisational needs while ensuring maximum return on investment. The preferred option stands out for its:

- **Alignment with Organisational Goals: It aligns closely with our long-term goals and strategic direction.**
- **Cost-Effectiveness: It offers the best balance of cost, benefits, and risks.**
- **Scalability and Flexibility: It provides the flexibility to adapt to changing business needs and technological advancements.**
- **Enhanced Security and Compliance: It adheres to the highest standards of security and regulatory compliance.**

The selection of the preferred option is a critical step that reflects our commitment to maintaining high standards of operational excellence, security, and compliance. It is a decision that not only addresses current needs but also positions us for future challenges and opportunities.

17.4. Forecast expenditure CY2025-29

The allocation of shared capex costs to GGP are shown below.

Capex	CY2024	CY2025	CY2026	CY2027	CY2028	CY2029	Total CY25-29
Non-recurrent	63,800	15,000	-	-	-	-	15,000
Recurrent	12,500	25,625	26,906	28,252	29,664	31,147	141,594
Total	76,300	40,625	26,906	28,252	29,664	31,147	156,594

17.5. Benefits to customers

The implementation of the strategies and initiatives outlined in this report directly translates into numerous benefits for our customers. These benefits are a result of our commitment to maintaining technology lifecycles, adhering to strict business standards, and carefully selecting the most suitable and effective options for our operations. Key benefits to customers include:

- **Enhanced reliability and efficiency:** By regularly updating and maintaining our technology within its lifecycle, we ensure a highly reliable and efficient service. Customers experience fewer disruptions and enjoy a consistently high standard of service.
- **Improved security:** Our focus on security, especially in the context of our cloud-preferred strategy and rigorous assessment of technological options, means that customers benefit from enhanced data protection and reduced risk of security breaches.
- **Compliance with standards and regulations:** Our adherence to regulatory compliance not only safeguards our operations but also ensures that our customers are interacting with a

responsible and legally compliant organisation. These builds trust and confidence among our customer bases.

- **Innovative solutions:** Our thorough assessment and selection process for technological options allow us to implement innovative solutions that can improve customer experience, offering them the latest in technology and service advancements.
- **Operational transparency:** Our commitment to aligning with business standards and regulatory requirements translates into greater operational transparency. Customers gain peace of mind knowing they are dealing with an organisation that upholds high standards of integrity and accountability.
- **Proactive risk management:** Regular risk assessments as part of our operational strategy mean that potential issues are identified and mitigated before they can impact customers, ensuring a seamless and uninterrupted service experience.

Our strategic initiatives and operational choices are not just about maintaining internal efficiency and compliance; they are fundamentally about enhancing the value and experience we deliver to our customers. These benefits collectively contribute to a stronger, more trusting relationship with our customers, reinforcing our position as a reliable and forward-thinking service provider.

18. Compliance with National Gas Objectives and Criteria

18.1. Meeting expenditure objectives and criteria

The forecast expenditure proposed for covered GGP ITOT complies with requirements in the National Gas Law and Rules.

The proposed ITOT expenditure is necessary to enable GGP 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 ITOT is critical to maintaining the safety, reliability, and security of GGP 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.

Maintaining information, communications and operational technology is accepted as good industry practice. APA seeks to reduce risk to as low as reasonably practicable in a manner that balances cost and risk.

GGP customers benefit from economies of scale and scope in the delivery of services of APA's enterprise-wide approach to ITOT. The sharing of corporate-wide programs delivers significant benefits to GGP customers. Costs would be significantly higher if these costs were incurred by a stand-alone entity.

The energy market is complex and requires sophisticated ITOT. GGP customers benefit from lower costs and enhanced security for the services that the ITOT program enables and supports.

The works will be subject to APA procurement policy and be carried out by suitably qualified external contractors and consultants and ensure lowest sustainable costs. GGP benefits from economies of scale and scope relative to have to incur technology costs on a stand-alone basis.

The forecast operating and capital expenditure is based on best information to date about the scope of information, communication, and operational business solutions.

The ICOT program is being carried out in sufficient time to replace and upgrade before end-of-life to prevent disruption to operations.

Glossary

Acronym	Full Name
EC	Energy Components
ERP	Enterprise Resource Planning
EPMO	Enterprise Program Management Office
GGP	Goldfields Gas Pipeline
GGT	Goldfields Gas Transmission
GSP	Grid Solutions Project
HMI	Human Manual Interface
IOC	Integrated Operations Centre
IT	Information Technology
ITOT	Information Technology & Operational Technology
OT	Operational Technology
PSC	People, Safety & Culture
SIB	Stay in Business
TCO	Total cost of ownership
TEP	Technology Enablement Project