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BUSINESS CASE IT VTS02

Infrastructure Renewal

Revision	Date	Status	Author
V1	16/5/2016	Draft	APA

DOCUMENT CONTROL

Document Management

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PROJECT REFERENCE	
Pipeline	Victorian Transmissions Systems (VTS)
Project No.	IT VTS02
Project Alias No.	
Project Name	Infrastructure Renewal
Budget Category	SIB Capex
Risk Rating	High
Reference Docs	
PROJECT APPROVAL	
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APA Approval Level	Board/EMT/COO/CEO/Other [APA to populate]

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1. Project Overview

Description of Issue/Project	The Infrastructure Renewal project involves the upgrade of desktop and telephony infrastructure over the next (1st January 2018 to 31st December 2022) Access Arrangement (AA) period. The upgrade of this infrastructure will ensure that APA GasNet (Operations) Pty Ltd (APA), Victorian Transmission System (VTS) continues to maintain reliable, compliant and efficient business processes and systems and preserves the ongoing integrity of its pipeline services. If the project is not carried out, the APA's critical business systems may be exposed to higher security risks and a greater risk of failure or prolonged outage, which would adversely affect the safety and integrity of APA services and could result in APA not fulfilling its customer and regulatory obligations.
Options Considered	The following options have been considered: 1. Option 1: Do Nothing; and 2. Option 2: Upgrade the desktop and telephony infrastructure in the next AA period.
Proposed Solution	Option 2 has been selected.
Estimated Cost	APA VTS – $482,000
Consistency with the National Gas Rules (NGR)	The Infrastructure Renewal project complies with the new capital expenditure criteria in rule 79 of the National Gas Rules because: • it is such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services (Rule 79(1)(a)); and • it is justified under 79(2)(c) as it is required to: o maintain and improve the safety of services (rule 79(2)(c)(i)) - making this investment reduces the risk of failure of the critical systems or the risk of security breaches, which could adversely affect the safety of services; o maintain the integrity of services (rule 79(2)(c)(ii)) - the project reduces the risk the integrity of the pipeline services will be adversely affected by a failure of either of these critical pieces of infrastructure; and o comply with a regulatory obligation or requirement (rule 79(2)(c)(iii)) - the project mitigates the risk of a breach of regulatory obligations if the systems were not available (e.g. managing nominations, scheduling and billing timeframes).

2. Purpose

In order to maintain the current levels of information technology (IT) services and mitigate risks associated with APA GasNet (Operations) Pty Ltd 's (APA) core business systems, the existing IT infrastructure needs to be periodically upgraded or replaced. To this end, APA has an ongoing IT infrastructure upgrade program incorporated an overall IT plan, designed to maintain the security and integrity of the IT environment and to keep technology risks at an acceptable level.

3. Background

The following pieces of APA infrastructure are approaching the end of their useful life and are due for renewal in the next (1st January 2018 to 31st December 2022) Access Arrangement (AA) period:

Desktop Infrastructure: The desktop operating platform is seven years old and is typically refreshed on a 3-7 year cycle.

Telephony Infrastructure: The telephony infrastructure is over 5 years old and will be due for replacement during this renewal period. The increasingly scarce availability of spare parts represents a business risk.

4. Objectives of the project

The Infrastructure Renewal project will implement the following upgrades to these pieces of APA infrastructure:

- **Desktop Infrastructure**

  The Next Generation Operating Environment stream will upgrade all systems to the Windows 10 Operating System. This will provide a robust platform that underpins strategic application initiatives. The platform also allows the business to leverage new capabilities including touch screen, modernisation of the corporate desktop and mobility solution offerings. At the completion of this upgrade, the APA's Victorian Transmissions Systems (VTS) will be supported by a robust enterprise desktop platform that aligns to key Enterprise IT systems.

- **Telephony Infrastructure**

  The Unified Communications stream will replace legacy telephony hardware with a solution that integrates telephony, presence, voicemail and conferencing across the enterprise. At the completion of this upgrade, APA's VTS will be supported by a robust enterprise telephony infrastructure that supports key Enterprise IT systems.

5. Benefits from the project

The major benefit from the proposed project is APA will be able to maintain reliable, compliant and efficient business processes and systems and preserve the ongoing integrity of pipeline services. It will also ensure the continued secure and supported[1] operation of desktop and telephony infrastructure and, in doing so, will:

- ensure continuation of IT vendor support, which will require movement to a recent version of the relevant software;
- improve security and integrity of business information which will improve with upgrades with the continued emphasis that vendors place on these solutions;
- improve stability of IT systems over time;
- integrate and enhance communications channels across the business;
- provide APA with continued access to relevant support and spare parts; and
- enable compliance of the latest IT systems with market requirements.

6. Options Considered and Recommendation

Two options were considered:

Option 1. - Reduced scope: Defer infrastructure renewal and do not proceed within the timeframe of the next regulatory window.

However, due to the timeframe of vendor release cycles, and the current age of telephony infrastructure, this is not considered to be a prudent solution as it may expose APA to:

- unacceptable IT security risks;
- a reduction in the ability to deploy future applications;
- a reduction in availability of services;
- a reduction in integrity of services; and
- an inability to comply with regulatory obligations or requirements.

The risks associated with Option 1 are shown in the Appendix A as the 'Risk Untreated' and summarised in Section 8. This option would expose APA to a 'High' risk rating during the next AA period.

[1] Continuation of IT vendor support, which will require movement to a recent version of the relevant software.

Based on this risk assessment, it is imperative that the desktop and telephony infrastructure is upgraded in the next AA period. Therefore, 'Do Nothing' is not a feasible option.

Option 2 - Upgrade desktop and telephony infrastructure per good industry practice.

This is the only option to address the risks associated with the failure to upgrade critical IT infrastructure. Option 2 requires that IT infrastructure is regularly upgraded or replaced in accordance with good industry practice.

The risks associated with Option 2 are shown in Appendix A as 'Risk Treated'. While the consequence of an event happening remains the same as in Option 1, the likelihood of the event happening over the next AA period is reduced due to the ongoing prudent cycle of upgrades. This would reduce the overall risk level to 'Moderate', which is considered to be consistent with good industry practice.

Option 2 mitigates the risks identified with Option 1 and keeps the technology risks at an acceptable level by ensuring the security and integrity of the IT environment via a prudent cycle of infrastructure upgrades.

Implementing Option 2 will also:

- reduce APA's exposure to system and security related vulnerabilities and unplanned outages from the failure of critical infrastructure
- reduce the risk of non-compliance with Retail Market Procedures;
- improve the stability of the IT systems and enable core infrastructure to be supported by IT vendors;
- integrate and enhance communications channels and enable new capabilities to be realised through applications and service offerings.

Specific Benefits

Some of the specific benefits associated with the two infrastructure upgrades are outlined below:

Desktop infrastructure - Modernisation of the desktop, office and mobility platforms will:

- reduced APA's exposure to system and security related vulnerabilities;
- allow new capabilities to be realised including touch screen and stylus for mobility;
- provide a modern platform for leveraging new capabilities; and
- provide for collaboration application and services offerings.

Telephony infrastructure – Upgrading this infrastructure will provide for:

- a modern, supported, resilient communication and collaboration platform;

- an integrated and enhanced communications channels across the business; and
- a capability to leverage future line of business and communication integrations.

Recommendation

The recommendation is to proceed with Option 2: Upgrade desktop and telephony infrastructure on as per good industry practice. This is the only option to address the risks associated with the failure to upgrade critical business IT applications.

7. Project Costs and Delivery Approach

The approach that APA has used to develop this forecast and its proposed approach to carrying out the work is outlined below.

The APA infrastructure environment consists of a number of systems that are tightly integrated. With tightly integrated systems there is a resulting interdependency of associated technologies. Upgrades to applications, infrastructure and associated technologies, are typically not completed in isolation of one another. They instead tend to be run as internal Business & Technology (B&T) projects, which involves the following:

- APA uses an industry standard B&T Project Methodology, which is managed through formal governance. This B&T Methodology divides the projects into key stages – concept, develop, plan, deliver and close. Each stage consists of key tasks and activities to ensure the consistency and standardisation across projects. The project methodology is outlined in Appendix C.

- The methodology includes an Estimation Tool, to ensure project estimates are standard and consistent. This estimation tool has been used to forecast the work and cost estimates for the program of work. This estimation tool utilises historic figures from the current AA period for resource work effort estimates. The work estimates are based on a complexity matrix tool, which uses a series of questions to categorise projects into simple, medium and complex.

- The material and direct labour costs, and applicable planning, design and commissioning charges, are based on historic actual costs of similar projects. Resource Unit Costs (both internal and external) are based on APA's Project Management Office (PMO) research, where actual placement costs have been used based on historical project resources and current resourcing rates (2016).

- When implementing the project, APA will use a formalised Project Methodology and utilise a combination of internal and external resources (through vendors and trusted recruitment agencies) to deliver the program of work to ensure that services are carried out in a prudent and efficient manner. The Project Methodology is outlined in Appendix C and provides a consistent, standard and quality assured project implementation framework. The PMO will provide guidance and governance to the project, ensuring that the work is carried out in a professional manner.

The summary costs over the next AA period and the cost breakdown by cost category are provided below. These costs were estimated from 'bottom-up' using a standard IT cost model and the approach outlined above. These costs have also been reviewed and endorsed by members of the IT Estimates Review Committee.

The detailed cost breakdown by individual project is provided in Appendix B.

1.1.1 Forecast Cost Breakdown

The proposed expenditure for the next AA period is provided below:

Table 1.1: CAPEX/OPEX Split ($000 real 2017 – excluding overheads)

Expenditure Categories	2018	2019	2020	2021	2022	Total
Capex	241	80	80	80	0	482
Opex	0	0	0	0	0	0
Total	241	80	80	80	0	482

Table 1.2: Project Cost Estimate, by Cost Type ($000 real 2014/15 – excluding overheads)

Cost Type	2018	2019	2020	2021	2022	Total
Internal Labour	72	24	24	24	0	145
External Labour	157	52	52	52	0	313
Materials	12	4	4	4	0	24
Total	241	80	80	80	0	482

The proposed expenditure summary per project by cost type is shown in Appendix B

8. Risk Assessment

Not upgrading desktop and telephony infrastructure will prevent APA from maintaining reliable, compliant and efficient business processes and systems and from preserving the ongoing integrity of pipeline services. Vendor support for the secure operation of desktop and telephony infrastructure cannot be assured. In addition, the operating business will lose its agility to respond to new challenges because it will be denied access to the latest desktop and telephony facilities.

As desktop and telephony systems age, it becomes increasingly difficult to quickly implement the remedial action required to resolve a system failure. In a worst-case and increasingly probable scenario, the systems may experience a catastrophic failure and cannot be recovered, resulting in either an upgrade or replacement of that system to restore operations.

The safety, operational, customer, compliance and financial risks summarised below and detailed in Appendix A would be realised and magnified unnecessarily because reactive remedial actions take significant time and cost to implement. Furthermore, APA management and staff would be under major pressure to recover functionality quickly, thereby increasing the risk of error.

The planned upgrades are required to not only correct defects in ageing technology but also to manage the transition to modern improved versions. Revised technology options and support models are provided by vendors who recommend that their technology be upgraded to ensure continued ongoing support and maintenance.

If the Infrastructure Renewal project does not proceed, the risk assessment shows significant consequences in some of the following areas:

Health and Safety: Due to the timeframe of vendor release cycles and the current age of telephony infrastructure, not upgrading it will expose APA to the risk of core infrastructure being vulnerable to security incidents, which would adversely affect the safety and integrity of pipeline services.

Operational: strategic application initiatives will be supported by the ageing workstation and telephony systems; this may expose APA to increasing security risks, particularly if the infrastructure is outside the supported lifecycle. Additionally, efficiencies from new capabilities such as touch screen and modernisation of the corporate desktop will not be realised.

Customers: As described under Health and Safety and Operational consequences above, there is an increased risk of failure in older infrastructure, which could result in unplanned production outages, and slower and inefficient responses to customer requirements.

Reputation: APA's reputation could be damaged in the event of health and safety incidents, unplanned production outages, environmental damage and compromised corporate, staff and customer information and resultant litigation.

Compliance: Catastrophic failure in underlying infrastructure may result in outages of APA's core IT systems which, in turn, may lead to non-compliance of with Retail Market Procedures and other APA's regulatory and customer obligations.

Financial: The Health and Safety and Operational consequences summarised above may result in sizeable additional costs. In addition, without the continuation of vendor support that requires upgrades or replacements to maintain currency of the infrastructure, APA will be forced to find and hire specialists with detailed knowledge of the outdated systems' inner workings.

The summary of the results of the risk assessment is provided in the table below. Refer to the full risk assessment results included as Appendix A to this business case.

Table 1.3: RISK RATING

Risk Area	Untreated Risk Level
Health and Safety	Moderate
Environment	Negligible
Operational	High
Customers	Moderate
Reputation	Moderate
Compliance	Low
Financial	High
Untreated Risk Rating	**High**

9. Consistency with the National Gas Rules

Consistent with the requirements of Rule 79(1)(a) of the National Gas Rules (NGR), APA considers the forecast capex for this project to be:

- ***Prudent*** – the expenditure is necessary in order to maintain the integrity of services and comply with regulatory obligations and requirements. If the business IT infrastructure refresh is not implemented there is a risk of:
  - Core infrastructure no longer supported by IT vendors;
  - Core infrastructure vulnerable to security incidents;
  - Being unable to address strategic imperatives and architectural weaknesses;
  - An increased rate of failure in older critical business IT telephony infrastructure, resulting in unplanned production outages; and
  - Catastrophic failure resulting in non-compliance of Retail Market Procedures

- ***Efficient*** – The Infrastructure Renewal project will enable APA to maintain its operational efficiency and address the high risks of non-compliance with relevant regulations and legislation, potential customer and business interruptions and corresponding adverse financial and reputation impacts.

  Additionally, the manner in which APA intends to carry out the upgrade (i.e. by using a combination of internal and external resources to deliver the program of work and using the PMO to provide guidance and governance to the project) is consistent with good industry practices and can be considered efficient. The expenditure can therefore be considered consistent with the expenditure that a prudent service provider acting efficiently would incur.

  The project will allow APA to maintain its cost effectiveness and operational efficiency and address the high risks of non-compliance with relevant regulations and legislation, potential customer and business interruptions and corresponding adverse financial and reputation impacts.

All IT infrastructure purchases are subject to the APA procurement policy which requires all purchases above $200,000 to be undertaken through a formal competitive tender process.

- ***Consistent with accepted good industry practice*** – The Infrastructure Renewal project will ensure that APA continues to operate in line with good industry practice, in terms of having all critical systems up to date and supported by vendors.

- ***Achieves the lowest sustainable cost of delivering pipeline services*** – The Infrastructure Renewal project is necessary to mitigate the risks associate with operating on older versions of the software and hardware with the resultant performance and cost implications should these pieces of infrastructure fail and is therefore consistent with the objective of achieving the lowest sustainable cost of service delivery.

The capex can therefore be viewed as being consistent with Rule 79(1)(a) of the NGR.

Rule 79(2)(c)

The proposed capex is justified under Rule 79(2)(c) because it is necessary to:

- maintain and improve the safety of services (rule 79(2)(c)(i)) - making this investment reduces the risk of failure of the critical systems or security breaches, which could adversely affect the safety of services;

- maintain the integrity of services (rule 79(2)(c)(ii)) - the project reduces the risk the integrity of the network services will be adversely affected by a failure of either of these critical pieces of infrastructure; and

- comply with a regulatory obligation or requirement (rule 79(2)(c)(iii)) - the project mitigates the risk of a breach of regulatory obligations if the systems were not available (e.g. Retail Market Procedure requirements for processing timeframes).

Appendix A – Risk Assessment

Based on the previously discussed project risks and benefits, risk mitigation is the key driver for the Infrastructure Renewal project. The risk assessments below demonstrate the change in risk profile associated with the two options considered in this business case. As noted in Section 8, if the periodic upgrades to the APA's infrastructure are not implemented, the risk of catastrophic failure increases year-on-year, and is assessed as 'High' during the next AA period.

		Health & Safety	Environment	Operational	Customers	Reputation	Compliance	Financial	Total Option Risk
Risk Untreated Option 1	Likelihood	*Possible*	*Unlikely*	*Possible*	*Possible*	*Possible*	*Possible*	*Possible*	**HIGH**
	Consequence	*Medium*	*Insignificant*	*Significant*	*Medium*	*Medium*	*Minor*	*Significant*	
	Risk Level	*Moderate*	*Negligible*	*High*	*Moderate*	*Moderate*	*Low*	*High*	
Residual Risk Option 2	Likelihood	*Unlikely*	*Unlikely*	*Unlikely*	*Unlikely*	*Unlikely*	*Unlikely*	*Unlikely*	**MODERATE**
	Consequence	*Medium*	*Insignificant*	*Significant*	*Medium*	*Medium*	*Minor*	*Significant*	
	Risk Level	*Moderate*	*Negligible*	*Moderate*	*Moderate*	*Moderate*	*Low*	*Moderate*	

In the event Option 1 – Do Nothing is adopted:

a. staying with existing systems will lock APA into very old technology with limited, if any, vendor support and increasingly scarce spare parts;

b. the operating business will lose its agility to respond to new challenges because it will be denied access to the latest desktop and telephony facilities such as touch screen and stylus for mobility, collaboration application and services offerings and the capability to leverage future line of business and communication integrations;

c. associated strategic imperatives and architectural weaknesses identified in the IT Plan will not be addressed; and

d. vendor improvements to security and integrity of business information and communications will not be implemented,

resulting in a broad spectrum of risk consequences as described below.

Health and Safety: Due to the timeframe of vendor release cycles and the current age of telephony infrastructure, not upgrading will expose APA to the risk of core infrastructure being vulnerable to security incidents, which would adversely affect the safety and integrity of APA services.

Operational: Note that the following operational consequences will also result in significant financial consequences.

a. strategic application initiatives will not be supported by the ageing workstation and telephony systems;

b. the systems may be unable to support business strategic objectives, particularly with national alignment and the delivery of initiatives to improve cost effectiveness;

c. IT systems may be exposed to increasing security risks if the infrastructure is outside the supported lifecycle;

d. failure to realise efficiencies arising from:

   - new capabilities including touch screen, modernisation of the corporate desktop and mobility solution offerings;
   - a desktop platform aligned to key Enterprise IT systems;
   - a solution that integrates telephony, presence, voicemail and conferencing across the enterprise;
   - improved stability of IT environment over time; and
   - integrated and enhanced communications channels across the business;

e. failure in older infrastructure may occur, resulting in unplanned production outages;

f. failure to introduce new functionality in a timely manner; and

g. no improvement to performance, efficiency and stability of desktop and telephony systems over time.

Customers: As described under Health and Safety and Operational consequences above, there is an increased risk of failure in older infrastructure, which could result in unplanned production outages, and slower and inefficient responses to customer calls.

Reputation: APA's reputation could be damaged significantly in the event of health and safety incidents, unplanned production outages and compromised corporate, staff and customer information and resultant litigation.

Compliance: A catastrophic failure in underlying infrastructure may result in outages of APA's core IT systems which, in turn, may lead to non-compliance of with regulatory and customer obligations.

Financial: Each of the Health and Safety and Operational consequences above will result in significant costs. In addition:

a. workstation and telephony applications may no longer be supported by IT vendors;

b. targets for efficient IT development and minimisation of support costs may not be achieved; and

c. without the continuation of vendor support that requires movement to a recent version of the workstation and telephony systems, APA will be forced to find and hire specialists with detailed knowledge of the outdated systems' inner workings.

Appendix B – Project Cost Breakdown

Next Generation Desktop

Cost Type	2018	2019	2020	2021	2022	Total
Internal Labour	24	0	24	0	0	48
External Labour	52	0	52	0	0	104
Materials	4	0	4	0	0	8
Total	80	0	80	0	0	161

Unified Communications

Cost Type	2018	2019	2020	2021	2022	Total
Internal Labour	48	24	24	0	0	96
External Labour	104	52	52	0	0	209
Materials	8	4	4	0	0	16
Total	161	80	80	0	0	321

Appendix C – Methodology

APA Project Methodology

To manage all its IT projects, APA utilises an industry standard Business and Technology (B&T) Project Methodology, which is managed through formal governance. The key aspects of this methodology are outlined in the diagram below.