Business Case – Capital Expenditure

Hazardous Area Rectification

Business Case Number BC249 AA23-27

1 Project Approvals

TABLE 1: BUSINESS CASE – PROJECT APPROVALS

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Approved By	Daniel Tucci	Victorian Asset Manager, Asset Management

2 Project Overview

TABLE 2: BUSINESS CASE – PROJECT OVERVIEW

Description of Issue/Project	APA has responsibility to ensure all the electrical equipment installed in APA hazardous areas is in safe working condition and meets the legal requirement and that compliance is being met or maintained with all relevant Standards. To meet the requirement of AS/NZS 60079, an Hazardous Area Verification Dossier HAVD is a fundamental requirement which details the compliance and safety of the electrical equipment installed within hazardous area at all APA sites. The majority the APA VTS sites now have an HAVD that complies with the preliminary requirements of AS/NZS 60079. Audit and inspections of APA VTS sites has been completed and equipment not installed/conforming to the Australian Standards, and therefore requiring rectification, have been identified. Rectification of these non-conformances will reduce the identified risks to APA personnel and the business as it is a statutory requirement that the sites should be compliant to the mentioned standard.
Options Considered	The following options have been considered: Option 1: Do Nothing Option Option 2: Complete the identified rectification of electrical equipment not conforming to the requirements of the Australian Standards.
Estimated Cost	$890,000
Consistency with the National Gas Rules (NGR)	The rectification of these assets complies with the new capital expenditure criteria in Rule 79 of the NGR because: • it is necessary to maintain and improve the safety of services and maintain the integrity of services (Rules 79(2)(c)(i) and (ii)); and • 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)).
Key Stakeholders	Stakeholders affected by this project is Energy Safe Victoria

3 Background and Project Need

The APA Victorian Transmission System consists of pipelines and associated facilities which are maintained and operated in compliance with the AS2885 and other relevant Standards. They were constructed and commissioned in accordance with the codes of the day, where they existed.

Over the years these codes have been updated and modified and in some cases new Australian codes have been written. These improvements to the Standards provide a safer and more reliable system and may require equipment upgrades.

All electrical equipment installed in hazardous area must be recorded in Hazardous Area Verification Dossier (HAVD) and meet the latest requirements. It is a regulatory requirement of Australia/New Zealand Standard AS/NZS 60079 to inspect and demonstrate the continued compliance and safety of electrical installation within hazardous areas.

Identification of need

In Victoria, Regulation 401 of the *Electricity Safety (Installations) Regulations 2009*, in part states that:

> *"A person must not install, alter, repair or maintain an electrical installation or a portion of an electrical installation unless the installation or the installed, altered, repaired or maintained portion of the installation complies with ….- Part 2 of the Australian/New Zealand Wiring Rules."*

Compliance with all the provisions of the Australian/New Zealand Wiring Rules AS/NZS 3000:2007 is required to satisfy the intent of the above Regulation. Clauses 7.7.2.4.1 and 7.7.2.4.2 of these Rules state that:

> *"Electrical equipment selected for use in hazardous areas shall comply with the appropriate requirements as specified in AS/NZS 60079.14."*
> *"Electrical equipment shall be installed in accordance with the installation requirements of AS/NZS 60079.14."*

AS/NZS 60079.17:2009 Clause 4.3.1 states that:

> *"To ensure that the installations are maintained in a satisfactory condition for continued use within a hazardous area, either*
> *a) regular periodic inspection, or*
> *b) continuous supervision by skilled personnel, and, where necessary, maintenance shall be carried out."*

AS/NZS 60079.17:2009 Clause 4.4.2 states that:

> *"The interval between periodic inspections shall not exceed four years without conducting and documenting a risk assessment based on the equipment type, location and service."*

APA has responsibility to ensure all the electrical equipment installed in APA hazardous areas is in safe working condition and meets the legal requirement and that compliance is being met or maintained with all relevant Standards.

To meet the requirement of AS/NZS 60079, an HAVD is a fundamental requirement which details the compliance and safety of the electrical equipment installed within hazardous area at all APA sites. The majority the APA VTS sites now have an HAVD that complies with the preliminary requirements of AS/NZS 60079.

APA maintains the Victorian pipelines in accordance with a safety case approved by Energy Safe Victoria. The *Gas Safety Act 1997* section 44 requires that "A gas company must comply with the accepted safety case for a facility in relation to the management and operation of the facility." APA Hazardous Area Dossier preparation, Hazardous Area Inspection and Hazardous Area Rectification activities are performed in accordance with the approved safety case and referenced documents HAZ 691, HAZ692, HAZ693 and HAZ 694.

A hazardous area inspection has been carried out to record all the equipment information and identify the extent of non-conformance to the HAVD. The inspections have identified necessary rectification works for non-conforming equipment.

4 Risk Assessment

The primary risk is for severe personnel injury due to inappropriate equipment operating in hazardous areas causing ignition of gas during maintenance activities, killing or severely burning staff on site. A regulatory investigation would be held.

TABLE 3: RISK RATING

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

5 Options Considered

Only two options were considered for the work required to complete the inspection and identified rectification of electrical equipment in hazardous areas at APA VTS sites.

Option 1 – Do Nothing

Whilst the initial activities of building the HAVD and carrying out the inspections of existing equipment have been completed, not addressing the rectification requirements will still result in an incomplete and non-conforming HAVD. This option is not considered an acceptable solution.

Assessment

Not completing the identified rectification activities identified during the previous inspection activities does not reduce any of the originally identified risks. Those risks are

- Non-compliance with Victorian Electricity Regulations
- Intermediate safety and business risks
- Out-of-date information and does not comply with the Standard AS/NZS 60079
- Does not meet best industry practice
- Risk of injury or fatalities to staff during maintenance work

Option 2 – Build an electronic HAVD and Rectify Defects

- Option 2 involves:Complete the identified defect rectification as identified in the Hazardous Area inspections and record the maintenance in the HAVD
- Complete the building of the HAVD for each site and complete all rectification activities to ensure conformance with the relevant standards.

Assessment

This option provides the outcomes required to meet the requirements detailed in the Background.

5.1 Summary

TABLE 4: SUMMARY

Option	Benefits (Risk Reduction)	Costs
Option 1	Do Nothing	
Option 2	Complete the identified rectification works (preferred)	$890,000

5.1.1 What is the Proposed Solution?

The preferred option 2 is to proceed with and complete the rectification of the non-conformities identified during the inspection regime.

5.1.2 Why are we proposing this solution?

The work is necessary to ensure that APA fully meets the requirements for the Hazardous Area requirements of the Electrical Safety Regulations.

5.1.3 Consistency with the National Gas Rules

Consistent with the requirements of Rule 79 of the National Gas Rules, APA considers that the capital expenditure is:

- Prudent – The expenditure is necessary in order to maintain the safety of existing equipment and for our personnel and is of a nature that a prudent organisation would incur. The project aligns with relevant standards.
- Efficient – The field work will be carried out by a suitably qualified external contractor. The expenditure will be undertaken consistent with the APAP procurement policy. The expenditure can therefore be considered consistent with the expenditure that a prudent organisation acting efficiently would incur
- Consistent with accepted and good industry practice – Addressing the risks associated with the identified non-conformance of existing electrical equipment is accepted as good industry practice. In addition the reduction of risk to as low as reasonably practicable in a manner that balances cost and risk is consistent with Australian Standard AS2885 and the appropriate Electrical Regulations..
- To achieve the lowest sustainable cost of delivering pipeline services – The sustainable delivery of services includes reducing risks to as low as reasonably practicable and maintaining reliability of supply.

5.1.4 Forecast Cost Breakdown

Over the last Access Arrangement period the audit and inspection of all VTS sites has been completed and a scope of required rectification works determined. Some rectification works have been completed during the later part of the last period with this work being undertaken by an approved external contractor.

Field equipment rectification would continue as additional work scopes are developed and necessary specialist hazardous area materials are procured. It is anticipated that this rectification work will continue for the duration of this Access Arrangement period.

Once rectification works have been completed the relevant HAVD will be updated with the latest details.

The below cost estimate is based on this recent experience and is a reliable measure of future expenditure.

TABLE 5: PROJECT COST ESTIMATE,

	Total
Internal Labour	$100,000
Materials	$340,000
Contracted Labour	$450,000
Other Costs	$0
Total	**$890,000**

6 Acronyms

Acronym	Definition/Description
AEMO	Australian Energy Market Operator
AGA	Australian gas association – Type B compliance governing body
API	American Petroleum Institute – publisher of standards
CHAZOP	Control system HAZOP – study of the control system functions to identify logic vulnerabilities
ESD	Emergency shutdown – control system-initiated shutdown designed to prevent incident escalation if operating parameters are breached
ESV	Energy Safe Victoria
HAZOP	Hazard and operability study
HMI	Human machine interface
ILI	Inline inspection – pipeline internal inspection
OEM	Original Equipment Manufacturer

RA	Risk Assessment
RBI	Risk Based Inspection – a process used to prioritise maintenance or inspection activities based on risk of failure.
SIL	Safety Integrity Level – an assessment used to rank control systems by their ability to fail safely
SMS	Safety Management Study
VTS	Victorian Transmission System