Business Case – Capital Expenditure

Iona CS Automation

Business Case Number 236

1 Project Approvals

TABLE 1: BUSINESS CASE – PROJECT APPROVALS

Prepared By	Anthony Jones, *Pipeline and Asset Management Engineer, APA Group*
Reviewed By	*Brian Reynolds, Senior Electrical and Instrumentation Engineer, APA Group*
Approved By	Craig Bonar, *Manager East Coast Grid Engineering, APA Group*

2 Project Overview

TABLE 2: BUSINESS CASE – PROJECT OVERVIEW

Description of Issue/Project	A brief summary of the Iona Compressor Station control system project: • Control system is physically located inside the compressor housing and is not hazardous area compliant • The control system is no longer supported by the manufacturer and spare parts are not able to be obtained • The control system has reached end of life • Failure of the Iona CS prevents optimum operation of the SW pipeline for gas withdrawals at Western Underground Storage
Options Considered	The following options have been considered: 1. Option 1: Do Nothing Option 2. Option 2: No alternative identified 3. Option 3: Replace the control system
Estimated Cost	$1,173,412
Consistency with the National Gas Rules (NGR)	The replacement 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)).
Stakeholder Engagement	Stakeholders related to this project are • Australian Energy Market Operator • Energy Safe Victoria

3 Background

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.

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.

The existing control system is no longer supported by the original equipment manufacturer for spare parts. This has resulted in the equipment becoming obsolete and will reduce the availability of the station should there be a hardware failure.

4 Risk Assessment

The two dominant risks associated with the existing equipment is recovery from failure and explosion from a gas leak in the compressor housing.

TABLE 3: RISK RATING

Risk Area	Risk Level
Health and Safety	**Medium**
Environment	**Low**
Operational	**Medium**

Customers	**Medium**
Reputation	**Medium**
Compliance	**Medium**
Financial	**Medium**
Final Untreated Risk Rating	**Medium**

5 Options Considered

5.1 Option 1 – Do Nothing

The Do Nothing option is to allow the obsolescence of the equipment to remain and replace on failure. The other risk is to rely on the gas detection system to initiate a shutdown of the equipment in order to prevent a possible explosion.

5.1.1 Cost/Benefit Analysis

- The benefit of this option is the delayed capital expenditure.
- The costs of this option are the loss of availability for at least six months should a major failure of hardware occur.
- The cost of an explosion is total loss of equipment.

5.2 Summary of Cost/Benefit Analysis

The section should include a general overview of how the options compare and identify any options are not technically feasible.

TABLE 4: SUMMARY OF COST/BENEFIT ANALYSIS

Option	Benefits (Risk Reduction)	Costs
Option 1	Do Nothing	Unquantifiable
Option 2	No alternative identified	
Option 3	Replace the Control System	$1,173,412

5.3 Proposed Solution – Replace the Control System

5.3.1 What is the Proposed Solution?

The proposed solution is to install a new control system outside of the compressor enclosure. The new control system will be very similar to other recently installed systems at APA. The design of the new APA control systems is mature with high reliability and maintainability.

5.3.2 Why are we proposing this solution?

The benefits of this project are:

- The equipment is located outside of the hazardous area, negating the need to purchase expensive compliant equipment and perform routine inspections

- The availability and reliability of the station will be improved as the new control system will be fully supported
- The ability to respond to failures will be enhanced as the control system will likely to be very similar to other recently upgraded control systems at APA

5.3.3 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 and improve the safety of services and maintain the integrity of services to customers and personnel and is of a nature that a prudent service provider would incur.
- Efficient – The field work will be carried out by the external contractor that has been used to date, who has demonstrated specific expertise in completing the installation of control systems in a safe and cost effective manner. The design is mature with minimal development required. The expenditure can therefore be considered consistent with the expenditure that a prudent service provider acting efficiently would incur. The expenditure will be undertaken consistent with the APA procurement policy.
- Consistent with accepted and good industry practice – Addressing the risks associated hazardous areas that are not compliant and replacing assets that have reached the end of their technical life 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.
- 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.

5.3.4 Forecast Cost Breakdown

The key assumptions with the cost estimate are they are based on the estimate from the previous access arrangement period.

TABLE 5: PROJECT COST ESTIMATE,

	Total
Internal Labour	$277,678
Materials	$631,600
Contracted Labour	$264,134
Other Costs	$0
Total	**$1,173,412**