

Business Case – Capital Expenditure

Fire Suppression

Business Case Number 237

1 Project Approvals

TABLE 1: BUSINESS CASE – PROJECT APPROVALS

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2 Project Overview

TABLE 2: BUSINESS CASE – PROJECT OVERVIEW

Description of Issue/Project	The installation of fire suppression to protect critical assets. Fire suppression reduces the consequences of an unintended fire that could lead to prolonged equipment shutdown and significant cost of replacement.
Options Considered	The following options have been considered: <ol style="list-style-type: none"> Option 1: Do Nothing Option Option 2: No alternate identified Option 3: Installation of fire suppression systems
Estimated Cost	\$1,081,347 (escalated)
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: <ul style="list-style-type: none"> 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	The stakeholders most affected by this project are: <ul style="list-style-type: none"> Australian Energy Market Operator Metropolitan and Country Fire Authorities

3 Background

APA utilises Solar gas turbine engines in compressor packages located at numerous sites on the VTS. These are:

- Gooding CS four Centaur T4002 engines,
- Brooklyn CS one Centaur T4702 engine, two Centaur T4002 engines and two Centaur Saturn T1202,
- Wollert CS two Centaur T6102S engines, two Saturn T1302 engines, one T1202 engine,
- Springhurst one Centaur T6102
- Euroa using a Centaur 50
- Iona CS reciprocating compressors driven by gas engines
- Winchelsea using one Taurus 60

FIRE SUPPRESSION

The following stations do not have fire suppression for the turbine units:

- Gooding
- Iona
- Wollert Station A

The following stations do not have fire suppression for the control rooms:

- Gooding
- Brooklyn

Oil fires are a serious risk in these packages due to the high temperature and pressure and use of oil hoses in this generation of equipment. The gas transmission industry and APA have experienced oil fires of varying sizes (two small fires at Brooklyn CS having been mitigated in the past due to early detection and intervention of site personnel). All of the stations are designed to be unmanned and thus personnel intervention is not a safety control for fire prevention or suppression.

The gas compressor packages at Gooding compressor station are housed in a common gas compressor building which is acoustically treated. No fire separation barriers exist between the units, and although gas fires may be detected and the station isolated with gas removed from the building within 30 minutes.

The control rooms are susceptible to fire as the buildings and contents are combustible with many possible sources of fire.

4 Risk Assessment

The primary risk to lack of fire suppression is the increase in consequence from a fire. Whilst all sites have fire detection equipment, there is no means of preventing the fire from spreading to other equipment or increasing the heat effects.

The loss of a control room will render the station offline until new control equipment and installation can take place, this will usually take one year.

The loss of a compressor unit will render that unit offline for at least one year. Both scenarios will lead to a loss of capacity for a significant period of time at great cost to APA and the market.

TABLE 3: RISK RATING

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

5 Options Considered

5.1 Option 1 – Do Nothing

FIRE SUPPRESSION

The 'Do Nothing' option is not considered a viable alternative, due to the severity of the untreated risks including catastrophic failure. Under these circumstances the potential for escalation of fire events is significant which materially affects pipeline capacity. Reduced pipeline capacity due to loss of compression and has the potential to lead to multiple incidents of customer curtailment in periods of high demand.

5.1.1 Cost/Benefit Analysis

- The costs of installing and maintaining APA's preferred fire suppression system are small in comparison to the costs of rectifying the loss.
- APA installs fire suppression in all new compressor station and city gate control rooms. A control room loss for a city gate will render the city gate unable to control pressure or meet market demands for system flow.

5.2 Summary of Cost/Benefit Analysis

TABLE 4: SUMMARY OF COST/BENEFIT ANALYSIS

Option	Benefits (Risk Reduction)	Costs
Option 1	Do Nothing	Substantial to rectify loss from fire
Option 2	No alternative identified	
Option 3	Install Fire Suppression	\$1,081,347

5.3 Proposed Solution – Installation of Fire Suppression

5.3.1 Installation of Fire Suppression Systems

The proposed solution is to install fire suppression systems on all remaining compressor station units and control rooms as necessary to mitigate the risk of fire and loss of plant.

APA's insurer, FM Global have performed assessments of APA's facilities and have noted there is a risk that needs to be mitigated.

5.3.2 Why are we proposing this solution?

Hose failure and fires in the VTS are unusual events. However, APA has experienced hose failure on a package at Springhurst (Centaur T6102), oil fires on two occasions at Brooklyn CS (Saturn T1202s) and an oil leak and fire at Young CS (Centaur T6102).

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 and is of a nature that a prudent service provider would incur.
- Efficient – The field work will be carried out by an external suitably qualified contractor, who has demonstrated specific expertise in completing the installation of the facilities in a safe and cost effective manner. The expenditure can therefore be considered consistent with the expenditure that a prudent service provider acting efficiently would incur

FIRE SUPPRESSION

- Consistent with accepted and good industry practice – Addressing the risks associated fire around turbomachinery and sensitive process control systems are accepted as good industry practice. In addition, the reduction of risk in this manner 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. The AER has approved expenditure for fire suppression systems within APA in the past.

5.3.4 Forecast Cost Breakdown

The most recent fire suppression installation was for the Dandenong City Gate for the control hut. The forecast escalated costs below are multiplied for proportionality for each project:

- Gooding CS Control Room and Unit Enclosure: \$283k
- Iona CS Control Room and Unit Enclosure: \$306k
- Brooklyn CS MCC room and Stage 2 Control room \$298k
- Lara CG Control Hut: \$96k

The costs assume that all of the work will be delivered as a single package and synergies will be gained from this approach.