

Business Case – Capital Expenditure

HMI Upgrade to ClearSCADA at BCS, BCG, SCS, WCS, WCG, ECS and Longford

Business Case Number 264

1 Project Approvals

TABLE 1: BUSINESS CASE – PROJECT APPROVALS

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

2 Project Overview

TABLE 2: BUSINESS CASE – PROJECT OVERVIEW

Description of Issue/Project	<p>The project can be briefly described as:</p> <ul style="list-style-type: none"> Human Machine Interface (HMI) software on existing sites is not compatible with APA standard, the software is installed in standard computers and due for replacement. Maintenance technicians and engineers, used for diagnostics and plant re-instatement after shutdown. Failure of HMI computer results in inability to fault find or re-instate the plant after shutdown, resulting on extended duration of the outage. A successful solution will provide standardized HMI equipment and increased reliability of the HMI.
Options Considered	<p>The following options have been considered:</p> <ol style="list-style-type: none"> Option 1: Do Nothing Option Option 2: Upgrade to Local HMI's to ClearSCADA by schedule Option 3: Upgrade all sites Local HMI's to ClearSCADA
Estimated Cost	\$304,640
Consistency with the National Gas Rules (NGR)	<p>The replacement of these assets complies with the new capital expenditure criteria in Rule 79 of the NGR because:</p> <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	<p>The following are affected stakeholders for delivery of the project:</p> <ul style="list-style-type: none"> AEMO Transmission Operations Personnel

3 Background

The existing HMI system at Brooklyn Compressors Station (BCS), Brooklyn City Gate (BCG), Springhurst Compressor Station (SCS), Wollert Compressor Station (WCS), Wollert City Gate (WCG), Euroa Compressor

Station (ECS) and Longford at APA Group is currently used to monitor, maintain assets, re-instate plant after shutdowns and at times operate the Victorian Transmission System. This system is critical to being able to monitor the performance of assets and to undertake an initial diagnostics of asset faults.

This business case is proposing to replace the existing HMI software and PC hardware at Brooklyn Compressors Station (BCS), Brooklyn City Gate (BCG), Springhurst Compressor Station (SCS), Wollert Compressor Station (WCS), Wollert City Gate (WCG) and Longford Meter Station (LMS) to align with the national business strategy to have a common SCADA platform across the APA business and to improve the reliability of the HMI by installation of more robust PC hardware to run the HMI software.

Primarily the reason for this capex is to replace the end of life equipment that is the HMI. The software is run in standard PC hardware which is subject to the lifespan and failure rates of standard desktop PCs. The existing APA HMI systems at these sites utilises 'iFix' software and requires an ongoing knowledge base to maintain the software and make upgrades as required. Aligning the new HMI systems to ClearSCADA removes the need for 'iFix' software.

The requirement of ClearSCADA is detailed below:

The National SCADA Blueprint released in November 2009, recommended the following:

- Eventual migration of all SCADA and HMI systems to ClearSCADA. Establish a national scalable ClearSCADA licence and maintenance agreement for existing and future APA Group requirements.

4 Risk Assessment

The risks of retaining the current HMI systems are:

- Increased operational risk associated with the support of different platforms and conventions.
- Increased risk of outage due to requirement for more frequent upgrades of PC hardware.
- Reduced maintainability due to a reduction in available system expertise.
- Reduced monitoring and data available to National SCADA system due to inability to interface to site HMIs.

These risks are reduced by:

- Using a standard proven system platform (hardware, software and network architecture) within APA, allowing seamless interface between site HMIs and national SCADA platform.
- Installing the HMI software in more robust PC server hardware, also allowing easier remote support to the local technicians when required.

TABLE 3: RISK RATING

Risk Area	Risk Level
Health and Safety	Low
Environment	Low
Operational	Moderate
Customers	Low
Reputation	Moderate

Compliance	Negligible
Financial	Low
Final Untreated Risk Rating	Moderate

5 Options Considered

5.1 Option 1 – Do Nothing

Continue using the existing iFix HMI system and maintain the necessary in house expertise to support the systems. This is not considered an acceptable solution as APA's national standard is ClearSCADA and by upgrading these sites will ensure a standard approach across all sites.

5.1.1 Cost/Benefit Analysis

The costs involved with this option is utilising a known system and not going through changes. Considering the national standard is ClearSCADA across all sites at APA, it is important to change the SCADA system to the national standards.

5.2 Option 2 – Upgrade to ClearSCADA by schedule

This option permits a scheduled approach by upgrading the system at critical sites first. By doing one site a time will ensure that the project is executed more efficiently and can take forward its lessons learnt to the remaining consecutive sites.

5.2.1 Cost/Benefit Analysis

The costs involved with this option are that the expenditure can be programmed and treated as ongoing work. As sites are upgraded the risk is limited to those that are still waiting ClearSCADA upgrade. This will ensure a more efficient solution.

5.3 Option 3 – Upgrade all sites to ClearSCADA

This option permits a full upgrade of all sites to ClearSCADA at once.

5.3.1 Cost/Benefit Analysis

The costs involved with this option are that the expenditure will be similar to option 2. As sites are upgraded all at once the benefit would be that all sites can be transitioned to new ClearSCADA system at once with efficient use of the project team.

5.4 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	\$ 0
Option 2	Upgrade to ClearSCADA by Schedule	\$ 304,640
Option 3	Upgrade all sites to ClearSCADA	\$ 304,640

5.5 Proposed Solution - Upgrade to ClearSCADA by schedule

The scope of the projects will be to upgrade to ClearSCADA by schedule. The upgrade will be done by identifying the critical sites and completing them first. The benefits of this solution includes:

- Identification of critical site SCADA systems
- Good balance between capital expenditure and risk
- Efficient solution to complete one site at a time to bring forward lessons learnt to consecutive site upgrades.

5.5.1 Consistency with the National Gas Rules

- Prudent – The expenditure is necessary in order to improve the reliability of operation and is of a nature that a prudent service provider would incur.
- Efficient – The new ClearSCADA systems will be the standard throughout APA, and more effective monitoring can be achieved.
- Consistent with accepted and 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 Standards and the Occupational Health and Safety Act
- 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 the ability to recover from a supply fault

5.5.2 Forecast Cost Breakdown

TABLE 5: PROJECT COST ESTIMATE,

	Total
Internal Labour	\$ 87,040
Materials	\$ 108,000
Contracted Labour	\$109,600
Other Costs	\$ 0
Total	\$ 304,640