

Business Case – Capital Expenditure

Culcairn Gas Quality Monitoring

Business Case Number 224

1 Project Approvals

TABLE 1: BUSINESS CASE – PROJECT APPROVALS

Prepared By	Anthony Jones, <i>Pipeline and Asset Management Engineer, APA Group</i>
Reviewed By	Andrew Adams, <i>Manager Measurement, 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>A brief summary of the project:</p> <ul style="list-style-type: none"> • Problem of no gas quality monitoring equipment beyond a chromatograph at the Culcairn injection point into the Declared Transmission System as required under the NGR rule 288. • Affects: Inability for AEMO to ensure the quality of the gas entering the DTS complies with the gas quality Standards as set out in the AEMO procedures, enforced by law. • Impact: gas that does not meet the AEMO gas quality standards may enter the DTS without detection, it may be damaging to the DTS assets or pose a public risk if it reaches consumers. • Successful solution will: Install a suitable gas quality monitoring system (GQMS) in line with the requirements of the NGR, rule 288.
Options Considered	<p>The following options have been considered:</p> <ol style="list-style-type: none"> 1. Option 1: Do Nothing Option 2. Option 2: provide gas quality information from other sources eg: Moomba 3. Option 3: Culcairn to become a bi-directional station exporting gas from Victoria only. 4. Option 4: Install a GQMS compliant with the requirements of NGR rule 288
Estimated Cost	\$973,960
Consistency with the National Gas Rules (NGR)	<p>The capital expenditure 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, maintain the integrity of services and to comply with a regulatory obligation or requirement (Rules 79(2)(c)(i),(ii),(iii));
Stakeholder Engagement	<p>The following stakeholders are affected by this project:</p> <ul style="list-style-type: none"> • The stakeholders for this project are AEMO and the local field services team looking after the Culcairn facility. • AEMO engagement will include the review and approval of a gas quality monitoring plan, and approval of the gas quality monitoring system. • Field services engagement will include all O&M requirements in the operation of the GQMS

3 Background

The Culcairn interconnect is a bi-directional station connecting the Declared Transmission System (DTS) in Victoria to the Moomba Sydney pipeline via the Young – Wagga Wagga lateral pipeline. The Station has metering, pressure regulation and compression which can be configured to move gas north out of Victoria into New South Wales (NSW) or south out of NSW into Victoria. At present there is a gas chromatograph associated with the station metering to determine energy content of the gas moving through the station, however there is no other gas quality monitoring equipment at this station.

Under the National Gas Rules, Rule 288, all injection points into the Victorian DTS must have an approved Gas Quality Monitoring System and Gas Quality Monitoring Plan.

Inability for Australian Energy Market Operator (AEMO) to ensure the quality of the gas entering the DTS complies with the gas quality Standards as set out in the AEMO procedures, enforced by law. AEMO are required to ensure the quality of gas entering the DTS is safe for conveying in the pipelines and safe for consumers to use.

The issue has always existed since the connection of the VTS to NSW, however an early connection agreement between Eastern Australia Pipelines Limited (EAPL) and VenCorp (formerly AEMO) waved the requirement based on an assessment of the need at the time.

The connection agreement lapsed a number of years ago. AEMO has changed their view on the requirement to have the system to maintain compliance with the NGR and are insistent this should take place.

Gas that does not meet the AEMO gas quality standards may enter the DTS without detection, it may be damaging to the DTS assets or pose a risk to consumers.

4 Risk Assessment

There is a threat to safe operation if the supplied gas is not safe for public use, the upstream suppliers' quality monitoring system will alert AEMO with sufficient time to take reasonable steps to ensure public safety. It is also inconsistent with with the National Gas Rules.

TABLE 3: RISK RATING

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

5 Options Considered

5.1 Option 1 – Do Nothing

The do nothing option would see the continuation of gas entering the DTS during southern flows without assurance the quality meets the NGR and would be non-compliant with AEMO direction for gas to entering the DTS. AEMO may direct APA to cease injections from NSW.

AEMO have requested a Culcairn gas quality monitoring plan by letter 18th April 2016.

5.1.1 Cost/Benefit Analysis

Not installing the Gas Quality Monitoring System is not compliant with the NGR and associated Regulations, it will also mean there is a risk of curtailment on non-compliance grounds. It also risks potential damage to the DTS assets due to gas not meeting specification as defined in Australian Standards.

The benefits of doing nothing are not spending the money on delivering the project, less ongoing maintenance and operational costs.

5.2 Option 2 – Install Gas Quality Monitoring System

Install NGR compliant gas quality monitoring system at the Culcairn delivery station.

The option would install a new instrument shelter with 4 new analysers associated calibration and consumable gasses, connection to the site SCADA and provision of gas quality information to the IOC, Dandenong CR and AEMO CR.

AEMO support and in fact request the provision of the GQMS and GQMP for the Culcairn interconnect.

5.2.1 Cost/Benefit Analysis

Installing the Gas Quality Monitoring System will ensure compliance with the NGR and associated Regulations, it will ensure the risk of curtailment on non-compliance grounds is averted. It will also ensure the DTS assets are protected from potential damage due to off specification gas.

The benefit will be realised with the approval of the GQMP and GQMS by AEMO as being adequate to permit the continued injection of gas from the MSP system to the DTS.

Costs for this project are well understood as APA has installed a GQMS on the TGP to DTS connection during 2016; the Culcairn GQMS would be almost identical.

Risks to the cost would largely be dependent on the foreign exchange rate, as the analysers are sourced from overseas locations either in Europe or North America.

5.3 Option 3 – Hybrid, install part of GQMS and seek exceptions for some items

- The option would include the installation of some of the GQMS and seeking exemptions from other requirements.

5.3.1 Cost/Benefit Analysis

- This option would run risk of future direction to install all required analysis, and would not save much in terms of cost of project delivery.
- Small cost saving on procurement of some analysers, associated savings on ongoing maintenance and operational costs. Loss of efficiencies from undertaking all expenditure as part of a single project.

5.4 Summary of Cost/Benefit Analysis

TABLE 4: SUMMARY OF COST/BENEFIT ANALYSIS

Option	Benefits (Risk Reduction)	Costs
Option 1	Do Nothing	
Option 2	Install Gas Quality Monitoring System	\$973,960

Option 3	Hybrid, install part of GQMS and seek exceptions for some items	\$900-950,000
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5.5 Proposed Solution – Install Gas Quality Monitoring System

5.5.1 What is the Proposed Solution?

Install NGR compliant gas quality monitoring system at the Culcairn delivery station.

The option would install a new instrument shelter with 4 new analysers associated calibration and consumable gases, connection to the site SCADA and provision of gas quality information to the IOC, Dandenong CR and AEMO CR.

APA have a standard suite of instruments generally used to comply with the NGR and this is what is proposed.

AEMO support and in fact request the provision of the GQMS and GQMP for the Culcairn interconnect

5.5.2 Why are we proposing this solution?

Installing the Gas Quality Monitoring System will ensure compliance with the NGR and associated Regulations, it will ensure the risk of curtailment on non-compliance grounds is averted. It will also ensure the DTS assets are protected from potential damage due to off spec gas.

The benefit will be realised with the approval of the GQMP and GQMS by AEMO as being adequate to permit the continued injection of gas from the MSP system to the DTS.

5.5.3 What are the costs/risks involved with this option?

Costs for this project are well understood as APA has installed a GQMS on the TGP to DTS connection during 2016; the Culcairn GQMS would be almost identical.

Risks to the cost would largely be dependent on the foreign exchange rate, as the analysers are sourced from overseas locations either in Europe or North America

5.5.4 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 a suitably qualified external contractor. The expenditure will be undertaken consistent with the APA procurement policy. The expenditure can therefore be considered consistent with the expenditure that a prudent service provider acting efficiently would incur
- Consistent with accepted and good industry practice – Addressing the risks associated gas quality monitoring 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.

5.5.5 Forecast Cost Breakdown

The costs below were derived from the recent project connecting the VTS to the Tasmanian Gas Pipeline which required the gas quality monitoring system described above. The costs are an accurate reflection of future costs for this project.

TABLE 5: PROJECT COST ESTIMATE,

	Total
Internal Labour	\$278,274
Materials	\$650,288
Contracted Labour	\$45,398
Other Costs	
Total	\$973,960



10 October 2016

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Dear Andrew,

Request for an update of Gas Quality Monitoring Plans

Under rule 288(1) of the National Gas Rules (Rules), a gas quality monitoring system must be provided at each system injection point into the declared transmission system. In addition, the provider of the gas quality monitoring system must submit to AEMO for approval a gas quality monitoring plan to ensure the accuracy and reliability of the gas quality monitoring system (rule 288(6)).

AEMO has recently updated the 'Gas Quality Standard and Monitoring Guidelines (Declared Transmission System)'. This triggers an update for all Gas Quality Monitoring Plans where APA provides the gas quality monitoring system. This includes the following sites:

- Culcairn (see AEMO's request dated 18 April 2016)
- Dandenong LNG
- Longford (update required by 10 August 2017)
- Vic Hub

AEMO requests updated gas quality monitoring plans be provided to AEMO within six months of the date of the letter (and by 10 August 2017, for Longford), to cover monitoring requirements for contaminants, positive flow confirmation for odorant monitoring and to list any exemptions obtained by APA under the Gas Safety (Gas Quality) Regulations.

We note that APA has provided an updated Gas Quality Monitoring Plan for Longford that AEMO has approved on an interim basis on 10 August 2016.

If you have any questions or require more information requesting this request, please contact Leigh Atkins or 03 9600 8605 or email leigh.atkins@aemo.com.au

Yours sincerely,

Matthew Clewlow
 Acting Group Manager Gas Real Time Operations