



Parsons Brinckerhoff

Goldfields Gas Pipeline Access Arrangement

Prepared for

**ECONOMIC REGULATION AUTHORITY
OF
WESTERN AUSTRALIA**

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1. EXECUTIVE SUMMARY

Parsons Brinckerhoff (“PB”) has prepared this report at the request of the Economic Regulation Authority of Western Australia (“ERA”) who wishes PB to undertake separate assessments of the capital expenditure for the Goldfields Gas Pipeline (GGP) under two categories:-

Category 1 - Capital expenditure which has been incurred or will be incurred on the pipeline and associated infrastructure over the period of the previous access arrangement, from 1 January 2000 to 31 December 2009.

Category 2 - Capital expenditure which is forecast to be undertaken on the pipeline and associated infrastructure over the period of the new access arrangement, from 1 January 2010 to 31 December 2014.

With regard to Category 1 expenditures, PB has examined the actual expenditures from 2000 to 2009 ytd, notably for the major cost items such as compressor stations.

PB finds the expenditure to be prudent and that Section 8.16 of the Code has been satisfied.

With regard to Category 2 expenditures, PB has examined the forecast expenditures and finds that the expenditure for major items, notably the compressor stations and SCADA delivery point facilities, is justified on the grounds of safety and operational performance. PB finds that the expenditure forecasts are based on historical costs with escalation applied.

While the forecast for stay-in-business costs for SCADA and Other Assets categories can be argued to be higher than historical costs, we note that the total actual expenditure for the period 2005 to 2009 YTD was less than half of the amount approved by the Authority demonstrating that GGT has invested prudently in the past. Accordingly PB considers that the stay-in-business costs can be considered to include a reasonable contingency allowance. Furthermore PB anticipates that GGT will not be driven by such allowance to invest in an imprudent manner.

PB recommends that the Authority accept the GGT forecast capital expenditure for the period from 2010 to 2014 as the forecast has been developed in accordance with Section 8.16 of the Code.

2. INTRODUCTION

Parsons Brinckerhoff (“PB”) has prepared this report at the request of the Economic Regulation Authority of Western Australia (“ERA”) who wishes PB to undertake separate assessments of the capital expenditure for the Goldfields Gas Pipeline (GGP) under two categories:-

Category 1 - Capital expenditure which has been incurred or will be incurred on the pipeline and associated infrastructure over the period of the previous access arrangement, from 1 January 2000 to 31 December 2009.

Category 2 - Capital expenditure which is forecast to be undertaken on the pipeline and associated infrastructure over the period of the new access arrangement, from 1 January 2010 to 31 December 2014.

This assessment is for the purpose of determining whether the capital expenditure proposed by the service provider, to be rolled into the capital base of the GGP, meets the requirements of the National Third Party Access Code of Natural Gas Pipelines.

2.1 BACKGROUND

PB has been given instruction to assess the GGP Access Arrangement with reference to section 8.16(a)(i) of the National Third Party Access Code for Natural Gas Pipelines (the Code).

Section 8.16

- (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:
 - (i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

Section 8.16 is set in the broader context of a New Facilities Investment Test against which the Capital Base for a Covered Pipeline may be increased from the commencement of a new Access Arrangement Period to recognise additional capital costs incurred in constructing, developing or acquiring New Facilities for the purpose of providing Services.

In making an assessment of the proposed GGP Access Arrangement PB has also been guided by Section 8.16(ii)(C) and Section 8.17 of the Code:-

Section 8.16

.....

and

- (ii) one of the following conditions is satisfied:-

.....

- (C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

Section 8.17

For the purposes of administering section 8.16(a)(i), the Relevant Regulator must consider:-

- (a) whether the New Facility exhibits economies of scale or scope and the increments in which Capacity can be added; and
- (b) whether the lowest sustainable cost of delivering Services over a reasonable time frame may require the installation of a New Facility with Capacity sufficient to meet forecast sales of Services over that time frame.

2.2 OVERVIEW OF PROCESSES AND METHODOLOGIES

The process used to prepare this report was to:-

- Review the National Third Party Access Code Access Code for Natural Gas Pipelines;
- Review the Goldfields Gas Pipeline: Proposed Revisions to Access Arrangement submitted to the ERA on 23 March 2009
- Review the Goldfield Gas Pipeline: Supporting Information to Proposed Revisions to Access Arrangement, submitted to ERA on 7 April 2009; and
- Assess the actual and proposed capital expenditure for prudence, as defined by good industry practice (including safety and integrity considerations).

In assessing the prudence of capital expenditure, PB has applied a standard approach in asking the following questions:-

- Does the reporting and budgeting process adopted provide confidence in the accuracy of past and future capital expenditure programmes?
- For each capital expenditure item is it necessarily incurred to meet operational security of supply, safety or environmental requirements?
- For each capital expenditure item has the cost been efficiently incurred and for future cost estimates is the most efficient approach being proposed?

2.3 STRUCTURE OF REPORT

This report comprises an Executive Summary and 2 sections.

The **Executive Summary** is provided at the beginning of this report.

Section 1 comprises this brief Introduction;

Section 2 comprises a prudency assessment of past and future capital expenditure proposed by Goldfields Gas Transmission Pty Ltd (“GGT”).

3. PRUDENCY ASSESSMENT

3.1 CAPEX PROGRAMME ANALYSIS - 2000 TO 2004

Table A2.1 contained in Appendix 2 of the submission made by Goldfields Gas Transmission Pty Ltd ("GGT") to the Economic Regulation Authority on 7 April 2009, contains a table of actual capital costs for years 2000 to 2004.

The information in the table shows that expenditure was confined to compressor stations, receipt and delivery point facilities and other assets.

Table 3-1: GGT's Actual Capital Costs – 2000 to 2004 (\$m)

Calendar Year	2000	2001	2002	2003	2004
Pipeline and Laterals	0.0	0.0	0.0	0.0	0.0
Main line valve and scraper stations	0.0	0.0	0.0	0.0	0.0
Compressor Stations	2.9	8.1	0.6	9.8	4.1
Receipt & Delivery Point Facilities	0.2	0.1	0.1	0.1	0.0
SCADA and communications	0.0	0.0	0.1	0.1	0.4
Cathodic Protection	0.0	0.0	0.0	0.0	0.0
Maintenance bases and depots	0.0	0.0	0.0	0.0	0.0
Other Assets	0.5	0.2	0.4	0.2	1.6
Total	3.6	8.4	1.1	10.1	6.1

From an examination of the tabulated information provided, PB makes the following observations:-

- Pipeline and laterals expenditure was \$0;
- Mainline valve and scraper station expenditure was \$0;
- Compressor expenditure was the most significant expenditure during the period, totaling \$25.5 million and indicating that the expenditure included major capital augmentation projects;
- Receipt and delivery point facility expenditure totaled \$500,000 indicating that the expenditure was of a minor works nature;
- SCADA was \$0.6 million indicating the expenditure was mainly of a minor works nature;
- Cathodic protection expenditure was \$0;
- Maintenance depots and bases expenditure was \$0; and

- Other asset expenditure totaled \$2.9 million. The pattern of expenditure indicates an underlying spend of \$200,000 per annum for minor capital works, with additional expenditure of \$200 – 300k every second year. The expenditure in 2004 was considerably higher at \$1.6 million.

3.2 PROJECT ANALYSIS – 2000 TO 2004

Appendix 2 of GGT's submission contains few details of the actual expenditure during this period. The categories of interest, based on

- Compressor stations; and
- Other Assets.

3.2.1 Compressor Stations

As stated above, \$25.5 million was spent on compressor stations during the period 2000 to 2004. GGT has submitted that this expenditure was approved by the Authority on 14 July 2005.

Two major projects were undertaken:-

- Wiluna compressor unit in 2000/2001 at a cost of \$11.1 million; and
- Paraburdoo compressor unit in 2003/04 at a cost of \$12.3 million.

A minor project expenditure of \$2 million or \$400,000 per annum was incurred for repair and replacement.

Wiluna Installation of a Single Compressor Unit

This project was previously approved by GGTJV in February 2000. Table A2.3 of Appendix 2 details the actual costs incurred as follows:-

Table 3-2: GGT's Actual Capital Costs – Wiluna Compressor Station (\$m)

Wiluna Costs	Actuals
Project development	0.7
Project management	1.3
Engineering	0.5
Materials(inc compressor)	4.3
Construction	3.2
Commissioning	0.1
Operations and establishment	0.4
Margin	0.6
TOTAL	11.1

The justification for the installation of the Wiluna compressor is detailed in Section 2.3.1 of Appendix 2. The information detailed in Section 2.3.1 provides information on:-

- The need for the compressor;
- Selection of equipment;
- Location; and
- Tender process and contract strategy.

The compressor selected was a Solar Saturn T 1660 with an output of 1.2MW this equates to a unit cost of AuD\$9.25M per MW installed.

PB finds that the justification for the need to install Wiluna compressor is adequately expressed in the proposal. The tendering and contract strategy described in the proposal indicates that a contract strategy was in place. The PMC costs at \$2 million represents 18% of the total installation costs which exceeds a general benchmark for PMC costs of between 10 and 15% to total installation costs.

The unit cost per MW of compression installed equals \$9.25 million.

Whilst this unit cost compares unfavourably with PB bench mark data, GGT have provided a report prepared by Venton and Associates Pty. Ltd on the Optimised Replacement Pipeline Study for the Roma – Brisbane Pipeline Network. This report has utilised actual quoted cost data for the installation of 14 MW of compression on this pipeline system. The unit cost per MW estimated is \$9.5 million. This compares favourably with Wiluna actual unit cost of \$9.25 million.

Further-more GGT have provided a report detailing the specific effects of remote locations and cyclonic weather conditions on construction costs in the area in which the GGP is located.

GGT have also provided the Wiluna Compressor Station invoice analysis compiled during project construction and the Wiluna Compressor Station asset Delivery Agreement.

Accordingly PB finds that the higher PMC costs and unit cost per MW are nevertheless represents efficient costs.

Paraburdoo Compressor Unit

This project was previously approved by GGTJV in June 2002. Table A2.4 of Appendix 2 details the actual costs incurred as follows:-

Table 3-3: GGT's Actual Capital Costs – Paraburdoo Compressor Station (\$m)

Paraburdoo Costs	Actuals
Project development	0.1
Project management	1.0

Paraburdoo Costs	Actuals
Engineering	0.8
Materials(inc compressor)	4.1
Construction	4.9
Commissioning	0.3
Operations and establishment	0.4
Margin	0.8
TOTAL	12.3

The justification for the installation of the Paraburdoo compressor is detailed in Section 2.3.2 of Appendix 2. The information detailed in Section 2.3.2 provides information on:-

- The need for the compressor;
- Selection of equipment;
- Location; and
- Tender process and contract strategy.

The compressor selected was a Solar Saturn T 1660 with an output of 1.2 MW this equates to a unit cost of \$10.25M per MW installed.

PB finds that the justification for the need to install Paraburdoo compressor is adequately expressed in the proposal. The tendering and contract strategy described in the proposal indicates that a contract strategy was in place. The PMC costs at \$1.1 million represents 9% of the total installation costs which is in line with bench mark.

The unit cost per MW of compression installed equals \$10.25 million.

GGT have also provided the Paraburdoo Compressor Station invoice analysis compiled during project construction and the Paraburdoo Compressor Station asset Delivery Agreement.

Whilst this unit cost compares unfavourably with PB bench mark data, for the same reasons as those outlined in support of the Wiluna compressor, PB finds that the higher PMC costs and unit cost per MW represent efficient costs.

Compressor station construction conclusions

In both the cases of the Wiluna and Paraburdoo compressor stations, GGT contends that:-

- The construction tender process provides assurance that the amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice; and

- Given that the investment was driven by requests for increased capacity from Users, it would be reasonable to expect that the Anticipated Incremental Revenue generated by the New Facility would exceed the New Facilities Investment.

PB is in agreement with GGT and finds that the expenditure satisfies Section 8.16 (a) (i) of the Code.

3.2.2 Other Assets

GGT has not provided a cost breakdown for the category Other Assets which totalled \$2.9 million for the period.

The pattern of expenditure indicates an underlying spend of \$200,000 per annum for minor capital works, with additional expenditure of \$200 – 300k every second year. PB understands that the additional expenditure was required to repair cyclonic damage to the pipeline Right of Way caused by flooding.

The expenditure in 2004 was considerably higher at \$1.6 million. While 2004 could be considered as a 'cyclonic' year, the expenditure is around \$1 million higher than expected. GGT has not provided any details in support of this relatively high level of expenditure. However, this additional expenditure represents only 3% of the total expenditure for 2000 to 2005 and PB has not sought additional justification from GGT given that the other expenditures in this category have proven to be justified.

PB considers that the expenditure on Other Assets satisfies Section 8.16 (a) (ii) C of the Code.

3.3 CAPEX PROGRAMME ANALYSIS – 2005 TO 2009

Table A2.2 contained in Appendix 2 of the submission details GGT's actual capital costs compared with authority approved forecast for years 2005 to 2009.

Table 3-4: GGT's Actuals Versus Authority Approved Forecast – 2005 to 2009 (\$m)

Calendar Year	2005		2006		2007		2008		2009 YTD	
	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast
Pipeline and Laterals	0.3	0	0	0	0.3	0	0.1	0	0	0
Main line valve and scraper stations	0	0	0	0	0	0	0	0	0	0
Compressor Stations	0.6	0.4	0.9	3.6	0.4	3.7	0.4	0	1.3	0
Receipt & Delivery Point Facilities	0	0	0.4	0	0.5	0	0	0	0	0
SCADA and communications	0	0.1	0.4	1.0	0.2	1.0	0.7	0	0.5	0
Cathodic Protection	0	0	0	0	0	0	0.1	0	0.2	0

Calendar Year	2005		2006		2007		2008		2009 YTD	
	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast	Actuals	Authority Approved Forecast
Maintenance bases and depots	0	0	0	0	0	0	0.1	0	0.1	0
Remote Accommodation	0	0	0	0	0	0	0	0	3.9	0
Other Assets	0.4	1.1	0.3	0.7	0.5	0.8	0.2	1.6	1	1.7
Total	1.4	1.6	2.1	5.3	1.8	5.4	1.7	1.6	7.1	1.7

From an examination of the tabulated information provided PB make the following observations.

- Whilst no expenditure was originally identified under the category of pipeline laterals, \$700,000 was incurred over the period 2005 to 2008;
- Whilst \$7.7 million was originally approved by the Authority for compressors, only \$3.6 million was spent during the period 2005 to 2009. This identifies either a failure in the original planning process or the failure of GGT to implement the approved capital programme;
- Whilst no expenditure was originally identified under the category of receipt and delivery point facilities, \$900,000 was incurred over the period 2006 to 2007;
- Whilst \$2.1 million was originally approved by the Authority for SCADA only \$1.8 million was spent during the period 2005 to 2009. The actuals are at variance from the approved costs by approximately 14%.
- Whilst no expenditure was originally identified under the category of cathodic protection, \$300,000 was incurred over the period 2008 to 2009;
- \$200,000 was originally identified under the category of maintenance bases and depots and \$200,000 was incurred; and
- Whilst \$5.9 million was originally approved by the Authority for other assets, only \$2.4 million was spent during the period 2005 to 2009.

3.4 PROJECT ANALYSIS – 2005 TO 2009

Appendix 2 of GGT's submission contains supporting information on the following project categories:-

- Pipelines and laterals – A2.2
- Compressor stations – A2.3
- Receipt and delivery point facilities – A2.4
- SCADA communications – A2.5

- Remote accommodation – A2.6
- Other assets – A2.7

3.4.1 Pipeline and laterals

As discussed above, the Authority had not previously approved any expenditure in this category. The actual expenditure of \$700,000 by GGT included the following projects:-

- Kumarina ROW rehabilitation works associated with flood protection following cyclonic activity - \$300,000;
- Verification dig-ups associated with degradation features identified during online inspection - \$300,000; and
- Not specified - \$100,000.

GGT submits that this expenditure was necessary to maintain the safety, integrity or Contracted Capacity of Services as envisioned in Section 8.16 (a) (ii) (C) of the Code.

PB considers that the expenditure was necessarily incurred due to safety reasons. Whilst the supporting information regarding the expenditure is basic, PB's experience of similar projects suggests that the expenditure is efficient.

Accordingly, PB considers that the Code requirements have been satisfied by this investment.

3.4.2 Compressor Stations

As stated above \$7.7 million was originally approved by the authority for compressors however only \$3.6 million was spent during the period 2005 to 2009.

The actual expenditure of \$3.6 million included minor capital works totalling \$1.6m and major projects totalling \$2.0 million.

The minor works expenditure averages at slightly under \$400,000 per annum, consistent with the pattern of actual expenditure during the period 2000 to 2004. PB finds that this level of expenditure satisfies Section 8.16 (a) (i) of the Code.

The major projects comprised the following:-

- Ilgarari ESD/fire and gas system replacement;
- Critical turbine station spare parts;
- Yarraloola crankshaft change out of unit 1; and
- Yarraloola crankshaft/engine-compressor coupling modifications / TVD temperature monitoring.

3.4.3 Compressor Upgrades

Compressor works comprise the following projects:-

Table 3-5: GGT's Actual Capital Costs – Compressor Upgrades (\$m)

Project	Cost	Reason for Expenditure
Ilgarai ESD/fire and gas system replacement	\$800,000	Safety reliance
Critical turbine station spare parts	\$400,000	Operational reliance
Yarraloola crankshaft change out of Unit 1	\$600,000	Operational reliance
Yarraloola crankshaft/engine-compressor coupling modifications/TVD temperature monitoring	\$200,000	Safety and operational reliance
Total	\$ 2 million	

The justification of each project is detailed in Sections 2.3.3 to 2.36 of Appendix 2.

Yarraloola crankshaft change out at Unit 1

During the period, October to November 2006, GGT changed out the crankshaft material to compressor unit 2 of Yarraloola Compressor Station at a cost of circa \$474,000.

Therefore, GGT's estimate of \$0.581 million for the change out of the crankshaft material to compressor Unit 1 of Yarraloola Compressor Station in 2009 in GGT's Submission was based on this actual cost but also includes:-

- (i) Escalation to December 2008 dollars based on actual labour and material indices ("capex escalation");
- (ii) Project management fees of 11% of the capex cost, which GGT is charged by APT Pipelines (WA) Pty Limited; and
- (iii) Escalation by GGT's forecast capex escalator post 1 January 2009.

Yarraloola crankshaft/engine-compressor coupling modifications / TVD temperature monitoring

GGT's estimate of \$0.232 million (extended to 3 decimal places for clarity purposes) in GGT's Submission for the project to be carried out in 2009 was based on previous minor modifications made at reciprocating compressor stations.

The cost of a FLIR A320 IR camera including lenses and EX housing was \$72,500 for each compressor unit as per quote from FLIR consultant. For both units, the cost will be \$145,000. The abovementioned estimate also includes GGT's estimated cost of an additional \$55,000 for engineering, document control and installation costs.

This estimate of circa \$200,000 is prior to the additional cost of:-

- (i) Project management fees of 11% of the capex cost, which GGT is charged by APT Pipelines (WA) Pty Limited; and
- (ii) Escalation by GGT's forecast capex escalator post 1 January 2009.

Compressor Upgrades - Conclusions

PB finds that this expenditure was necessarily incurred due to safety and operational reasons; some supporting information is provided which indicated the costs were efficiently incurred and given the relatively low project values, PB concludes that these costs do not warrant further investigation.

PB finds that Section 8.16 (a) (i) and (a) (ii) C of the Code have been satisfied.

3.4.4 Receipt and Delivery Point Facilities

Details of incurred expenditure are set out in Section 2.4 of Appendix 2, and summarised in Table 2-6.

Table 3-6: GGT's Actual Capital Costs – Receipt & Delivery Point Facilities (\$m)

Project	Cost	Reason for Expenditure
DBNGP interconnect – Upgrade Yarraloola PLC and DBNGP	\$400,000	Safety reliance
Yarraloola gas chromatograph upgrade	\$300,000	Operational reliance and obsolescence

The justification for each project is detailed in Sections 2.4.1 to 2.4.2 of Appendix 2

PB finds that this expenditure was necessarily incurred due to safety and operational reasons.

Whilst only basic supporting information was provided by GGT, PB's experience with investments of this nature is such that PB considers that Section 8.16 (a) (ii) C of the Code has been satisfied.

3.4.5 SCADA

Details of incurred expenditure are set out in Section 2.5 of Appendix 2. The total expenditure of \$1.8 million was less than the authorised value of \$2.1 million.

Section 2.5 of Appendix 2 highlights two major projects:-

- WA control room integration; and
- GGP satellite communications upgrade.

WA Control Room Integration

The WA control room integration project comprised the integration and relocation of the GGP/Midwest control room and the Parmelia pipeline control room.

The justification for this project was based upon the development of synergies following the takeover of Parmelia Pipeline assets by the APA group. This integration was reported to save \$600,000 in operational costs, and to provide a backup control centre for three pipelines.

In response to a request for additional information made during a conference call between PB and GGT staff on the 16th July 2009 the following additional information was provided:-

- Agility control room integration and relocate back up server proposal; and
- Control room integration cost report.

From an examination of the information provided; PB conclude that the project costs were efficiently incurred. The major justification for the project as explained in the 'Agility control room integration report' was the consequential savings in Opex derived from the opportunity to implement operational efficiencies.

GGP Satellite Communication Upgrade

The GGP primary satellite communication system was 10 years old and embodied superseded technology which was then no longer supported. The ongoing reliability of the existing system was therefore questionable. This is consistent with the drivers for SCADA upgrades world wide.

Section 2.5.2 of Appendix 2 explains the process for selection of equipment and the contract strategy for award and delivery of contract.

In response to a request for additional information made during a conference call between PB and GGT staff on the 16th July 2009 the following additional information was provided:-

- Satellite data communication installation agreement; and
- Satellite Operation and Maintenance contract as executed.

PB finds that the justification for the need for the GGP satellite communication upgrade is adequately expressed in the proposal. The tendering and contract strategy described in the proposal indicates that the contract has been efficiently executed and the additional information provided by GGT demonstrates that the costs were efficiently incurred.

Overall, PB considers that the total investment in SCADA equipment was made as envisioned under Section 8.16 (a) (ii) C of the Code.

3.4.6 Remote Accommodation

Section 2.6 of Appendix 2 details the remote accommodation upgrades undertaken by GGT. These works were completed at a cost of \$3.9 million dollars and was not previously approved by the Authority.

The three sites where the accommodation has been upgraded are as follows:-

- Leinster base – forecast \$1.5 million;
- Wiluna compressor station – forecast \$1.2 million; and

- Paraburdoo compressor station - \$1.2 million.

The purpose of the investment in remote accommodation is reported as the establishment of facilities to good standard industry practice to provide a 'home to home' environment. Various expressions of concern had been reported with respect to the existing accommodation which apparently had caused high staff turnover.

The justification for these projects is explained in more detail in Sections 2.6 and 2.7 of Appendix 2.

In response to a request for additional information made during a conference call between PB and GGT staff on the 16th July 2009 the following additional information was provided:-

- GGP accommodation upgrade Buildings Specification

The purpose of this investment does not satisfy any of the validation criteria (operational security of supply, safety or environmental) and furthermore it would appear that no prior authority has been sought for this expenditure programme. However it is not unreasonable that operations staff would require an acceptable standard of accommodation. The building specification shows that the standard of accommodation is fit for purpose.

GGP did not provide detailed cost information for the accommodation; however PB considers that the total cost is reasonable when considered in relation to the building specification.

3.4.7 Other Assets

For other assets, capital costs of \$2.5 million were lower than the Authority approved forecast of \$5.9 million.

GGT have indicated that there was only one major capital project falling into this category, namely Right of Way rectification works at Kumarina.

Section 2.7 of Appendix 2 explains GGT's approach to the treatment of expenditure for rectification works for Rights Of Way, these works being required to repair damage caused by cyclonic activity.

PB considers that such works would normally be classified as operational expenditure as the repair work does not impact the capacity of the pipeline. However, in the event that Western Australian accounting rules allow this expenditure to be treated as capex, and also considering that Deloitte Touche Tomatsu has carried out an independent cost review, PB considers that this expenditure satisfies the requirements of Section 8.16 (a) (ii) C.

GGT can be said to have spent \$500,000 per annum as a stay-in-business cost, amount that is consistent with the actual annual spend during the period 2000 to 2004.

3.5 CAPEX PROGRAMME ANALYSIS – 2010 TO 2014

Table A3.1 contained in Appendix 3 of the submission details GGT's forecast capital costs for years 2010 to 2014.

Table 3-7: GGT's Forecast Capital Costs – 2010 to 2014 (\$m, nominal)

Calendar Year	2010	2011	2012	2013	2014
Pipeline and Laterals	0.0	0.0	0.0	0.0	0.0
Main line valve and scraper stations	0.0	0.0	0.0	0.0	0.0
Compressor Stations	4.0	1.8	0.8	0.9	0.9
Receipt & Delivery Point Facilities	0.1	0.1	0.1	0.1	0.1
SCADA and communications	0.5	1.9	1.9	0.5	0.5
Cathodic Protection	0.1	0.0	0.0	0.0	0.0
Maintenance bases and depots	0.0	0.0	0.0	0.0	0.0
Other Assets	2.3	1.4	0.8	1.2	0.6
Total	7.0	5.2	3.7	2.7	2.1

From an examination of the tabulated information provided PB make the following observations.

- Pipeline and laterals forecast expenditure is \$0; this expenditure compares to \$0 during the period from 2000 to 2004, and \$0.7 million during the period from 2005 to 2009. In the latter case the expenditure related to ROW rehabilitation and dig-ups was included, and for the forecast period, GGT has allowed for expenditure of this nature in the 'other assets' category. The forecast expenditure on pipeline and laterals, e.g. pipeline or lateral augmentations or extensions is \$0;
- Compressors station forecast expenditure is \$8.4 million; this compares to \$25.5 million during the period of 2000 to 2004, and \$3.6 million during the period 2005 to 2009;
- Receipt and delivery point facilities forecast expenditure is \$0.5 million; this compares against \$0.5 million during the period of 2000 to 2004, and \$0.9 million during the period 2005 to 2009;
- SCADA forecast expenditure is \$5.3 million; this compares against \$0.6 million during the period of 2000 to 2004, and \$1.8 million during the period 2005 to 2009;
- Cathodic protection forecast expenditure is \$100,000; this compares against \$0 during the period of 2000 to 2004, and \$300,000 during the period 2005 to 2009; and
- Other assets forecast expenditure is \$6.3 million; this compares against actual expenditure of \$2.9 million during the period of 2000 to 2004, and actual expenditure of \$2.4 million during the period 2005 to 2009.

3.6 PROJECT ANALYSIS – 2010 TO 2014

Appendix 3 of GGT's submission contains supporting information on the following project categories:-

- Compressor stations – A3.1;
- Receipt and delivery point facilities – A3.2;
- SCADA communications – A3.3;
- Cathodic protection – A3.4; and
- Other assets – A3.5.

3.6.1 Compressor stations

The current forecast is to spend \$8.4 million on compressor station upgrades and remediation works.

Compressor works comprise the following projects:-

Table 3-8: GGT's Forecast Capital Costs – 2010 to 2014 (\$m, nominal)

Project	Cost	Reason for Expenditure
Yarraloola automatic variable pockets	\$800,000	Operational reliance
Yarraloola air fuel ratio controllers	\$200,000	Operational reliance
Yarraloola compressor hazardous area declassification	\$1 million	Safety compliance
Ilgarari automatic variable pockets	\$800,000	Operational reliance
Ilgarari air fuel ratio controllers	\$300,000	Operational reliance
Ilgarari air compressor hazardous area declassification	\$200,000	Safety compliance
Ilgarari crankshaft change out at Unit 1	\$600,000	Operational reliance
Ilgarari crankshaft/engine-compressor coupling mods	\$200,000	Operational reliance
Yarraloola ESD/fire and gas system replacement	\$400,000	Safety reliance
Total	\$4.5 million	

In addition to the above GGT has identified \$3.6 million of unspecified 'stay-in-business' compressor costs. Assuming that the identified projects in Table 3-8 above are implemented in 2010, this amount is equivalent to \$900,000 per annum which is inconsistent with the expenditure in the latter years of the period 2005 – 2009 and during 2000 to 2004. PB considers that an annual stay in

business budget of \$400,000 per annum is consistent with historical expenditure. This amounts to a total of \$2 million.

The forecast expenditure proposals contained in Section 3.1 of Appendix 3 are calculated at \$8.1 million. This compares with a total forecast expenditure detailed in table A3.1 of \$8.4 million.

The justification of each project is detailed in Sections 3.1.1 to 3.1.10 of Appendix 3.

In response to PB's request made during the conference call held on the 16th July 2009 GGT provided the following additional information:-

- AVVP WBS and Cost Estimate.xls relating to the installation of hydro pneumatically actuated automatic variable volumetric pockets (AVVP) at Yarraloola and Ilgarari; and
- Additional information on Capital projects (Word document).

The information provided is discussed as follows:-

Installation of hydro pneumatically actuated automatic variable volumetric pockets (AVVP) at Yarraloola and Ilgarari

A summary of the cost breakdown of labour, materials and expenses costs for installing AVVP at Yarraloola and Ilgarari is detailed in the following table:-

Table 3-9: Installation Cost Breakdown

Cost Item	Cost
Labour in-house	\$233,456
Plexal labour	\$45,414
Materials	\$318,559
Travel and Transport	\$36,420
Total of Installation Costs	\$697,234

Note: these costs are on a per site basis

Added to the above is a project management charge of 11% which GGT is charged by APT Pipelines (WA) Pty Limited equalling \$76,696, leaving \$26,070 difference to the submission value of \$800,000; this being attributable by GGT to a forecast Capex escalator.

Yarraloola and Ilgarari air fuel ratio controllers

GGT's estimate of \$0.245 million for completion of this project in 2010 in GGT's Submission was mainly based on the estimate received in February 2008 from Exterran for the supply of major equipment.

GGT also provided a spreadsheet entitled "AFR Module.xls", which provides a breakdown of that estimate from Exterran. The estimate was \$64,867 for each unit or \$129,734 per compressor station. The abovementioned estimate also

includes GGT's estimated cost of an additional circa \$70,000 for engineering, transport/travel and doc control costs. The estimate of \$200,000 also allows for variations in exchange rates.

This estimate of circa \$200,000 is prior to the additional cost of:

- (i) Project management fees of 11% of the capex cost, which GGT is charged by APT Pipelines (WA) Pty Limited; and
- (ii) Escalation by GGT's forecast capex escalator post 1 January 2009.

Yarraloola compressor hazardous area declassification

GGT's estimate of \$0.967 million for completion of this project in 2010 in GGT's Submission was based on the assumption forced ventilation would be required at both units. GGT had received a budget estimate of \$400,000 per unit from GHD Pty Ltd and other consultants.

This budget estimate of \$800,000 for the compressor station is prior to the additional cost of:

- (i) Project management fees of 11% of the capex cost, which GGT is charged by APT Pipelines (WA) Pty Limited; and
- (ii) Escalation by GGT's forecast capex escalator post 1 January 2009.

Ilgarari compressor hazardous area declassification

GGT's estimate of \$0.248 million for completion of this project in 2010 in GGT's Submission was based on the assumption a risk based approach would be adequate. The above estimate was based on an initial budget estimate of \$200,000, which was then increased by:

- (i) Project management fees of 11% of the capex cost, which GGT is charged by APT Pipelines (WA) Pty Limited; and
- (ii) Escalation by GGT's forecast capex escalator post 1 January 2009.

Ilgarari crankshaft change out at Unit 1

Justification referenced to Yarraloola crankshaft change out at Unit 1

Ilgarari crankshaft/engine-compressor coupling mods

Justification referenced to Yarraloola crankshaft/engine – compressor coupling modifications

Yarraloola ESD/fire and gas system replacement

GGT's estimate of \$0.447 million for completion of this project during 2010 and 2011 in GGT's Submission is a budget estimate based on the actual expenditure that GGT has incurred at Ilgarari (refer to section A2.3.3 of GGT's Submission). The front end engineering and redesign of the existing fire and gas detection system at Yarraloola was completed during the Ilgarari project. The above estimate was based on an initial budget estimate of \$400,000, which was then increased by:

- (i) Project management fees of 11% of the capex cost, which GGT is charged by APT Pipelines (WA) Pty Limited; and
- (ii) Escalation by GGT's forecast capex escalator post 1 January 2009.

Compressor Modification Conclusions

Having received additional information from GGT, PB concludes that the estimating process for the 2010 – 2014 compressor upgrade programme is based largely on historical experience and forms a sound basis budgeting purposes. Whilst PB is unaware of the basis for the justification of the 'escalator' value we consider the value to be relatively small and insignificant in the context of the submission.

PB finds the forecast expenditure identified in the specified project to be generally necessary due to safety and operational reasons however certain items could be reclassified as Opex expenditure.

As it stands GGT assumes that the cost of new compressors required to service demand growth will match that of the cost incurred during the period 2005 to 2008. A more detailed analysis could be undertaken based on growth forecasts. Nevertheless, PB considers that the proposed expenditure for compressor modification satisfies Section 8.16 (a) (ii) C of the Code.

3.6.2 Receipt & Delivery Point Facilities

GGT's proposed expenditure for 'stay in business' receipts and delivery point facilities is \$500,000 or average of \$100,000 per annum. GGT submits that the forecast is based on actual expenditure during the period 2005 to 2009.

PB notes that actual expenditure during the period 2000 to 2004 was \$100,000 per annum. The actual expenditure during the period 2005 to 2009 averaged \$180,000; however the expenditure occurred in two consecutive years.

PB considers that the forecast is soundly-based and satisfies Section 8.16 of the Code.

3.6.3 SCADA

Details of forecast expenditure of \$5.5 million for years 2010 to 2014 are set out in Section 3.3 of Appendix 3. This compares with a total forecast expenditure detailed in table A3.1 of \$5.3 million.

Projects comprise:-

- SCADA replacement - \$2.9 million; and

- Unspecified stay in business SCADA capital costs - \$2.6 million.

The SCADA replacement project is described in detail in Section 3.3.1 of Appendix 3 and comprises the proposed replacement of relatively unsupported software. The continued use of existing software is considered a threat to future safety and security of gas supply.

GGT provide additional information in document GGT_SCADA_UPGRADE COSTS090727.XLS in response to a request made by PB during a conference call held on the 16th July 2009.

The costs for the NSW original cost of \$2,449M was reduced to \$2,063. This reduction accounted for NSW specific costs that will not be required for the GGP (WA) (such as a new control room!).

The MSP base costs were then increased or decreased for GGP using 'best guess multipliers' to account for:

- (i) Additional I/O in GGP SCADA when compared with the NSW SCADA System;
- (ii) Reduced number of sites on GGT SCADA when compared with the NSW SCADA System;
- (iii) Additional Remoteness of GGT Sites when compared with the MNSW SCADA System;

PB finds the forecast expenditure identified in the specified project to be necessary due to safety and operational reasons.

Having received additional information provided by GGT PB concludes that the estimating process for the 2010 – 2014 SCADA programme to be based largely on historical experience and forms a sound basis for budgeting purposes.

GGT has allowed a 'stay in business' budget of \$2.6 million and submits that this amount is based on actual expenditure during the period 2005 to 2009. PB notes that this actual expenditure was \$1.8m and comprised two major projects.

Considering the actual SCADA expenditures between 2000 and 2009, and noting that the SCADA system will be replaced, PB considers that the forecast expenditure of \$2.6 million is high. A prudent forecast for stay-in-business expenditure is of the order of \$100 - 200k.

3.6.4 Cathodic protection

Section 3.4 of Appendix A specifies a forecast of \$200,000 for cathodic protection based on actual capital costs between 2005 and 2008.

Table 3.4 and Table A3.1 show the forecast expenditure as \$100,000 in 2010.

PB notes that the historical expenditure was \$100,000 in 2008 and \$200,000 in 2009. PB considers that the forecast expenditure of \$100,000 represents a prudent forecast.

3.6.5 Other Assets

For other assets, GGT states in Section 3.4 that the forecast capital expenditure for this category is \$4.3 million. However, the forecast expenditure for Other Assets in Table 3.4 sums to \$6.3 million. The forecast expenditure in Table A3.1 matches that in Table 3.4. It appears that the figure of \$4.3 million is a typographical error and should be \$6.3 million.

GGT provides details of the forecast expenditure Sections 3.5.1 to 3.5.6 of Appendix 3:-

- \$900,000 for Rights of Way rectification works in 2011 and 2013;
- \$400,000 for a Gas Contract Management & Invoicing System to be implemented in 2011 and 2012;
- \$200,000 for Asset Management Systems, Document Management Systems and other IT to be spent in 2011 and 2012;
- \$400,000 for a Finance transformation system to be implemented from 2009 to 2013 (this amount is an allocation of a corporate project worth \$2.0m);
- \$1.5 million for a Perth office renovation to be spent in 2010; and
- \$2.6 million for 'other assets' stay-in-business capital costs.

Given the inconsistencies apparent in the figures, PB has interpreted GGT's explanation for forecast capital expenditure as shown in Table 2-10 below:-

Table 3-10: Breakdown - Other Assets Capital Costs – 2010 to 2014 (\$m, nominal)

Calendar Year	2010	2011	2012	2013	2014	Total
RoW rectification	0.0	0.45	0.0	0.45	0.0	0.9
Gas Contract Mgt system	0.2	0.2	0.0	0.0	0.0	0.4
AM, DMS & other IT	0.0	0.1	0.1	0.0	0.0	0.2
Finance system	0.1	0.1	0.1	0.1	0.0	0.4
Perth office renovation	1.5	0.0	0.0	0.0	0.0	1.5
Stay in Business	0.5	0.5	0.5	0.5	0.6	2.6
Total	2.3	1.4	0.7	1.1	0.6	6.1
GGT Forecast	2.3	1.4	0.8	1.2	0.6	6.3
Discrepancy	-	-	0.1	0.1	-	0.2

PB considers that the discrepancy of \$200,000 is not material in testing the forecast against Section 8.16 of the Code.

Right of Way Rectification

An amount of \$900,000 is equivalent to \$180,000 per annum and is consistent with the actual expenditure incurred during the period 2005 to 2009.

As noted in Section 3.2.2 of this report, the pattern of expenditure indicates an underlying spend of \$200,000 per annum for minor capital works, with additional expenditure of \$200 – 300k every second year for repair of cyclonic damage.

PB considers that this expenditure meets the requirements of Section 8.16 of the Code.

Gas Contract Management & Invoicing System

GGT has submitted that a gas contract management and invoicing system is needed across the APA Group. The system would manage shipper receipts, shipper deliveries, shipper imbalances, nominations, allocations, invoicing and other customer – pipeliner interfaces and management processes. The system would also improve contract administration, communications with interconnecting parties and capacity modelling.

The current Microsoft Excel and Access systems are considered as inadequate to meet information demands from internal and external stakeholders.

GGT submits that the purchase of such a system is part of an enterprise solution costing \$2.5 million, of which the allocation to GGT is \$400,000.

Whilst GGT has not provided PB with a detailed business case justifying the change to a new enterprise gas management system, PB considers that such a system is required to meet Section 8.16 of the Code. GGT's budget forecast for the system has been established using external benchmarks as a prudent practice (SEAGas reference).

Asset Management / DMS Systems / Other IT

GGT submits that new IT systems or substantial upgrades are required during the next 5 years, notably:-

- Asset management systems requiring integration into current and future finance systems;
- Document management systems requiring upgrade and integration into the APA document management system; and
- IT systems for bulletin boards, short term trading and emissions trading.

In relation to integration of asset management systems with finance systems, this is a best practice followed by many large infrastructure management companies.

Document management systems are also commonly implemented by large infrastructure management companies, recognising that such companies run largely on the accessibility and quality of asset information.

Regulatory changes generally require infrastructure management companies to capture and provide information, particularly in the case of gas and emission trading which typically requires online data sharing.

PB considers that these requirements satisfy Section 8.16 (a) (i) of the Code.

These systems are modestly priced at a cost of \$200,000.

Finance Transformation System

GGT submits that the finance systems of APA must undergo integration at a cost of \$8 million, of which GGT's allocation would be \$2 million.

PB observes that it is a common practice for a large infrastructure management company to establish an enterprise-based finance system.

PB considers that such a Finance system satisfies Section 8.16 (a) (i) of the Code.

Whilst GGT has not provided a detailed business case, PB considers that a cost allocation of \$2 million is a modest figure.

Perth Office Renovation

GGT submits that APTPWA's Projects Division must be housed in GGT's Perth office when a current office lease expires in May 2010. GGT has estimated the cost to be \$1.5 million.

GGT has not provided a detailed business case. On the assumption that the cost of housing staff in a owner-occupied property is less than that of leased premises, then this expenditure could be said to satisfy Section 8.16 (a) (i) of the Code.

Stay in Business Costs

GGT submits that ongoing expenditure is required to meet stay-in-business costs.

PB observes that the actual 'Other Assets' cost per annum has been around \$500,000 during the period 2000 to 2009, consistent with the figure shown Table 2-10 in this report.

It is noted however, that during this 10 year period the 'Other Assets' expenditure of \$500,000 included RoW rehabilitation costs.

GGT's expenditure forecast for 2010 – 2014 includes a separate budget of \$900,000 for RoW rehabilitation, resulting in a comparable forecast average cost per annum of around \$680,000.

PB considers that the historical expenditure pattern suggests that an annual figure of \$500,000 should be sufficient, meaning that the annual stay-in-business costs would be around \$320,000 per annum or \$1.6 million in total. This represents a reduction of \$1 million over a 5 year period.

3.6.6 Conclusions – Forecasts 2010 to 2014

PB has summarized the findings of Sections 3.6.1 to 3.6.5 above, and presents an assessment of the forecast by expenditure category in Table 3-11:-

Table 3-11: PB Forecast Capital Costs – 2010 to 2014 (\$m, nominal)

Calendar Year	2010	2011	2012	2013	2014	Total
Pipeline and Laterals	0.0	0.0	0.0	0.0	0.0	0.0
Main line valve and scraper stations	0.0	0.0	0.0	0.0	0.0	0.0
Compressor Stations	4.0	0.9	0.4	0.4	0.4	6.1
Receipt & Delivery Point Facilities	0.1	0.1	0.1	0.1	0.1	0.5
SCADA and communications	0.2	1.6	1.6	0.2	0.2	3.8
Cathodic Protection	0.1	0.0	0.0	0.0	0.0	0.1
Maintenance bases and depots	0.0	0.0	0.0	0.0	0.0	0.0
Other Assets	2.1	1.2	0.5	0.9	0.3	5.0
Total	6.5	3.8	2.6	1.6	1.0	

4. CONCLUSIONS

4.1 CAPEX PROGRAMME ANALYSIS - 2000 TO 2004

PB finds that the expenditure incurred from 2000 to 2004 satisfies Section 8.16 of the Code.

Table 4-1: GGT's Actual Capital Costs – 2000 to 2004 (\$m)

Calendar Year	2000	2001	2002	2003	2004
GGT Actuals	3.6	8.4	1.1	10.1	6.1
PB Prudency Assessment against Section 8.16	3.6	8.4	1.1	10.1	6.1
Discrepancy	-	-	-	-	-

4.2 CAPEX PROGRAMME ANALYSIS - 2005 TO 2009

PB finds that the expenditure incurred from 2005 to 2009 satisfies Section 8.16 of the Code.

Table 4-2: Prudency Assessment – 2005 to 2009 (\$m)

Calendar Year	2005	2006	2007	2008	2009
GGT Actuals	1.4	2.1	1.8	1.7	7.1
PB Prudency Assessment against Section 8.16	1.4	2.1	1.8	1.7	7.1
Discrepancy	-	-	-	-	-

4.3 CAPEX PROGRAMME FORECAST - 2010 TO 2014

PB finds that GGT's expenditure forecasts for 2010 to 2014 satisfy Section 8.16 of the Code with two exceptions:-

Table 4-4: Forecast Expenditure Assessment – 2010 to 2014 (\$m)

Calendar Year	2010	2011	2012	2013	2014
GGT Forecasts	7.0	5.2	3.7	2.7	2.1
PB Assessment against Section 8.16	6.5	3.8	2.6	1.6	1.0
Discrepancy	0.5	1.4	1.1	1.1	1.1

PB considers that SCADA and Other Assets stay-in-business costs are high as discussed in Sections 3.6.3 and 3.6.5 of this report respectively. GGT has previously under-spent against Authority approvals and can be expected to spend prudently during the 2010 to 2014 period. In which case the

discrepancy could be considered as a contingency allowance and PB is therefore inclined to recommend that the Authority approve GGT's forecast.