



**Goldfields Gas Transmission's Proposed
Revised Access Arrangement for the
Goldfields Gas Pipeline**

Addendum

to

**Review of Technical Aspects of the Proposed
Access Arrangement**

PUBLIC

Report to

**Economic Regulation Authority of
Western Australia**

by Energy Market Consulting associates

June 2016

This addendum report has been prepared by Energy Market Consulting associates (EMCa) to assist the Economic Regulation Authority (ERA) with its assessment of Goldfield Gas Transmission Pty Ltd's (GGT) Revised Access Arrangement for the Goldfields Gas Pipeline, for the period from 1st January 2015 to 31st December 2019 (AA3), which it is required to conduct in accordance with the National Gas Law (NGL) and the National Gas Rules (NGR).

It is an addendum to the EMCa Report, Review of Technical Aspects of the Proposed Access Arrangement, December 2015 prepared for the ERA.

This report relies on information provided to EMCa by the ERA and by GGT up until 1st May 2016. EMCa disclaims liability for any errors or omissions, for the validity of information provided to EMCa by other parties, for the use of any information in this report by any party other than the ERA and for the use of this report for any purpose other than the intended purpose.

In particular, this report is not intended to be used to support business cases or business investment decisions nor is this report intended to be read as an interpretation of the application of the NGR or other legal instruments. EMCa's opinions in this report include considerations of materiality to the requirements of the ERA and opinions stated or inferred in this report should be read in relation to this over-arching purpose.

Some numbers in this report may differ from those shown in GGT's Revised Access Arrangement or other documents due to rounding.

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About EMCa

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1 Introduction

1.1 Purpose and scope of this report

1. In December 2015 the Economic Regulation Authority (ERA) published its Draft Determination for the revised access arrangement (AA) for the Goldfields Gas Transmission Pty Ltd's (GGT) Goldfields Gas Pipeline (GGP) which covered the period 1 January 2015 to 31 December 2019 (AA3). To assist with its assessment, the ERA engaged EMCa to review and provide technical advice on certain aspects of GGT's Initial Proposal. We will refer to that as our Technical Report¹.
2. The ERA, in accordance with its responsibilities under the National Gas Law (NGL) and the National Gas Rules (NGR), is currently reviewing GGT's response to the ERA's Draft Determination.
3. To assist with its assessment of GGT's revised AA3 proposal, the ERA engaged EMCa to provide an Addendum Report to our Technical Report. This Addendum Report addresses specific issues that the ERA's Secretariat has identified in GGT's response to the Draft Decision namely:
 - All elements of the capital expenditure (capex) in the second and third access arrangement periods which the ERA rejected in the Draft Decision but that GGT still considers should be included.
 - All elements of forecast operating expenditure (opex) in the third access arrangement period that the ERA rejected in the Draft Decision but that GGT still considers should be included.

¹ Full detail of the scope of our technical assessment can be found in section 1.3 of the EMCa's Technical Report: Review of Technical Aspects of the Proposed Access Arrangement, December 2014
<https://www.erawa.com.au/cproot/13989/2/GGP%20EMCa%20Technical%20Report%20to%20ERA%20-%20Public%20Version.PDF>

1.2 Data sources

4. We have examined documents which GGT submitted to the ERA along with its revised AA3 submission and some further documents GGT provided in response to our information requests. These documents are referenced directly where they are relevant to our updated findings.

1.3 Rounding of numbers and real conversion

5. Consistent with the approach in our Technical Report:²
 - Numerical totals in tables may not present as being equivalent to the sum of the individual numbers due to the effects of rounding
 - This Addendum Report refers to real dollars (\$December 2013 base) unless denoted otherwise.
6. In converting between real and nominal dollar denominated costs, we have used the inflation assumptions that GGT has used. Noting that GGT has changed its inflation assumptions between its Initial Proposal and its Revised Proposal, in each case we have used the inflation assumptions that GGT has used in the relevant proposal³.

1.4 Our qualifications

7. The credentials of the authors of this report are summarised in Appendix A of this Addendum Report.

² Details of the approach used for rounding and real conversion can be found in EMCa report, Review of Technical Aspects of the Proposed Access Arrangement, December 2015, section 1.5

³ As we note in this report, this changed inflation assumption has led GGT to incorrectly re-express its initially proposed capex and the capex allowance from the Draft Decision (see section 4.5), and to incorrectly forecast its proposed opex (see section 5.2.1).

2 Cost apportionment to the Covered Pipeline

2.1 Introduction

2.1.1 Background

8. GGP is the only gas pipeline in Australia that has regulated assets which are used to deliver both covered and uncovered services⁴ and GGT has itself had need to apportion joint costs between services provided by its Covered Pipeline and other services, as well as allocating Group-level costs to GGT. In its initial and revised Access Arrangement proposals, GGT has presented some costs that relate to entities, pipelines or services other than the GGP Covered Pipeline reference services. Apportionment methods are applied to such costs and assessment of these apportionment methods is a necessary part of assessing their conformance with the expenditure criteria in the NGR.
9. This section outlines considerations that we have applied in apportioning GGT's overall capital and operating expenditure, to the Covered Pipeline.

2.1.2 Context of the current report in relation to cost apportionment issues

10. The scope of our reports is to provide technical advice on the proposed expenditure, in particular that it is '*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 delivering pipeline services*'.⁵ To the extent that GGT proposed expenditures with wider scope than the provision of reference services from the Covered Pipeline, and apportioned such costs, we considered the extent to which prudent and efficient

⁴ ERA Draft Determination, paragraph 1449

⁵ NGR 79 and 91 contain this wording

costs had been derived from such broader cost information. We referred in that report to cost allocation principles in Rule 93(2), and which involved directly attributing costs where this is feasible, and allocating costs that cannot be directly attributed on an approved basis that is consistent with the revenue and pricing principles.

11. From our reading of GGT's Revised Proposal it appears to challenge ERA's application of this clause to specific circumstances. Nevertheless the need for apportionment arises to the extent that in any regulatory determination, cost information may be provided by the proposing entity and which applies only in part to the regulated services.

2.2 Cost apportionment in GGT's proposals

2.2.1 GGT's initial submission

12. GGT has used apportionment approaches to derive what it proposes as conforming expenditure in a number of instances. For example:
 - GGT has derived its proposed allowance for corporate costs by apportioning its Group-level corporate costs to the GGT entity;
 - GGT has further apportioned its apportioned corporate cost allowance between users of its covered and uncovered pipelines;
 - GGT has apportioned field service costs and commercial service costs between users of its covered and uncovered assets⁶;
 - GGT has apportioned capex to between users of its covered and uncovered assets (and other wider group assets and services), such as for EAM systems and for a national Satellite project.
13. In its Initial Proposal, GGT proposed to continue with the approach used for AA2 to allocate total revenue to reference services. This approach '*calculates total revenue as the sum of all costs associated with the services that are provided by covered assets, excluding incremental capital and operating costs associated with the services that are provided by uncovered assets*'⁷.
14. The ERA did not accept GGT's proposal that the costs of shared regulated assets that are required in the delivery of all services (hereafter, joint costs) should be allocated only to Covered Pipeline services.⁸
15. GGT does not accept the ERA's draft decision on cost allocation between covered and uncovered services. It maintains an allocation approach where costs associated with GGP's shared covered assets are allocated only to covered services even when those assets are also utilised to deliver other services provided by the GGP for the covered and uncovered pipeline.

⁶ Refer to paragraph 53 of our Technical Report

⁷ ERA Draft Determination, paragraph 1363

⁸ *Ibid*, paragraph 1452

2.2.2 GGT's revised submission on cost allocation issues

16. GGT's Revised Proposal focusses on a legal regulatory argument refuting the ERA's Draft Determination that joint costs should be allocated between covered and uncovered services. In section 9 of its response⁹ GGT outlines reasons why it does not accept the ERA's allocation approach for joint costs under rule 93(2). GGT claims that:

'In accordance with rule 93(2), GGT allocated the total of the costs of providing services using the GGP, excluding the costs as set out above¹⁰, to services provided by means of the covered pipeline. In accordance with rule 93(1), GGT allocated total revenue between reference services and other services provided by means of the covered pipeline'¹¹.

17. GGT submits that the 'ERA's construction of rule 92(3) is incorrect'¹² and claims that 'rule 93(2) has no role in the assessment of whether capital expenditure incurred in AA2, and forecast to be incurred in AA3, is or is not conforming capital expenditure'¹³.
18. As part of our assessment of GGT's revised proposal we have considered whether forecast expenditure has been arrived at on a reasonable basis and represents the best forecast possible in the circumstances (Rule 74 (2)(a)(b)). For capex and opex forecasts we have considered whether GGT's allocation of joint costs represents expenditure which would be incurred by a prudent service provider acting efficiently, in accordance with best industry practice to achieve the lowest sustainable cost of providing the relevant services (Rule 79 (1)(a) and Rule 91 (1)). We have not been asked to advise ERA on the interpretation or application of Rule 93(2), but neither does our necessary consideration of apportionment of wider expenditures that GGT has presented to support its proposed expenditure allowances for this regulatory determination reply on these legal regulatory arguments, since we have used well accepted principles of cost apportionment, which are amongst other things, consistent with the NGR, in making our technical assessment.

2.3 EMCa consideration of cost apportionment

2.3.1 General approach

19. Our approach to allocating costs that are directly attributable to either of covered or uncovered services is consistent with GGT's stated apportionment method. However, GGT disputes the sharing of joint costs, which EMCa considers are not directly attributable to either services provided respectively by covered or uncovered assets. Although GGT has apportioned some of its joint costs across covered and uncovered services (for example items of operating expenditure), we have recommended that there are additional costs that should be apportioned to uncovered services, where it is

⁹ GGT Revised Regulatory Proposal, section 9

¹⁰ GGT lists three specific exclusions see section 9.1 of GGT's Revised Regulatory Proposal for detail.

¹¹ *Ibid*, page 149

¹² *Ibid*, page 150 Note we assume that there is a typographical error in GGT's submission and it should reference Rule 93(2) here.

¹³ GGT Access Arrangement Revision Proposal: Supplementary Submission, March 2016, page 5

apparent from the descriptions provided by GGT that an expenditure item applies to both services.

20. GGT provides limited detail to refute our apportionment approach of joint cost items instead it addresses the overall allocation issue in Section 9 of its Revised Proposal where it covers the principles of allocation. It is not clear whether the claims in this section apply to the allocation of capital costs, operating costs or both. Further, our reading of the issues that GGT has raised in section 9 is that it involves a different issue, namely the use of the Covered Pipeline in providing services to users of uncovered assets (whether laterals or capacity provided by virtue of uncovered expansion assets). There is little in this section of GGT's response that appears to be relevant to our technical assessment, and which involves allocation of costs to the covered and uncovered assets, rather than the allocation of covered asset-related costs to users of services that are provided by virtue of uncovered assets having been built.
21. GGT's response to our apportionment approach for joint cost items has focussed on the argument that joint costs should not be apportioned to uncovered services under Rule 93 and that instead they should be allocated solely to the covered services. However this is not consistent with such apportionments that GGT has itself made.
22. The following section of this report considers the apportionment of capital costs (section 2.2) and operating expenditure (section 2.3) between covered and uncovered services.

2.3.2 Capital cost apportionment

Recap of the recommendations in our Technical Report

23. Our initial assessment of AA2 and AA3 capex concluded that GGT had not adequately demonstrated in all cases that it had appropriately allocated capital expenditure between covered services and other GGP services¹⁴.
24. Where GGT provided insufficient information to demonstrate that it had correctly allocated capital expenditure, or where it was apparent from the description provided that the capital expenditure item was applicable to both covered and uncovered services¹⁵, we recommended adjustments to the proposed capex on a case by case basis. Two methods of apportionment were applied¹⁶:
 - (i) Expenditure directed to assets at Compressor stations – we re-apportioned capex in accordance with the ratio of covered compressor assets to the other compressor assets at the designated station; and
 - (ii) Expenditure incurred on assets that could be used in relation to covered services or the other GGP services (e.g. purchase of bore scope) – we apportioned either 80% or 70% of the expenditure to the covered services for AA2 and AA3 respectively.

¹⁴ Further details on our assessment framework can be found in section 3.2 of our Technical Report

¹⁵ For example, work at a compressor station that has covered and uncovered pipeline compressor unit at the same compressor station or expenditure items such as satellite communication, bore-scope, office furniture and Karratha maintenance base repairs.

¹⁶ *Ibid*, paragraph 128

25. The ERA decided to apportion GGT's proposed conforming capital expenditure across covered and uncovered services in line with EMCa's recommended approach¹⁷.

GGT submission on capex apportionment approach

26. In line with its Initial Proposal, GGT has attributed capital expenditure to covered or uncovered services where it is directly attributable and has attributed all joint capex to covered services. It does not provide specific information to challenge the apportionment methods we applied to capex items which we considered represented shared costs, instead GGT argues that no joint capex should be apportioned to uncovered services.

EMCa assessment

27. Given the premise that under the regulatory framework joint costs can be shared across covered and uncovered services, our technical advice on how conforming capex should be apportioned between the covered and uncovered services remains the same i.e. consistent with the recap provided in the paragraph above.

2.3.3 Opex cost apportionment

Recap of the recommendations in our Technical Report

28. The ERA determined that a number of GGT's proposed opex items were not directly attributable to covered services and hence should be jointly apportioned across covered and uncovered services. EMCa provided advice on the proportion of joint opex for allocation to the covered services.¹⁸ GGT's submission on opex apportionment approach
29. GGT has not accepted the ERA's draft determination regarding proportion of operating expenditure to be allocated to covered services. It maintains its original approach and proposed the same cost allocators it used to apportion the operating expenditure items it considered to be joint costs.
30. For example, GGT directly attributes field expenditure on uncovered laterals to those laterals and allocates some joint opex between covered and uncovered services:
- APTG Commercial Services Fee and Corporate costs (after Group level allocation to GGP which is covered in Section 5.4) apportioned based on relative distance-weight contracted capacity (i.e. contracted TJ.km/day between covered services contracted capacity and the contracted capacity for other GGT pipeline assets); 69% of costs apportioned to covered services
 - ATP Operational Field Services costs and GGT Operating 'Operator Management Fee' apportioned based on expected relative direct costs for Field Services in 2015 with a resulting 76% apportioned to covered services.

¹⁷ ERA Draft Determination, paragraph 1533 and 1554

¹⁸ See section 78.10 of our Technical Report

EMCa assessment

31. We note that GGT's submission is not consistent with its claims in section 9.1 of its revised submission in that it has allocated some opex to uncovered services.
32. GGT provides new capacity data and advises that the physical capacity of the Covered Pipeline is approximately 102.5 TJ/d, not 109 TJ/d which was information that GGT previously provided. And which was used by EMCa and the ERA in its Draft Decision¹⁹. However GGT has not provided an updated cost allocator based on this revised capacity nor has it made reference to any impact this would have on its opex forecast. Based on the context in which this information is provided it is not clear whether GGT is suggesting that this updated figure has been used in its revised submission to allocate opex based on contracted capacity.
33. Given the lack of specific evidence relating to our initial recommendations for apportionment of joint opex costs we recommend that the ERA retains the apportionment approaches advised in our initial Technical Report.

¹⁹ GGT Access Arrangement Revision Proposal: Supplementary Submission, March 2016, page 9

3 Review of GGT's revised proposal for AA2 capex

3.1 Introduction

34. This section contains the results of our review of GGT's revised capex forecast for the AA2 period. Consistent with our assessment of GGT's initial regulatory proposal, we have undertaken this review using the assessment framework set out in section 3.2.1 of our Technical Report.
35. The results of our review and our overall assessment of whether GGT's revised capex can be considered conforming capex are set out below.

3.2 GGT's revised AA2 proposed conforming capex

36. GGT has not changed its total proposed conforming AA2 period expenditure in its Response, other than to provide actual data in place of the forecasts that it previously used for 2014 expenditure.²⁰ This has led to changes to the proposed conforming expenditure of a number of individual projects.
37. GGT addresses the ERA's assessment of capital expenditure for the AA2 period in section 4.1.1 of its Revised Proposal. GGT has not provided project-specific feedback on projects which the ERA (based on EMCa's advice) adjusted its initial proposed expenditure due to a re-apportionment of expenditure across covered and uncovered services. EMCa reappportioned AA2 expenditure between covered and uncovered assets where GGT did not specify that the nominated expenditure was directly

²⁰ GGP, Access Arrangement Response to ERA Draft Decision CONFIDENTIAL, section 4.1, page 42 and Table 3, section 4.1.1, pages 46-47

attributable only to covered services²¹. As outlined in section 2, whilst focusing on the argument that no capex associated with shared regulated assets should be apportioned to uncovered services, GGT does not provide specific information to challenge this apportionment approach.

3.3 EMCa assessment of projects

3.3.1 Projects in the 'Pipelines and Laterals' category

38. GGT proposed conforming capex for two projects in this category in its Initial Proposal. Based on EMCa's advice, the ERA disallowed expenditure on one of the projects: *Gorgon-GGP interconnection*. EMCa considered that the expenditure had been based on the request of a single pipeline User and was a speculative requirement and therefore should have been paid for by the User.
39. GGT disagrees with our initial finding.²² It advises in its Revised Proposal that Gorgon is a major addition to domestic gas supplies, it is a major addition to competition in the domestic gas market, and its importance will increase in the future as North West Shelf gas supplies to the domestic market decline.²³ GGT also states that whilst only one User made the request in writing, others had enquired, and further states that:
- 'GGT notes that studies of this nature are undertaken on a regular basis and would, in some cases, be paid for by a potential customer. However, the nature of the Gorgon project, and its potential to affect multiple end-users on the pipeline meant assessment by GGT, effectively on behalf of all GGP users, was appropriate.'*²⁴
40. GGT considers that the investigation into the development was important to ensure the long term maintenance of the integrity of services.
41. The new and updated information now provided is sufficient for EMCa to consider that the expenditure on the *Gorgon-GGP interconnection* capex was for the potential benefit of all shippers (satisfying NGR rule 79(1)(b)) and was consistent with confirming the integrity of services from the GGP in accordance with the requirement of rule 79(2)(c)(ii). The relatively small amount of expenditure was due to discontinuing the research. We consider the expenditure meets the requirements of NGR rule 79 and 74(2). We also consider that the expenditure is appropriately apportioned to covered assets.

Summary adjustment table

42. The table below shows the changes in assessment from GGT's Initial Proposal through to our revised adjusted amount for this expenditure category.

²¹ GGT explicitly stated in on the documentation for only one SIB project – Enterprise Asset Management System (GGT, *BC13 EAM Business Case*, Page 5) – in which the 'allocator' used was the ratio of the capacity of the Covered Pipeline to the capacity of the GGP; refer to paragraph 128 in our Technical Report for a description of the apportionment methodology

²² EMCa, technical Report, Table 8, Pipelines and Laterals, page 36

²³ GGP, Access Arrangement Response to ERA Draft Decision CONFIDENTIAL, pages 48-49

²⁴ *Ibid*, page 49

Table 1: Assessment of Revised Pipeline and Laterals AA2 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Work near easement	-0.091	-0.091	-0.090	0.000	-0.090
Gorgon-GGP interconnection	0.026	0.000	0.026	0.000	0.026
Total	-0.065	-0.091	-0.064	0.000	-0.064

Source: EMCa analysis derived from GGT response to ERA23 and ERA draft decision table 87

3.3.2 Projects in the 'Compressor Stations' category

43. GGT's proposed conforming capex for 16 projects in this category in its Initial Proposal. Based on our advice, the ERA determined that 100% of the capex for seven of the projects satisfied the requirements of the NGR. EMCa recommended adjustments to the expenditure for eight projects on the basis of lack of evidence from GGT that the expenditure was for work only on covered compressor station assets. GGT has not provided any project-specific new information on these projects. GGT has provided project-specific new information on the remaining project, *PLC support software*, as discussed below.
44. GGT's PLC support software provides remote access to the control systems of compressor units and gas engine alternators at compressor stations. Based on EMCa's advice, the ERA disallowed expenditure because information provided by GGT indicated the project should be self-funding.
45. GGT advises in its Revised Proposal²⁵ that the expenditure allows potential disruptions to gas flows which can be corrected by changes to settings to be effected as soon as they occur (i.e. without the need for on-site intervention), ensuring that the integrity of the pipeline service is maintained. We consider the new/updated information is sufficient to confirm that the expenditure satisfies Rules 79(1)(b), 79(1)(a), and Rule 74(2) of the NGR with the exception of the apportionment of expenditure. In its Revised Proposal, GGT has not confirmed explicitly that only the portion of the PLC software expenditure for compressors associated with the Covered Pipeline was submitted as conforming capex. In the absence of such confirmation, we consider that it is reasonable to assume that GGT's position regarding PLC support software expenditure is consistent with its view that apportionment of such expenditure is not required (as discussed in section 2.2, above). However, we find that only 46%²⁶ or \$0.045m of the proposed \$0.098m expenditure should be apportioned to Covered assets.

Summary adjustment table

46. The table below shows the changes in assessment from GGT's Initial Proposal through to our revised adjusted amount for this expenditure category. In its Revised Proposal, GGT aggregated the expenditure for eight projects under a single new project category (Stay in business compressor station CAPEX). In our Technical Report, we considered

²⁵ *Ibid*, page 50

²⁶ Six of the thirteen identified GGP pipeline compressor units are identified as serving the Covered Pipeline in GGT, *Goldfields Gas Pipeline 11-Sep-2014*, slide 9. See section 2.2 for further detail capex apportionment between covered and uncovered services.

the expenditure for four of the projects²⁷ to fulfil the requirements of NGR. For three other projects²⁸ we considered that only 67% of the proposed expenditure should be apportioned to covered assets and we have been provided with no new information to change our finding. The remaining project in this 'aggregated' expenditure project is PLC support software, discussed above. Taking into account the previous and updated information from GGT, the revised adjustment to these eight projects aggregated by GGT as 'Stay in Business compressor station CAPEX' is -27%, leading to an overall adjustment for the Compressor Station expenditure category of -23.5%.

Table 2: Assessment of Revised Compressor Station AA2 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Yarraloola engine rebuild at 48,000 hours	0.241	0.241	0.239	0.000	0.239
Purchase of borescope	0.050	0.040	0.050	-0.010	0.040
Wiluna compressor station GEA	0.185	0.185			
Yarraloola replacement ESD, fire and gas systems	0.502	0.336	0.616	-0.203	0.413
Yarraloola lightning protection upgrade	0.014	0.009			0.000
Paraburdoo replacement pressure safety valves	0.017	0.017	0.018	0.000	0.018
Yarraloola hazardous area compliance	0.066	0.044			
Hazardous area remediation	-0.026	-0.026			
GGP hazardous area upgrade	0.308	0.207			
Yarraloola hazardous area reclassification	0.276	0.185	0.315	-0.104	0.211
Ilgarari hazardous area reclassification	0.243	0.243	0.255	0.000	0.255
PLC support software	0.098	0.000			
Yarraloola controls upgrade	0.002	0.002			
Yarraloola capital spares	0.128	0.086	0.127	-0.042	0.085
Yarraloola spare parts storage	0.019	0.012	0.018	-0.006	0.012
Reference meter replacement	0.126	0.126			
Stay in business compressor station CAPEX			0.669	-0.178	0.491
Total	2.249	1.708	2.306	-0.543	1.763

Source: EMCa analysis derived from GGT response to ERA23 and ERA draft decision table 87.

3.3.3 Projects in the 'Receipt and delivery point facilities' category

47. In its Initial Proposal, GGT nominated expenditure related to two projects under this expenditure category. In our Technical Report we considered the expenditure to satisfy the NGR requirements for Conforming capex.
48. As shown in the table below, in its Revised Proposal GGT now advises that the expenditure in this category was for Hydrocarbon dew point monitoring, with a slightly increased overall expenditure.²⁹ GGT has provided no explanation for the alteration of its initial advice. Based on our industry experience, we consider that the amount GGT reports spending on Hydrocarbon dew point monitoring is likely to be justified under rule

²⁷ Wiluna compressor station GEA, Hazardous area remediation, Yarraloola controls upgrade and Reference meter replacement

²⁸ Yarraloola hazardous area compliance, Yarraloola Lightning protection upgrade and GGP hazardous area upgrade

²⁹ From \$0.307m to \$0.320m, GGT response to ERA23

79(1)(b)(ii), provides operational information for the provision of covered services³⁰ and the expenditure appears to be reasonable.

Summary adjustment table

49. Based on the information provided in its Initial Proposal and based on our industry knowledge, we consider that the amount of \$0.32m is Conforming expenditure.

Table 3: Assessment of Receipt & delivery point facilities AA2 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
DBNGP-GGP inlet filter upgrade	0.022	0.022			
Yarraloola station flow meter upgrade	0.283	0.283			
Hydrocarbon dew point monitoring			0.320	0.000	0.320
Total	0.305	0.305	0.320	0.000	0.320

Source: EMCa analysis derived from GGT response to ERA23 and ERA draft decision table 87.

3.3.4 Projects in the 'SCADA and communications' category

50. In its Initial Proposal, GGT identified five projects for which it reported expenditure of \$2.648m.³¹ In our Technical Report, we considered that, in the absence of evidence from GGT to the contrary, only a portion of the proposed expenditure could be considered as Conforming capex.³² In its Revised Proposal GGT has: (i) apparently deleted one project,³³ and aggregated the expenditure from the other four projects into three projects,³⁴ (ii) incorporated actual 2014 expenditure, (iii) not addressed (at a project level) the issue of apportionment, and (iv) proposed an increase in overall expenditure to \$3.299m.³⁵
51. GGT has provided no explanation for the differences between its Revised and Initial Proposals in this expenditure category, other than to advise that 2014 actual expenditure is now incorporated into its Revised Proposal.
52. The three renamed projects relate directly to Paraburdoo and Yarraloola compressor stations and the Newman scraper station. As reported in our Technical Report,³⁶ we consider that the expenditure is justified under rule 79(1)(a) and (b) and that the quantum of expenditure satisfies rule 74(2) with the exception of the apportionment of expenditure. We do not consider that GGT has provided sufficient evidence that it has appropriately apportioned the expenditure to the covered assets. Consistent with the apportionment approach in our Technical Report, we consider that 33% of the nominated expenditure at Paraburdoo compressor station, 67% of the nominated expenditure at Yarraloola compressor station, and 100% of nominated capex at

³⁰ It provides information to maintain gas quality/integrity at gas inlet points

³¹ Noting that the expenditure for 2014 was, at the time, a forecast amount

³² Due to apparently incorrect apportionment of expenditure to providing covered services

³³ GGP UPS upgrade

³⁴ The expenditure profile for the projects nominated in its Initial Proposal closely match the expenditure profile for the renamed projects in GGT's Revised Proposal with the exception of 2014, for which actual information is now reported

³⁵ GGT, response to ERA23

³⁶ EMCa Technical Report, paragraph 128 and Table 8

Newman scraper station should be apportioned to the covered assets, as shown in the table below.

Summary adjustment table

Table 4: Assessment of SCADA communication AA2 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
GGP satellite communications upgrade	0.199	0.159			
Replacement of SCADA system master station	1.993	1.595			
Yarraloola SCADA communications upgrade	0.336	0.225			
Paraburdoo SCADA communications upgrade	0.050	0.016			
GGP UPS Upgrade	0.069	0.055			
Yarraloola Quantum RTU upgrade			2.531	-0.835	1.696
Paraburdoo compressor station Quantum RTU			0.197	-0.132	0.065
Newman scraper station Quantum RTU upgrade			0.572	0.000	0.572
Total	2.647	2.050	3.299	-0.967	2.333

Source: EMCa analysis derived from GGT response to ERA23 and ERA draft decision table 87.

3.3.5 Projects in the 'Cathodic protection' category

53. GGT did not include any projects in this expenditure category in its Initial or Revised Proposals.

3.3.6 Projects in the 'Maintenance bases and depots' category

54. In its Initial Proposal, GGT identified four projects for which it reported expenditure of \$1.507m.³⁷ In our Technical Report, we considered that, in the absence of evidence from GGT to the contrary, only a portion of the proposed expenditure could be considered as Conforming capex.³⁸ In its Revised Proposal GGT has: (i) apparently aggregated the expenditure from two projects³⁹ into one project,⁴⁰ (ii) incorporated actual 2014 expenditure, (iii) not addressed (at a project level) the issue of apportionment, and (iv) proposed an reduction in overall expenditure to \$1.438m.⁴¹
55. GGT has provided no explanation for the differences between its Revised and Initial Proposals in this expenditure category, other than to advise that 2014 actual expenditure is now incorporated into its Revised Proposal.
56. As reported in our Technical Report,⁴² we consider that the expenditure is justified under rule 79(1)(a) and (b) and that the quantum of expenditure satisfies rule 74(2) with the exception of the apportionment of expenditure. We do not consider GGT has provided sufficient evidence that it has appropriately apportioned the expenditure to the covered assets. Consistent with the apportionment approach in our Technical Report, we

³⁷ Noting that the expenditure for 2014 was, at the time, a forecast amount

³⁸ Due to apparently incorrect apportionment of expenditure to providing covered services

³⁹ Karratha maintenance base repairs and Yarraloola accommodation

⁴⁰ The expenditure profile for the projects nominated in its Initial Proposal closely match the expenditure profile for the renamed projects in GGT's Revised Proposal with the exception of 2014, for which actual information is now reported

⁴¹ GGT, response to ERA23

⁴² EMCa Technical Report, paragraph 128 and Table 8

consider that 80% of the nominated expenditure incurred for the three projects should be apportioned to the covered assets, as shown in the table below.

Summary adjustment table

Table 5: Assessment of Maintenance bases and depots AA2 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Karratha maintenance base repairs	0.017	0.013			
Karratha spare parts storage	0.015	0.012	0.015	-0.003	0.012
Yarraloola accommodation	1.320	1.056			
Accommodation units (Paraburdoo and Leinster)	0.155	0.124	0.072	-0.014	0.058
Stay-in-business maintenance bases CAPEX			1.350	-0.270	1.080
Total	1.507	1.205	1.438	-0.288	1.150

Source: EMCa analysis derived from GGT response to ERA23 and ERA draft decision table 87.

3.3.7 Projects in the 'Other depreciable assets' category

57. GGT proposed conforming capex for thirteen projects in this category in its Initial Proposal. Based on our advice, the ERA determined that the capex for three of the projects satisfied the requirements of the NGR for Conforming capex.⁴³ EMCa recommended adjustments to the expenditure for six projects⁴⁴ on the basis that GGT's submission lacked evidence that the expenditure was for work only on Covered Pipeline compressors.⁴⁵ EMCa did not find sufficient information in GGT's Initial Proposal to confirm the business need for the four 'tools and equipment' projects⁴⁶, nor whether the expenditure was reasonable, nor apportioned appropriately to the provision of covered services.
58. In its Revised Proposal GGT⁴⁷ has: (i) aggregated the expenditure from eight of the thirteen projects into one project ('Stay in Business other assets CAPEX'),⁴⁸ (ii) renamed the Enterprise asset management system project as 'Asset and document management systems' and reduced the expenditure (iii) aggregated three projects⁴⁹ into one project ('Miscellaneous tools'), (iv) retained the 'Office furniture' project, (v) incorporated actual 2014 expenditure, (vi) not addressed (at a project level) the issue of apportionment, and (vii) proposed a reduction in overall expenditure to \$0.733m.

⁴³ Office furniture (although this was recommended to be adjusted, the amount was immaterial), Reversal of accounting errors, and Enterprise Asset Management system

⁴⁴ Refer to EMCa Technical Report, Table 8

⁴⁵ According to the definition of those assets provided by GGT in its presentation: *Goldfields Gas Pipeline 11-Sep-2014*, slide 9

⁴⁶ Tools and gas detectors, Purchase of test instruments, Fluke process calibrator, and E&I field response equipment

⁴⁷ GGT, response to Information Request ERA23, with reference to GGT's response to Information Request ERA26

⁴⁸ Fluke process calibrator, IT equipment, Kalgoorlie West Battery Charger, GGT BM85 Replacement Program, IDMT Phase II, Hut LED lighting, miscellaneous capital, Reversal of accounting errors

⁴⁹ Tools and gas detectors, Purchase of test instruments, and E&I Field Response Equipment

59. In its Revised Proposal⁵⁰, GGT has provided additional information for the four 'tools and equipment' projects which, in combination with the explanations of the need to replace other obsolete/unserviceable assets in this category, is sufficient to confirm that the expenditure satisfies Rule 79(1)(a) and (b) and Rule 74(2) of the NGR with the exception of the apportionment of expenditure. The tools, instruments, and other similar equipment that GGT has identified are equally able to be directed to maintaining the integrity of uncovered pipeline assets. GGT does not provide evidence in its Revised Proposal that the expenditure was apportioned to the use on covered assets only. In the absence of such confirmation, we consider that it is reasonable to assume that GGT's position regarding the apportionment of expenditure between covered and other assets for the four 'tools and equipment' projects is consistent with its view that apportionment of such expenditure is not required.
60. Taking into account the previous and updated information from GGT, the revised adjustment to the eight projects aggregated by GGT as 'Stay in Business compressor station CAPEX' is -18%. The recommended adjustment to the 'Miscellaneous tools' project is -20%.⁵¹ Consistent with our finding in our Technical Report, we do not recommend an adjustment to the 'Asset and document management systems' project or an adjustment to the 'Office furniture' project. This results in a recommended overall adjustment for the Other Depreciable Assets expenditure category of -11.5%.

Summary adjustment table

Table 6: Assessment of Other depreciable assets AA2 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Tools and gas detectors	0.160	0.000			
Purchase of test instruments	0.004	0.000			
Office furniture	0.002	0.002	0.002	0.000	0.002
Reversal of accounting errors	-0.016	-0.016			
Fluke process calibrator	0.029	0.000			
IT equipment	0.008	0.006			
Enterprise Asset Management system	1.099	1.099			
Kalgoorlie W est battery charger	0.037	0.037			
GGP BM85 replacement program	0.018	0.014			
IDMT Phase II	0.140	0.112			
E&I field response equipment	0.021	0.000			
Hut LED lighting	0.051	0.041			
Miscellaneous capital	0.039	0.031			
Miscellaneous tools			0.187	-0.037	0.150
Asset and document management systems			0.286	0.000	0.286
Stay-in-business other assets CAPEX			0.258	-0.046	0.212
Total	1.593	1.326	0.733	-0.084	0.649

Source: EMCa analysis derived from GGT response to ERA23 and ERA draft decision table 87.

⁵⁰ *Ibid*, page 51

⁵¹ This is based on the apportionment of 80% of expenditure to the Covered Pipeline assets according to the ration of capacity of the Covered and other pipelines, discussed

3.4 Summary of EMCa's revised assessment

61. In its Revised Response, GGT has not provided new information concerning individual projects for which we recommended an adjustment in our Technical Report on the basis of what we considered to be the appropriate apportionment of expenditure to covered assets only. GGT has provided some new and updated information for capex projects for which we recommended an adjustment on the basis of rules 79 or rule 74(2).
62. We have considered the new and updated information and we consider that GGT has in some, but not all cases provided information that addressed the concerns we raised in our Technical Report. Where GGT has not responded to the concerns we raised in our Technical Report our findings have not changed.
63. In its Revised Proposal, GGT no longer indicates expenditure against some projects, and has introduced new projects which, in the main, aggregate expenditure from the projects no longer included.⁵² Where we consider adjustments are still required to determine Conforming capex in accordance with the NGR, we have applied adjustments consistent with our approach used in our Technical Report.
64. The results of our review are summarised in the table below. The new/updated information has led us to revise our recommended adjustment from -\$1.73m (-21% of GGT's proposed Conforming expenditure) to -\$1.88m (-23.4%), noting that GGT revised its proposed conforming capex by -\$0.22m (-3%).

Table 7: Summary of revised AA2 Capex adjustment- \$m, real Dec 2013⁵³

Assessment category	Actual as previously proposed	EMCa previously adjusted	ERA Draft Decision	GGT Revised proposal	EMCa current adjustments	EMCa Adjusted
Pipeline and laterals	-0.065	-0.091	-0.091	-0.064	0.000	-0.064
Main line valve and scraper stations	0.000	0.000	0.000	0.000	0.000	0.000
Compressor stations	2.249	1.708	1.702	2.306	-0.543	1.763
Receipt and delivery point facilities	0.305	0.305	0.303	0.320	0.000	0.320
SCADA and communications	2.647	2.050	2.045	3.299	-0.967	2.333
Cathodic protection	0.000	0.000	0.000	0.000	0.000	0.000
Maintenance bases and depots	1.507	1.205	1.204	1.438	-0.288	1.150
Other assets	1.593	1.326	1.315	0.733	-0.084	0.649
Non-depreciable assets	0.000	0.000	0.000	0.000	0.000	0.000
Total	8.235	6.504	6.478	8.033	-1.881	6.151

Source: EMCa analysis derived from GGT response to ERA23 and ERA draft decision table 87.

⁵² Some projects in the Initial Proposal which had forecast expenditure in 2014 have been deleted in the Revised Proposal, presumably as they did not proceed as planned

⁵³ The figures for the columns 'Actual as previously proposed', 'EMCa previously adjusted' and 'ERA Draft Decision' differ slightly from those presented in the prior documents, due to updated inflation assumptions used in inflating from nominal to \$2013 real terms.

4 Review of GGT's revised proposed AA3 capex

4.1 Introduction

65. This section describes the results of our review of GGT's revised capex forecast for the AA3 period. Consistent with our assessment of GGT's Initial Proposal, we have undertaken this review using the assessment framework set out in section 3.2.1 of our Technical Report.⁵⁴
66. The results of our review and our overall assessment of the extent to which GGTs revised capex can be considered conforming capex (rule 79) are set out below⁵⁵.

4.2 GGT's revised AA3 proposed capex

67. In its Initial Proposal, GGT proposed spending \$12.855m on Stay In Business (SIB) capex projects in the AA3 period which was all attributed to the Covered Pipeline. There was no provision for AA3 Growth capex associated with the Covered Pipeline in its Initial Proposal.

⁵⁴ EMCa report, Review of Technical Aspects of the Proposed Access Arrangement, December 2015
<https://www.erawa.com.au/cproot/14129/2/EMCa%20Report%20%E2%80%93%20Review%20of%20Technical%20Aspects%20of%20the%20Proposed%20Access%20Arrangement.pdf>

⁵⁵ Figures in this section are presented in December 2013 real terms. To the extent that GGT presents forecast expenditures in nominal terms, these have been deflated using an inflation rate of 1.9%, consistent with GGT's own calculations in supporting spreadsheets to its Revised Proposal. In its Initial Proposal GGT used an inflation rate of 3% p.a. GGT has typically explained that one of the reasons for the changes to its forecasts is the inflation rate, however by undertaking our comparisons in real terms this corrects for the difference in the inflation assumption. We have therefore omitted this aspect of GGT's explanation of differences in this section as it is only other factors that are relevant to our assessment.

68. The ERA did not accept that all of GGT's proposed AA3 expenditure was likely to represent prudent and efficient expenditure in accordance with the requirements of the NGR⁵⁶ and adjusted AA3 proposed capex based on EMCa's recommendations.
69. In its Revised Proposal, GGT nominates \$11.385m AA3 SIB expenditure, with the difference due to changes to some of its forecast expenditure, including project cancellation.⁵⁷
70. GGT does not accept the basis for which the ERA derived adjusted capital expenditure:
- 'EMCa's cuts to GGT's forecast capital expenditures appear to be arbitrary reductions that were not based on any engineering or technical considerations, and were not based on good industry practice... The forecast of capital expenditure which the ERA is now requiring that GGT adopt for the period 2015 to 2019 has not been arrived at on a reasonable basis, and does not represent the best forecast possible in the circumstances. It does not comply with the requirements of 74(2) of the NGR.'*⁵⁸
71. GGT has provided new and updated information for a number of proposed projects for which EMCa raised specific issues in the Technical Report.
72. We first consider GGT's new and updated project information then, in section 4.4, we address GGT's concerns with the adjustment methodology.

4.3 EMCa assessment

4.3.1 Pipelines & Laterals

73. In our Technical Report, we discussed GGT's proposed expenditure in accordance with the sub-projects considered under five business cases⁵⁹ and one other (Pipeline protection repair) for which there was no supporting business case. In its Revised Proposal, GGT has provided new and additional information for three of the sub-categories of expenditure, as discussed below.

Easement erosion repair (BC09)

74. In our Technical Report, we noted that GGT proposed expenditure to cater for three remedial grading 'programs' over the AA3 period. Whilst we accepted that severe flooding can lead to the need to repair the pipeline easement, we also considered that *'GGT has not provided sufficient evidence that flooding of the magnitude that requires extensive grading occurs on average every 2 years.'*⁶⁰ We recommended provision for one repair project. Furthermore, as GGT had not provided sufficiently compelling information to convince us that the cost estimate was reasonable, we recommended reducing the allowance by a further 20% consistent with the requirements of rule 74(2).

⁵⁶ EMCa evaluated GGT's proposed Conforming capex in accordance with the requirements of NGR Rules

⁵⁷ GGT, response to ERA23

⁵⁸ GGT, Access Arrangement Revision Proposal: Response to ERA Draft Decision, Jan 2016, page 53

⁵⁹ BC01, BC02, BC12, BC17, BC09

⁶⁰ EMCa, Review of Technical Aspects of the Proposed Access Arrangement, Dec 2014, Table 11

75. In section 4.3.1 of its Response, GGT confirms that the northern part of the GGP is within a cyclonic zone and is subject to heavy rainfalls which can scour the pipeline easement and which must be repaired. GGT has provided a photograph of scouring damage to the pipeline easement.
76. Consistent with our Technical Report, we consider that there is a business need to which GGT needs to respond, so we considered, and still do, that some expenditure was warranted in accordance with the requirements of rules 79(1)(a) and (b). In our view, GGT has still not provided information which we consider satisfactory to demonstrate that easement erosion of sufficient severity occurs more frequently than the single event that we allowed for in our initial assessment. It has provided no statistical evidence to support its case. It is not apparent to us from its AA2 expenditure in the Pipelines & Laterals category that it spent capex on easement repair over the five year period. We assume it manages minor erosion repair under its reactive maintenance budget. GGT has provided no further information on the derivation of the cost estimate for the projected AA3 work (e.g. on the basis of historical expenditure).
77. We therefore find no compelling reason to change our initial assessment which was that GGT has not provided sufficient information to demonstrate that all the proposed expenditure satisfies rule 74(2). We consider that reducing GGT's revised proposed expenditure from [REDACTED] to [REDACTED] is sufficient Conforming capex.

In-line inspection verification digs (BC17)

78. In our report to the ERA, we noted that in its document BC17, GGT proposed funding for 72 verification digs on the pipeline on the basis of six digs on each of nine mainline sections and on the Newman and two interconnection pipelines. We considered that verification digs are required as a provision of its licence obligations and are representative of good industry practice, satisfying the requirements of rules 79(1)(a) and (b). We accepted GGT's assessment that the mainline sections would require six digs each on average. However, because (i) at 48km, the Newman lateral is three times shorter than the average length of the nine mainline sections, and (ii) the interconnection pipelines are also relatively short, we determined that an average of two digs for each of the shorter sections would suffice, giving a total of 60 digs. Furthermore, GGT did not provide sufficient evidence to convince us that the proposed [REDACTED] per dig was reasonably estimated. We therefore recommended reducing the allowed expenditure by a further 20% (i.e. after reducing the number of digs from 72 to 60).
79. In section 4.3.2 of its Revised Proposal, GGT advises that its derivation of the number of digs was not arbitrary: *'It is determined using the standard principles of statistical sampling.'*⁶² GGT did not provide further information to substantiate the estimated cost per dig, nor did it explain why the number of digs on the much shorter pipeline sections needed to be the same as for the much longer pipeline sections.
80. In summary, GGT has not provided any new information to justify 6 digs for each of the three shorter sections nor has it provided supplementary information in support of its

⁶¹ This is an updated amount provided in GGT's Revised Proposal, per its response to ERA23

⁶² GGT, Access Arrangement Revision Proposal: Response to ERA Draft Decision, Jan 2016, page 55

cost estimate. We therefore consider there is no basis on which to change our original position.⁶³

Pipeline protection repair

81. GGT did not provide any information in its Initial Proposal regarding this project and we therefore considered the expenditure did not satisfy the requirements of NGR rules 79(1)(a) and (b) or rule 74(2).
82. In its Revised Proposal, GGT has provided sufficient justification of the business need and of the basis for the cost estimate. We now consider that the proposed \$0.064m expenditure satisfies the requirement of rules 79(1)(a) and (b), and rule 74(2).

Other projects in this category

83. GGT has not provided new information nor altered the nominated expenditure for the remaining projects in this category. On this basis, we have not changed our assessment from that reported in our Technical Report.

Summary adjustment table

84. GGT's expenditure in this expenditure category is identical (to three decimal places) to the total amount in its Initial Proposal despite including actual (rather than forecast) 2014 expenditure in its Revised Proposal. The table below summarises our initial and revised adjustments for this expenditure category.

Table 8: Pipeline and laterals proposed AA3 expenditures - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Easement repair for in-line inspection				-0.043	
16" Mainline in-line inspection				-0.216	
14" Mainline in-line inspection				-0.339	
Newman Lateral in-line inspection				-0.041	
In-line inspection verification dig-ups				-0.513	
Pipeline protection repair - unanticipated encroachment				0.000	
In-line inspection of DBNGP interconnect pipeline				-0.029	
In-line inspection of Apache interconnect pipeline				-0.029	
Easement erosion repair				-0.256	
Total	5.514	4.296	5.514	-1.466	4.048

Sources: EMCa analysis derived from GGT's response to Information Request ERA23⁶⁴.

4.3.2 Mainline valve and scraper stations

85. GGT has provided no new information pertaining to the two projects in this category. We have therefore not changed our initial assessment which (as shown in the table below) was to reduce GGT's proposed expenditure by 20%. The recommended adjustment was in accordance with rule 74(2) to account for GGT's proven ability to deliver projects for much less than its preliminary estimated amounts as evidenced by the 70% underspend of the ERA-approved capex allowance in the AA2 period.

⁶³ Note the adjusted amount in Table 9 corrects a modelling error in the Technical Report

⁶⁴ See footnote to Table 17 (section 4.5).

Summary adjustment table

86. GGT's expenditure in this expenditure category is identical (to three decimal places) to the total amount in its Initial Proposal despite including actual (rather than forecast) 2014 expenditure in its Revised Proposal. The table below shows the proposed adjustments for the two projects in this category which we aggregated in our Technical Report.

Table 9: Mainline valve and scraper stations proposed AA3 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Install scaper station facilities on DBNGP-GGP interconnect				-0.064	
Install scaper station facilities on Apache-GGP interconnect				-0.064	
Total	0.641	0.513	0.641	-0.128	0.513

Sources: EMCa analysis derived from GGT's response to Information Request ERA23.

4.3.3 Compressor stations

87. GGT proposed 18 projects under this category in its Initial Proposal⁶⁵. GGT did not present any information for six relatively small projects⁶⁶. We considered that for those projects the absence of any justification did not satisfy the requirements of NGR rule rules 79. We considered that the expenditure proposed for one project⁶⁷ satisfied the requirements of NGR rules 79 and rule 74(2). We recommended adjustments to the remaining 11 projects on the basis of GGT not providing sufficient information to satisfy the requirements of rule 74(2).⁶⁸
88. In sections 4.3.3 and 4.3.4 of its Revised Proposal, GGT has provided new and updated information for 12 of the 17 projects for which EMCa recommended adjustments, as discussed below.

Six small projects for which there was no information

89. GGT has now provided background information on the six small projects⁶⁹, including justification of the business need and the basis for the cost estimate in each case. GGT has also advised that two projects⁷⁰ are no longer required.

⁶⁵ In our Technical Report, Table 11, we aggregated the projects into seven groups based on the six business cases provided by GGT and an 'other' projects comprising the six small projects

⁶⁶ Yarraloola GEA PLC upgrade, Yarraloola accommodation to workshop conversion, Paraburdoo unit 1 human-machine interface upgrade, Paraburdoo accommodation upgrade, Ilgarari GEA PLC upgrade, Rotational spare DN 300 RA valve

⁶⁷ Paraburdoo Unit 1 turbine exchange

⁶⁸ That is, GGT provided sufficient information in its Initial Proposal to satisfy us that the requirements of rule 79(1) were satisfied; for one project (GEA major servicing) we also recommended an adjustment based on apportionment of expenditure to covered assets only

⁶⁹ GGP, Attachment 4 - Summary CAPEX business cases

⁷⁰ Paraburdoo unit 1 HI upgrade and Paraburdoo accommodation upgrade

90. We consider that the proposed \$0.179m capex for the four remaining small projects⁷¹ satisfies the requirements of rule 74(2).

Yarraloola fire system

91. In our Technical Report we accepted the business need for this project per rule 79(1), but we were not satisfied that the information provided by GGT was sufficient to offset our concerns regarding its expenditure forecasting. We therefore considered that only 80% of the proposed expenditure satisfied rule 74(2).
92. GGT has provided additional information concerning the nature of the work required to replace the obsolete fire system,⁷² but it has not provided any information to offset our concerns regarding its expenditure forecasting.
93. We have not been provided any basis to change our original view that only [REDACTED] of the proposed [REDACTED] expenditure satisfies rule 74(2).

Compressor station PLC backplane upgrades

94. In our Technical Report we accepted the business need for this project per rule 79(1), but we were not satisfied that the information provided by GGT was sufficient to offset our concerns regarding its expenditure forecasting. We therefore considered that only 80% of the proposed expenditure satisfied rule 74(2).
95. GGT has provided additional information concerning the nature of the work required to replace the obsolete PLC backplanes at the Ilgarari and Yarraloola compressor stations, but it has not provided any information to offset our concerns regarding its expenditure forecasting⁷³.
96. We have not been provided any basis to change our original view that only [REDACTED] of the proposed [REDACTED] expenditure satisfies rule 74(2).

Compressor station hazardous area upgrades

97. In our Technical Report we accepted the business need for the four projects⁷⁴ per rule 79(1), but we were not satisfied that the information provided by GGT was sufficient to offset our concerns regarding its expenditure forecasting. We therefore considered that only 80% of the proposed expenditure satisfied rule 74(2).⁷⁵
98. GGT has provided additional information which confirms that our expectation that costs could be progressively reduced from applying lessons learned from the relatively short (four year) upgrade cycle was not reasonably achievable.⁷⁶ As GGT has based its expenditure forecast for the four hazardous area upgrades on relatively recent upgrade

⁷¹ Yarraloola GEA PLC upgrade, Yarraloola accommodation to workshop conversion, Ilgarari GEA PLC upgrade, Rotational spare DN 300 RA valve

⁷² GGT, Access Arrangement Response to ERA Draft Decision, page 57

⁷³ *Ibid*

⁷⁴ At Yarraloola, Paraburdoo, Ilgarari, and Wiluna

⁷⁵ A calculation error in our Technical Report resulted in a 48% reduction

⁷⁶ *Ibid*, page 58

projects and has an experienced, preferred vendor for the work, we now consider that the proposed expenditure of [REDACTED] is likely to satisfy rule 74(2).

Other projects in this category

99. GGT has not provided new information for the remaining projects in this category. On this basis, we have not changed our assessment from that reported in our Technical Report (other than to use GGT's revised expenditure forecast), which is summarised as follows:

- Replace lighting towers (BC14) – we considered the work satisfied the requirements of rule 79(1) but that the estimated expenditure did not satisfy rule 74(2);
- GEA major overhaul (BC20)⁷⁷ – We considered the work satisfied the requirements of rule 79(1), but we did not consider that the proposed total expenditure satisfied rule 74(2); and
- Paraburdoo Unit 1 turbine exchange (BC23) – as noted above, we considered the proposed expenditure satisfied the requirements of the NGR and this remains the case.

Summary adjustment table

100. GGT has slightly reduced its proposed Conforming AA2 expenditure in its Revised Proposal. The table below summarises our initial and revised adjustments for this expenditure category.

Table 10: Compressor stations proposed AA3 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Yarraloola and Ilgarari lighting towers replacement				-0.075	
Yarraloola unit PLC backplane upgrade				-0.021	
Yarraloola fire protection system upgrade				-0.020	
Yarraloola GEA PLC upgrade				0.000	
Yarraloola GEA 2 major overhaul				-0.028	
Yarraloola hazardous area upgrade				0.000	
Yarraloola accommodation to workshop conversion				0.000	
Paraburdoo Unit 1 turbine exchange				0.000	
Paraburdoo Unit 1 human-machine interface upgrade				0.000	
Paraburdoo GEA 2 major overhaul				-0.080	
Paraburdoo hazardous area upgrade				0.000	
Paraburdoo accommodation upgrade				0.000	
Ilgarari unit PLC backplane upgrade				-0.021	
Ilgarari GEA PLC upgrade				0.000	
Ilgarari GEA 1 major overhaul				-0.028	
Ilgarari hazardous area upgrade				0.000	
Wiluna hazardous area upgrade				0.000	
Rotational spare DN 300 RA valve				0.000	
Total	2,328	1,415	2,264	-0.274	1,990

Sources: EMCa analysis derived from GGT's response to Information Request ERA23.

⁷⁷ GEA major servicing at Yarraloola, Paraburdoo, and Ilgarari

4.3.4 Receipt and delivery point facilities

101. GGT proposed 11 projects in this category in its Initial Proposal.⁷⁸ GGT did not present any information for three relatively small projects⁷⁹ in its Initial Proposal. We considered that for those projects the absence of any justification did not satisfy the requirements of NGR rule 79(1) or 74(2). We recommended partial adjustments to the remaining 8 projects, as discussed below.

Small projects⁸⁰

102. In its Revised Proposal, GGT has explained the business need and the basis for the cost estimate for each of the three small projects. It has reduced the proposed expenditure of the DBNGP C9 gas chromatograph installation by 30%⁸¹. We now consider that there is sufficient basis for the revised proposed [REDACTED] for these three projects to satisfy the requirements of rules 79(1) and 74(2).

Other projects in this category

103. GGT provided no new or update information for the remaining projects in this category. On this basis, we have not changed our assessment from that reported in our Technical Report (other than to use GGT's revised expenditure forecast), which is summarised as follows:

104. Hydrocarbon dew point (BC19) – we considered the work satisfied the requirements of rule 79(1) but that the estimated expenditure did not satisfy rule 74(2); and

105. Flow computer upgrade (BC21)⁸² – We considered the work satisfied the requirements of rule 79(1), but we did not consider that the total expenditure satisfied rule 74(2).

Summary adjustment table

106. The table below summarises our initial and revised adjustments for this expenditure category.

⁷⁸ In our Technical Report, Table 11, we aggregated the projects into two groups based on the two business cases provided by GGT (BC19 and BC21) and a third, small project (Leonora offtake battery upgrade)

⁷⁹ Leonora battery upgrade, DBNGP C9 gas chromatograph installation and Apache C9 gas chromatograph installation

⁸⁰ In our Technical Report, we incorrectly referred to this project in Table 11 as 'Leonora offtake battery upgrade' – we should have also referred to the gas chromatograph installation projects in the heading

⁸¹ GGP, Attachment 4 - Summary CAPEX business cases

⁸² GEA major servicing at Yarraloola, Paraburdoo, and Ilgarari

Table 11: Receipt and delivery point facilities proposed AA3 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Hydrocarbon dewpoint monitoring				-0.011	
Leonora offtake flow computer upgrade				-0.056	
Murin Murin inlet flow computer upgrade				-0.056	
Leonora offtake battery upgrade				0.000	
Apache-GGP interconnect integrity assessment				0.000	
Paraburdo flow computer 1 (fuel gas) upgrade				-0.056	
Igarani flow computer 1 (fuel gas) upgrade				-0.056	
Wiluna flow computer 1 (fuel gas) upgrade				-0.056	
Jeedamya scraper station flow computer 1 upgrade				-0.056	
DBNGP-GGP interconnect C9 gas chromatograph installation				0.000	
Apache-GGP interconnect C9 gas chromatograph upgrade				0.000	
Total	1.388	0.646	1.324	-0.348	0.977

Sources: EMCa analysis derived from GGT's response to Information Request ERA23.

4.3.5 Scada and communications

107. GGT proposed 18 projects in this category in its Initial Proposal.⁸³ GGT did not present any information for two relatively small projects⁸⁴ in its Initial Proposal. We considered that for those projects the absence of any justification did not satisfy the requirements of NGR rule 74(2). We recommended partial adjustments to the remaining 16 projects.

Small projects

108. In section 4.3.6 of its Revised Proposal, GGT has explained the business need and the basis for the cost estimate for the 'Wiluna compressor station AB PLC5 upgrade' project. We now consider that there is sufficient basis for the revised proposed \$0.090m for the remaining small project to satisfy the requirements of rule 79 and 74(2).

109. GGT advises that it no longer intends proceeding with the 'Engineering PCs in Gas Control Centre' project.⁸⁵

Other projects in this category

110. In our Technical Report we aggregated the expenditure for the other initially proposed projects under three sub-categories in accordance with the business cases that GGT provided in support of the proposed expenditure. GGT has not provided new information in support of the expenditure in its Revised Proposal, but it has reduced its overall expenditure forecast in this category by over 60%. GGT's reduction supports our initial assessment that GGT progressively refines its work program, reducing the required expenditure from a relatively high 'preliminary estimate' starting point. For projects for which GGT has adjusted the expenditure to below our initially proposed amount, we consider that it is reasonable to assume the revised expenditure satisfies the requirements of rule 74(2). The following summarises the basis for our initial assessment of the three sub-project categories:

- BM 85 replacement program (BC04) – our initial assessment was that the business need was justified, satisfying the requirements of rule 79(1), but that the

⁸³ In our Technical Report, Table 11, we aggregated the projects into five groups based on the three business cases provided by GGT (BC11 and BC04) and two small projects for which there were no business cases

⁸⁴ Wiluna compressor station AB PLC5 upgrade and Engineering PC in Gas Control Centre

⁸⁵ GGP, Attachment 4 - Summary CAPEX business cases

expenditure was not justified in accordance with rule 74(2). We recommended an adjustment of -35%. GGT has, in its Revised Proposal, proposed expenditure of less than 50% of its initially proposed amount. We do not propose a further adjustment;

- Upgrade quantum station RTUs (BC11) – our initial assessment was that the business need was justified, satisfying the requirements of rule 79(1), but that the expenditure was not justified in accordance with rule 74(2). We recommended an adjustment of -35%. GGT has, in its Revised Proposal, proposed expenditure of less than 60% of its initially proposed amount. We do not propose a further adjustment; and
- The largest reduction is in the allocation to the GGP of APA’s National Satellite SCADA project (BC25) which GGT has reduced from approximately \$0.4m to \$0.2m in its Revised Proposal. Our initial assessment was that the business need was justified, satisfying the requirements of rule 79(1), but that the expenditure was not justified in accordance with rule 74(2). We do not propose a further adjustment as the revised amount is significantly less than the initially proposed amount and is likely to satisfy rule 74(2).

Summary adjustment table

111. The table below summarises our initial and revised adjustments for this expenditure category.

Table 12: SCADA and communications proposed AA3 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
Yaraloola Quantum RTU upgrade					
Paraburdoo compressor station Quantum RTU upgrade					
Newman scraper station Quantum RTU upgrade					
Igarari compressor station Quantum RTU upgrade					
Three Rivers main line valve Quantum RTU upgrade					
Wiluna compressor station Quantum RTU upgrade					
Mt Keith main line valve Quantum RTU upgrade					
Leinster scraper station Quantum RTU upgrade					
Thunderbox offtake Quantum RTU upgrade					
Leonora main line valve Quantum RTU upgrade					
Leonora offtake Quantum RTU upgrade					
Gwalia offtake Quantum Station RTU upgrade					
Jeedamya scraper station Quantum RTU upgrade					
Kalgoorlie North main line valve Quantum RTU upgrade					
Kalgoorlie West main line valve Quantum RTU upgrade					
BM 85 replacement program phase 2					
Wiluna compressor station AB PLC5 upgrade					
Engineering PC in Gas Control Centre					
National satellite SCADA					
Total	1.268	0.859	0.493	0.000	0.493

Sources: EMCa analysis derived from GGT’s response to Information Request ERA23.

4.3.6 Cathodic protection

112. GGT proposed five relatively small projects in this category in its Initial Proposal⁸⁶ but it did not present any information in support of the proposed expenditure. We considered

⁸⁶ In our Technical Report, Table 11, we aggregated the projects into one group

that the absence of any justification did not satisfy the requirements of NGR rules 79(1) or 74(2) and therefore we recommended no allowance for these projects in our Technical Report.

In section 4.3.7 of its Revised Proposal, GGT has explained the business need and the basis for the cost estimate for four of the five projects. GGT advises that it no longer intends proceeding with the 'Wireless system interface for non-critical control' project.⁸⁷

113. We now consider that there is sufficient basis for the revised proposed \$0.216m for the remaining four small project to satisfy the requirements of rules 79 and 74(2).

Summary adjustment table

114. The table below summarises our initial and revised adjustments for this expenditure category.

Table 13: Cathodic protection proposed AA3 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
CP insulation joint surge protection upgrade					
CP surge diverter upgrades					
CP telemetry for KP670					
CP power supply replacements					
Wireless system interface for non-critical control					
Total	0.262	0.000	0.231	0.000	0.231

Sources: EMCa analysis derived from GGT's response to Information Request ERA23.

4.3.7 Maintenance bases and depots

115. In its Revised Proposal, GGT has reduced its proposed expenditure by approximately 75%. We do not consider that any further adjustment is required.

Summary adjustment table

116. The table below summarises our initial and revised adjustments for this expenditure category.

Table 14: Maintenance bases and depots proposed AA3 expenditure - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted

Sources: EMCa analysis derived from GGT's response to Information Request ERA23.

4.3.8 Other assets

117. In our Technical Report we endorsed the full expenditure proposed on the Enterprise Asset Management (EAM) system project.

118. GGT did not provide any information regarding the 'Hazardous area management software investigation and design' project. We considered that the absence of any

⁸⁷ GGP, Attachment 4 - Summary CAPEX business cases

justification did not satisfy the requirements of NGR rules 79(1) or 74(2). Accordingly, we recommended a 100% reduction in the proposed expenditure for this project. In its Revised Proposal, GGT has advised the project is no longer required.⁸⁸

119. For the remaining sub-category of expenditure (Condition-based replacement⁸⁹ also referred to as Minor capital items), we recommended an adjustment of -55% of the proposed expenditure due to (i) insufficient evidence that the cost estimate met the requirements of rule 74(2) and (ii) insufficient evidence that GGT had correctly apportioned the expenditure to covered assets. GGT has not provided any new information in support of its expenditure and we have applied the same adjustment to GGT's revised amount for the same reasons.

Summary adjustment table

120. The table below summarises our initial and revised adjustments for this expenditure category.

Table 15: Other assets proposed AA3 expenditures - \$m, real Dec 2013

Project	GGT initial proposal	EMCa previously adjusted	GGT revised proposal	EMCa current adjustment	EMCa current adjusted
EAM				0.000	
Hazardous area management software inv				0.000	
Minor capital items				-0.159	
Total	0.836	0.598	0.756	-0.159	0.598

Sources: EMCa analysis derived from GGT's response to Information Request ERA23.

4.4 Proposed adjustments

4.4.1 EMCa adjustment methodology

121. EMCa developed an approach to provide a consistent and realistic basis for adjusting GGT's proposed AA3 expenditure where we were not reasonably satisfied that the proposed expenditure was likely to be an efficient amount.

122. The methodology and the rationale for the adjustments is explained in section 6.3.1 of our Technical Report. It responds in the main to two systemic issues we found in GGT's Initial Proposal:

- (i) Insufficient evidence that GGT had taken into account the 70% underspend of its AA2 allowance (i.e. as approved by the ERA) in developing its AA3 forecasts; and
- (ii) Insufficient evidence that GGT had proposed expenditure commensurate with the Covered Pipeline assets.

4.4.2 Expenditure forecast adjustments

123. Based on our assessment of GGT's Revised Proposal, our updated 'expenditure forecast adjustments' range from -20% to -35% depending on the level of information provided by GGT to support its estimates. In some instances, we have not made an

⁸⁸ *Ibid*

⁸⁹ The title of GGT's business case, BC08

'expenditure forecast adjustment' because GGT has provided sufficient information to satisfy our assessment criteria or GGT itself has reduced its proposed expenditure below the level we initially recommended (including deleting some projects). The size of each adjustment was set to be commensurate with:

- (i) Our experience of the sort of cost reduction that can be achieved through competitive tendering combined with efficiency measures in maintenance practices when starting with cost estimates which, in the absence of sufficient evidence to the contrary, are based on high level assumptions; and
- (ii) The change in scope and timing that GGT has demonstrated that it makes to its initial five year regulatory forecasts.

124. The two levels of adjustment are much less than the -70% reduction in the approved AA2 forecast expenditure that GGT achieved in the AA2 period. GGT has provided recent evidence of its ongoing ability to refine the scope, timing and cost of its portfolio of projects with the pro-offered 14% reduction of its total proposed AA3 capex in its Revised Proposal through a combination of project cancellations and reduced forecast expenditure.

125. We therefore consider that our adjustment methodology is fair, is based on sound principles, and is aligned with the requirements of the NGL and NGR.

4.4.3 Adjustments based on apportionment to covered services only

126. The apportionment approach between covered services and the whole of GGP services has been discussed in section 2 of this report and is consistent with the approach explained in section 6.3.1 of our Technical Report.

4.5 Summary of EMCa's revised findings

127. In response to the ERA's Draft Decision, on matters pertaining to the assessment of the AA3 capex against the requirements of rules 79, and 74, GGT has provided new and updated information for some of the projects in its Revised Response. GGT provided additional information on 18 'small projects' for which it did not provide any supporting information in its Initial Proposal; it also provided information on a selection of other projects.

128. Where GGT has provided no new information other than revising its proposed expenditure:

- (i) We have not changed our adjustment approach, unless
- (ii) If GGT has itself reduced its proposed expenditure in an expenditure sub-category/project level by more than our initially proposed adjustment, then we have not made a further adjustment as we consider the expenditure is likely to satisfy the requirements of rule 74(2).

129. We have considered the new and updated information and:

- (iii) For the 'small projects', we consider that GGT has provided sufficient detail to justify the business need and the scope of work, and to demonstrate that the delivered cost was likely to be efficient (noting that some projects have been cancelled and expenditure revised in others);

(iv) For the other projects, we consider that GGT has in some cases provided information that addressed the concerns we raised in our Technical Report, but not in all cases.

130. The results of our review are summarised in the table below. The new and updated information has led us to revise our proposed adjustment from -\$4.14m (-32% of its initial proposed AA3 period expenditure) to -\$2.37m (-21%), noting that GGT revised its proposed conforming capex by -\$1.47m (-11%) in real terms.

Table 16: Summary of revised AA3 Capex adjustment- \$m, real Dec 2013

Assessment category	GGT initial proposal	EMCa previously adjusted	ERA Draft Decision	GGT revised proposal	EMCa current adjustments	EMCa adjusted
Pipeline and laterals	5.514	4.296	4.188	5.514	-1.466	4.048
Main line valve and scraper stations	0.641	0.513	0.513	0.641	-0.128	0.513
Compressor stations	2.328	1.415	1.641	2.264	-0.274	1.990
Receipt and delivery point facilities	1.388	0.646	0.647	1.324	-0.348	0.977
SCADA and communications	1.268	0.859	0.860	0.493	0.000	0.493
Cathodic protection	0.262	0.000	0.000	0.231	0.000	0.231
Maintenance bases and depots	0.620	0.344	0.343	0.162	0.000	0.162
Other assets	0.836	0.598	0.597	0.756	-0.159	0.598
Non-depreciable assets	0.000	0.000	0.000	0.000	0.000	0.000
Total	12.858	8.670	8.789	11.385	-2.374	9.011

Sources: EMCa analysis derived from GGT's response to Information Request ERA23⁹⁰.

⁹⁰ In its Response 023, GGT has presented expenditures in nominal and real terms. However it has converted its Initial Proposal nominal figures to real terms using a deflator of 1.9% p.a., despite having used an inflator of 3% p.a. to inflate those Initial Proposal figures into nominal terms in the first place. This is incorrect and accordingly we present GGT's Initial Proposal figures in real terms using the correct (initial) deflator of 3% p.a. for those figures. GGT has correctly presented its Revised Proposal capex figures in real and nominal terms, although we note that the method GGT has actually used (as revealed in its ERA023 response spreadsheet) differs from the method it describes in its response to EMCa05 and which it has used (incorrectly) in forecasting opex (see Section 5.2.1)

5 Review of GGT's revised proposed AA3 opex

5.1 Introduction

131. This section contains the results of our review of GGT's revised operating expenditure forecast for AA3. Consistent with our assessment of GGT's Initial Proposal, we have undertaken this review using the assessment framework set out in section 3.1.2 of our Technical Report⁹¹.

132. Our assessment of opex in this section does not cover the impact of our assessment of GGT's allocation methodology. Apportionment of operating expenditure between covered services and other GGP services is outlined in section 2.3.

5.2 GGT's revised forecast

5.2.1 Issue with GGT's conversion between real and nominal terms

133. GGT's revised forecast opex is \$131.092m in nominal terms, compared with its in initial forecast \$132.019m. Inspection of GGT's supporting workbook, principally its response to ERA 023, shows that at the detail level GGT has proposed no change to the nominal expenditure, and the change to the total results from changes made to the nominal forecast expenditure for three items:

- APA Commercial Management fee
- Regulatory costs, and
- Insurance.

⁹¹ EMCa report, Review of Technical Aspects of the Proposed Access Arrangement for GGT, December 2015

134. GGT's initial forecasts were presented in nominal terms, having been escalated using a 3% p.a. inflation rate. GGT has now reduced its inflation assumption to 1.9%, but has failed to reduce its nominal opex forecast accordingly. As a result, its forecasts have increased in real terms (i.e. once deflated using GGT's current inflation assumption).
135. In its revised proposal, GGT did not acknowledge this increase. In its response to our information request EMCa04, GGT did confirm our understanding as above, namely that 3% inflation rate had been used in its August 2014 forecasts and that *'the August 2014 nominal estimates were de-escalated using the inflation assumption of 1.9% from the Draft Decision'*.
136. While the Draft Decision makes reference to an inflation assumption of 1.9% in regards to the WACC, opex forecasts in the Draft Decision were (correctly) deflated and presented in real terms using the inflator of 3% p.a. that GGT had itself used in expressing those forecasts in nominal terms. It is not valid to escalate costs to nominal terms using an inflator of 3% but to then deflate them at a lower rate to express them in real terms. In ERA's Draft Decision section on Operating Expenditure, GGT's proposed allowances are expressed in real terms as are the Authority Approved amounts.

5.2.2 GGT's proposed expenditure (when expressed in real terms)

137. In real terms, GGT's initially-proposed expenditure was \$117.206m, as reported in our Technical Report and this figure does not change by virtue of the lower inflation rate now used in its revised proposal. On the other hand, GGT's revised forecast converts to \$121.485m.
138. Due to the lack of justification for this increase, we propose that GGT's forecast is adjusted to correct for the failure to take account of its lower inflation assumption. In effect this retains no change in real terms, except for the three items referred to above, where GGT has proposed changes.
139. In the remainder of this section, we take this general correction as a given and consider the specific matters that GGT raised in its response and new information it provided.

5.3 GGT Operations

5.3.1 Background

140. Our initial assessment found that GGT's Operations activities were consistent with the requirements of managing the GGP covered services operations in accordance with good industry practice (per r.91(1)). However, we concluded that GGT did not justify its proposed increase in expenditure on its Projects/Operations activity and we recommended an adjustment to the GGT Operations allowance on this basis⁹². The ERA accepted our recommendation and reduced GGT's AA3 allowance for Projects/Operations activity to \$1.2m.

⁹² *Ibid*, paragraphs 205-206

5.3.2 GGT's submission – Projects/Operations

141. GGT submitted a Project/Operations allowance which included provision for unspecified repairs to the pipeline easement and to surface facilities caused by cyclones. As part of our initial assessment we concluded that GGT did not provide sufficient information to justify the provision of \$0.32m p.a. (\$1.60m total) which represented a 33% increase on the equivalent AA2 opex⁹³.
142. In its revised submission, GGT did not accept the ERA's draft decision to adjust GGT's Projects/Operations allowance to \$1.20m (total). It acknowledges that its proposed opex for AA3 is higher than the average expenditure for 2010 to 2014 (\$0.225m p.a.) and provides some additional information seeking to explain the increase which it claims covers the potential scale of flooding and potential effects of climate cyclones⁹⁴.

5.3.3 EMCa assessment

143. The additional information provided by GGT is limited and fails to provide clear evidence to justify the increase in expenditure therefore our original recommendation stands; \$1.20m is a reasonable estimate of the total operating costs likely to be incurred on this activity during AA3, based on historical evidence as described in our Technical Report. This recommendation is consistent with our proposed adjustment to AA3 capex (see section 4.3.1).

5.4 APA Commercial Operations

5.4.1 Background

144. In its Initial Proposal, GGT proposed \$17.38m⁹⁵ of expenditure to cover its forecast APA Commercial Operations. The ERA made adjustments to three aspects of GGT's proposed APA commercial operations expenditure: labour rates⁹⁶, regulatory costs and insurance. Its draft decision on labour rates and regulatory costs was consistent with EMCa's advice. EMCa did not provide advice on insurance in our Technical Report.
145. GGT does not accept the ERA's draft decision (on any of the three expenditure components) and has re-submitted a total of \$17.89m⁹⁷ to cover APA commercial operations expenditure as part of its revised AA3 submission.
146. Our assessment and recommendations to disallow certain components of APA Commercial Operations expenditure can be found in section 7 of our Technical report⁹⁸. In summary we assessed that:

⁹³ *Ibid*, paragraph 203

⁹⁴ GGT AA3 RRP, page 131

⁹⁵ ERA Draft Determination, December 2015, page 57, Real \$2013

⁹⁶ Specifically labour rates associated with Administration, Marketing and GGT Regulatory costs

⁹⁷ GGT RRP, table 8, page 128, Real \$2013

⁹⁸ EMCa report, Review of Technical Aspects of the Proposed Access Arrangement for GGT, December 2015 section 7.4 (labour rates), section 7.7 (insurance) section 7.8 (regulatory costs)

- the labour rates for APA Commercial Operations were excessively high; we recommended reducing the labour rates associated with the administration, marketing and GGT regulation components⁹⁹ of APA commercial operations expenditure by 27 per cent, in line with comparator APA Group labour rates¹⁰⁰
- the FTE amount for the regulatory function was high and disproportionate in relation to the rest of the entities within the APA group; we recommended reducing the Regulatory costs by around 9% to \$4.66m¹⁰¹.

147. In sections 5.4.2 - 5.4.4, we provide revised assessments of GGT's proposed labour rates, regulatory costs, and an assessment of GGT's response to the ERA's determination on insurance.

5.4.2 Labour rates

GGT's submission

148. GGT does not accepted the ERA's draft decision to reduce labour rates for its APA commercial operations. In summary GGT provided the following justification¹⁰²;

- labour costs estimates developed based on rates in its Commercial Services Agreement with related third party - ATP Goldfields Pty Ltd, the labour rates were established at 1 July 2003,
- GGT states that '*the opportunity and mechanism to enable GGT Joint Venture Participants to renegotiate these rates are in place*'¹⁰³ and it claims that on this basis there is '*adequate incentive for joint venture partners to renegotiate labour rates and the mechanisms to do so are in place*'¹⁰⁴

EMCa assessment

149. GGT has not provided sufficient rationale to support higher labour costs for its APA commercial operations. GGT states that it uses established commercial labour rates to forecast the labour elements of APA Administration, Marketing and Regulatory costs. Its forecast is based on current rates (which were established in 2003) but GGT does not appear to have considered potential efficiencies in its cost estimates based on the opportunity / mechanism it claims is in place which allows renegotiation of labour rates.

150. GGT makes no reference to the EMCa benchmarking assessment of APA Commercial Operation labour rates and provides no material to support why the costs in APA's commercial operations should be higher than in other parts of the business.

⁹⁹ Ibid, paragraph 186; EMCa requested the proportions of labour in APA Commercial Operations. GGT provided information that its Administration and Marketing components are 100% labour, and provided annual labour proportions for Regulatory expenditure; our adjustments were made on this basis.

¹⁰⁰ Ibid, page 61

¹⁰¹ See section 7.8.2 of EMCa report, Review of Technical Aspects of the Proposed Access Arrangement for GGT, December 2015 for further detail

¹⁰² GGT Revised Regulatory Proposal, pages 132-133

¹⁰³ Ibid, section 8.5.1

¹⁰⁴ Ibid, section 8.5.1

151. Based on the information provided by GGT we have not changed our original recommendation to the ERA; we consider that the labour rates which underpin APA Commercial Operations services are unreasonably high and recommend an adjustment of -27% in line with APA Group comparator labour rates.

5.4.3 Regulatory costs

GGT's submission

152. GGT does not accept the \$0.44m¹⁰⁵ reduction made to Regulatory costs which related to EMCa's assessment of GGT's FTE resourcing for regulatory activities¹⁰⁶. GGT submits \$7.48m¹⁰⁷ of regulatory costs for the AA3 period which is in line with its original submission (once corrected for the inflation adjustment described in section 5.2). It has also varied the timing of its regulatory reporting expenditure which was reported in 2015 but is now reported in 2016 to reflect changes to regulatory timeframes.
153. GGT claims that it is unable to establish a link between the method proposed for reducing forecast expenditure and the rationale provided to support the adjustment which related to FTE resourcing. It claims that the adjustment made to corporate-level resourcing of the regulation function is not appropriate as '*no corporate-level activity was considered in the estimates of regulatory expenditure*'¹⁰⁸.

EMCa assessment

154. GGT's Regulatory costs were adjusted to reflect the disproportionate FTE resourcing it proposed for regulatory activities. Full details of our assessment can be found in section 7.8.2 of our Technical Report, which considers both the corporate-level regulatory resource that GGT shows as being partially allocated to GGT and also dedicated GGT regulatory resource. GGT has provided no further evidence to support the FTE assumptions it used in its build-up of Regulatory costs that it has proposed allocating to GGT, therefore our assessment has not changed; we recommend an adjustment of \$0.44m to regulatory costs and accept the rationale provided to delay the regulatory reporting expenditure by one year.

5.4.4 Insurance costs

GGT's submission

155. In its original submission GGT estimated its Insurance costs at \$0.697m p.a. based on advice from insurer Marsh. The ERA concluded in its Draft Decision that a reasonable annual insurance provision would be \$0.502m p.a. The key difference between the ERA's determination and GGT's is that the ERA deducted GGT's allowance for self-insurance.¹⁰⁹ In section 8.5.3 of its Response, GGT does not accept the \$0.502m p.a. and has instead proposed applying the average annual expenditure over the AA2 period

¹⁰⁵ EMCa Technical Report, table 19, page 82

¹⁰⁶ Note EMCa proposed further adjustment to regulatory costs in relation to labour rates and costs allocated to the overed pipeline, these adjustments are covered in sections 5.3.1 and 2.3 of this addendum report.

¹⁰⁷ GGT RRP, table 8, page 129.

¹⁰⁸ Ibid, page 133

¹⁰⁹ The ERA deducted self-insurance to allow a like-for-like comparison with actual insurance expenditure; the ERA also used GGT's 2012 actual expenditure of \$0.715m as a base

of \$0.559m as the forward estimate. GGT advises that the risks associated with the pipeline have not materially changed since 2014, yet it also advises that the current market quote indicates it would incur a higher insurance cost should the pipeline be insured on a standalone basis. GGT concludes that its approach is a more reasonable basis for forecasting its allocation of the APA Group insurance cost to covered services than the ERA's.

EMCa assessment

156. GGT's revised insurance forecast of \$0.56m p.a. is now closer to the ERA's draft allowance of \$0.50m p.a. in that GGT is no longer seeking an amount to cover its nominated self-insured risk. We note, however, that GGT's actual 2015 insurance expenditure was \$0.47m,¹¹⁰ which indicates that either the insurance market has become more favourable or that the allocation from APA Group has been altered (or both)
157. Whilst GGT's Revised Access Arrangement is broadly structured to keep the GGP operating risk profile at the current level, we do not consider that the statement from Marsh represents adequate substantiation of fair value allocation of the APA Group insurance cost to the GGP services, given that (i) it appears to be a relatively high level assessment, (ii) it is a single appraisal, whereas we would expect to see at least two other appraisals, and (iii) the appraisal has not been updated since mid-2014.
158. In the absence of more detailed information about the insurance market, we consider that GGT's proposed approach to forecasting its AA3 insurance costs is acceptable and consider that its estimate of \$0.56m p.a. is reasonable. This could be considered to have a slight upwards bias, given the 16% lower cost most recently obtained, however in terms of materiality we consider that it is reasonable to accept GGT's reduced estimate.

5.5 Corporate overheads

5.5.1 Background

159. GGT initially proposed \$8.48m per year of corporate expenditure over the AA3 period¹¹¹ (this was before allocation between the covered and uncovered services). The ERA accepted our assessment that GGT's proposed corporate costs were not derived on a reasonable basis and were biased towards imposing a higher proportion of APA Group's corporate overheads on the GGP. We recommended that GGT's annual costs (before allocation between covered and uncovered services) should be \$6.1m per year based on a contribution of revenue of 13 per cent and that an amount of \$3.3m should be allocated to covered services. Details of our initial assessment can be found in section 7.9.2 of our Technical Report.
160. Our assessment of corporate cost allocation in this section does not cover the impact of our assessment of GGT's approach to allocating operating expenditure between

¹¹⁰ GGP response to Information Request ERA28

¹¹¹ ERA Draft Determination, page 64

covered services and other GGP services. Our assessment of expenditure allocations between covered and uncovered services is outlined in section 2.

5.5.2 GGT's submission

161. GGT does not accept the ERA's draft decision and has resubmitted its original forecast of corporate overheads¹¹². GGT comments specifically on our assessment of its approach to establishing corporate overheads and claims that our statements are incorrect in places. For example it states that our finding that the approach used by GGT is biased towards imposing a higher proportion of APA Group's corporate overheads on the GGP is incorrect¹¹³.
162. GGT states that we misunderstood the process it uses to allocate corporate costs. In its revised submission GGT states that its allocation approach involves 3-components where corporate costs are:
- *directly attributed to cost centres where possible;*
 - *allocated among cost centres using causal allocators where possible, and*
 - *if there are remaining unallocated costs, allocated on the basis of contributions to revenues*¹¹⁴.
163. In response to our assessment of what it now describes as its reasonableness test, GGT claims the measure used by EMCa to represent total APA Group revenue in our allocation assessment (i.e. the denominator value of \$911.5m which was used to derive the corporate cost allocator) includes amounts that are either (i) removed on consolidation or (ii) do not attract corporate overheads. For example, GGT argues that any pass-through revenues should be excluded because they represent a '*direct reimbursement of costs*'¹¹⁵. It also suggests that the measure used by EMCa to represent total corporate overheads double counted costs relating to the former Epic Energy (\$5.95m)¹¹⁶.
164. GGT claims that the allocation approach it has used for GGT has been approved by AER in regulatory assessments of other APA Group regulated assets¹¹⁷.

5.5.3 EMCa assessment

Clarification of approach used by GGT to allocate corporate costs

165. As part of our initial assessment, GGT informed us that:

'A single approach has been developed for, and is applied in, the allocation of corporate costs across all of the entities within the APA Group. In this approach,

¹¹²There was a change to corporate expenditure submitted between GGT's Initial and Revised Proposal but this was due to revisions to 2015 actuals and updates to escalation factors used between both submissions.

¹¹³ GGT Revised Regulatory Proposal, page 135

¹¹⁴ *Ibid*, page 140

¹¹⁵ *Ibid*, page 146

¹¹⁶ *Ibid*, page 141

¹¹⁷ *Ibid*, page 147

actual corporate costs are allocated across the entities within the Group on the basis of the revenues earned [emphasis added] by those entities. Before they are allocated to a particular entity, any of the component costs which have been incurred in the provision of corporate functions which would not be used by that entity are removed.’¹¹⁸

166. It is only in GGT’s Revised Proposal that the 3-component approach GGT states it uses to determine corporate overheads was outlined. We met with APA Group representatives to run through GGT’s revised submission and follow-up information requests¹¹⁹ were raised to clarify statements made during the meeting.
167. In line with our findings from our initial review¹²⁰ the revised information submitted by GGT fails to provide any transparency on how its corporate overhead cost allocation is derived in its accounting systems. In our meeting with GGT we asked if information could be provided on the calculations undertaken or relevant amounts provided for the three components referred to in the words quoted above from its Revised Submission. We were told that the personnel in the meeting did not know this information, doubted that it could be obtained and held that it was not relevant.
168. GGT provides detail on the calculation steps which it uses to generate a corporate revenue allocator assumption that it now describes as providing a reasonableness check (and which is consistent with the approach we used in our initial assessment) but its submission lacks clarity on how it has generated the inputs that are used in the revenue allocator calculation.
169. GGT has provided a transparent step-by-step process describing how the corporate overhead costs are verified using what it refers to as a ‘reasonableness test’ but this has limited value as it fails to provide adequate transparency of the actual expenditure figures used by GGT to allocate corporate overheads for the AA3 period.
170. We provided GGT with a subsequent opportunity to provide further information that would allow for some form of assessment of the allocation undertaken. In its response to EMCa01 GGT states that:

‘The correct value of corporate overheads allocated to GGT is derived through the financial accounting system, and is reflected in the original spreadsheet provided to the AER¹²¹ with the original access arrangement revision submission. This process follows the same approach as has been applied consistently across the business over a number of years and over a number of regulatory price review processes, as outlined in the GGT response to the draft decision.

Acknowledging that the accounting system output report is not transparent, the rest of the analysis provided has not attempted to replicate that amount, but rather to assist the ERA and its consultants assess the reasonableness of that amount by reference to an alternate revenue-based allocation.’

¹¹⁸ Goldfields Gas Transmission Pty Ltd, Access Arrangement Supporting Information, December 2013, page 182-183

¹¹⁹ EMCa01-03 information requests

¹²⁰ EMCa Technical Report, section 7.9

¹²¹ We assume that this is a typographical error and is intended to read as ERA

171. The statement that the overhead allocation is '*reflected in the original spreadsheet*' is inconsistent with statements made in the meeting that the Corporate Cost allocation is not undertaken in the spreadsheets that were provided in response to several information requests on this matter, and which we referred to in our Technical Report. Rather, as is stated in the first part of the same sentence quoted above, it is '*derived through the financial accounting system*' in ways that have been described only by the three steps quoted in paragraph 12. GGT informed us that the spreadsheets and explanatory information provided to us in response to our information requests in assessing its Initial Proposal, neither described nor contained the calculations actually used by GGT.
172. In attempting to assess GGT's actual approach to allocating its Corporate Costs, we are therefore left with a three-line explanation, no data, no further understanding of the calculations by those provided with the opportunity to do so and GGT's acknowledgement '*that the accounting system output is not transparent*'.
173. We therefore revert to calculations that GGT claims demonstrate the reasonableness of the allocated value (by reference to relative revenues of businesses within the APA Group) and our assessment of a report by KPMG which we described in our Technical Report.

Evaluation of total APA Group revenue included in corporate overhead allocation process

174. In order to generate the total APA Group revenue, we used group revenue information supplied by GGT in its corporate cost spreadsheet¹²². As part of our initial assessment we excluded a number of revenue items¹²³ from the total APA Group revenue figure, these exclusions included revenues which GGT had classified as 'pass-through', 'sales', 'interest income', 'interest paid' and 'dividends received' and are summarised in the following tables.

¹²² EMCa18 response received as part of our assessment of GGP's Initial Proposal.

¹²³ A total revenue of \$4.5m was excluded, See EMCa Technical report paragraph 226.

Table 17: Summary of items excluded from total APA Group revenue figure used in EMCa cost allocation calculation

Description	Revenue (\$m)
PIPELINE - PASSTHROUGH	
STORAGE - PASSTHROUGH	
LNG LIQUEFACTION - PASSTHROUGH	
GASPROCESSING - PASSTHROUGH	
ELECTRICITY GENERATION - PASSTHROUGH	
OTHER INCOME - PASSTHROUGH	
ALTERNATIVE FUELS EXCISE - PASSTHROUGH (REV)	
IE SALES	
IE DIVIDENDS RECEIVED	
INTEREST PAID - ROVERTON	
INTEREST INCOME - 3RD PARTY	
INTEREST INCOME - BANK	
CONTRA - INTEREST INCOME - BANK	
INTEREST INCOME - ROVERTON	
INTEREST INCOME - SWAP INTEREST	
LNG LOADING FEE - CARBON PASS THROUGH	
Total	-\$375.07

Source: GGT spreadsheet initially provided in response to EMCa18

Table 18: Summary of APA Group revenues for cost allocation

Total group revenue	\$1,286.627
Excluded costs	-\$375.070
<i>Pass-through costs</i>	<i>-\$352.642</i>
<i>Other exclusions; includes interest, sales, dividends</i>	<i>-\$22.427</i>
Total APA Group revenue to attract corporate overheads	\$911.557

Source: GGT spreadsheet initially provided in response to EMCa18

175. GGT suggests that further revenues in the region of \$155.3m¹²⁴ should also be excluded from the total APA Group revenue figure, this is in addition to the \$375m we excluded on the basis of GGT's initial submission. It claims that these revenues are also not relevant for cost allocation purposes. Following a response received to EMCa01 it appears that some of the additional revenues GGT has identified for exclusion relate to Epic Energy.

176. In its response to EMCa01 GGT states that '*Epic's revenues have therefore been deducted from Operating revenue (included in "Subsidiary investment and fee income" in Table 10) ...*' However, the '*Subsidiary investment and fee income*' reported in Table 10 of GGT's Revised Proposal is \$100.0m and is therefore inconsistent with including \$155.3m of Epic Energy revenues.

177. In our review of GGT's Initial Proposal, we removed the excluded costs listed in Tables 4 and 5 above, consistent with GGT's accompanying explanations at that time, in determining the denominator revenue amount. It is demonstrably incorrect that GGT claims that the denominator of \$911m includes these amounts. However further

¹²⁴ Based on the calculation of EMCa derived APA Group revenue versus GGT proposed APA Group revenue; \$911.5m minus \$756.3m

information provided on these 'excluded costs' in response to questions we asked at our meeting with GGT, lead us question GGT's claim that they all should be deducted before allocating costs to GGT. The majority of the revenue was described as being from revenues relating to asset management services provided to other entities and from other business ventures. It seems unlikely that such a level of revenue is able to be earned without the application of any corporate resource. Including these amounts would drive down the apportionment to GGT.

Treatment of revenue associated with the former Epic Energy

178. Epic Energy assets were acquired in 2013 so we agree that costs associated with Epic Energy (\$5.96m) should be excluded from APA corporate costs for allocation purposes. In our Technical Report we state that the APA corporate overheads allocation pool was \$45.6m.¹²⁵ Our figure was based on a total APA corporate overheads value of \$50.1m with a number of line item exclusions, as advised by GGT. Epic energy costs were already excluded from the \$50.1m¹²⁶ figure we quoted for corporate overheads therefore we do not agree with GGT's claim that the exclusion of Epic Energy costs has been double counted in our cost allocation assessment.

179. Based on the updated information we have considered two possible 'check' approaches to estimate GGT corporate costs. Both approaches ensure that Epic Energy is treated consistently in the revenue and costs (i.e. revenue denominator and pool of corporate costs to be allocated). The first approach considers excluding Epic Energy from the allocation calculation where:

- APA Group revenue of \$756.3m which is determined from GGT's responses to EMCa 36 (Initial Proposal) and EMCa 01 (Revised Proposal). This figure excludes revenue associated with Epic Energy¹²⁷.
- Revenues for the GGP operating entities of \$121m, consistent with our initial review.
- Corporate allocation percentage allocator of 16.0%
- Group corporate costs of \$45.6m which excludes Epic Energy (\$5.96m) costs and further excluded cost items totalling \$4.5m¹²⁸, this is also consistent with our initial review.

180. This would result in \$7.30m per year of corporate costs allocated to GGP i.e. 16% of \$45.6m of APA Group corporate costs are allocated to GGP. Based on the cost allocation to covered services outlined in section 2.3 this would lead to an annual corporate cost allocation to covered services of 54.5% of \$7.30m, or \$3.97m.

181. The second approach considers including Epic Energy in the allocation calculation where:

- APA Group revenue of \$911.5m which is consistent with our initial review.

¹²⁵ EMCa Technical Report, paragraph 226

¹²⁶ As confirmed in GGT's response to EMCa01 where they state that net corporate costs for allocation (excluding Epic share) is \$50.065m.

¹²⁷ As outlined in GGT's response to EMCa01

¹²⁸ As advised by GGT during our initial review EMCa Technical Report, paragraph 226

- Revenues for the GGP operating entities of \$121m, consistent with our initial review
- Corporate allocation percentage allocator of 13.3%
- Group corporate costs for allocation of \$51.6m, includes Epic Energy costs but excludes further cost items totalling \$4.5m¹²⁹.

182. This approach results in \$6.84m per year allocated to GGP i.e. 13.3% of \$51.6m APA Group corporate costs are allocated to GGP, after allocation to covered services the corporate costs are reduced to \$3.72m.

Corporate cost build up from information provided by GGT in a report by KPMG

183. In our Initial Review we reviewed KPMG's cost build-up of corporate costs¹³⁰. Based on this report we estimated that a relevant benchmarked value for a stand-alone corporate function for GGP covered services, would be around \$3.8m per year.

184. GGT has not provided information to challenge the benchmark figure which we note is lower than GGT's proposed corporate expenditure and also its reasonableness test (outlined in Table 6).

Findings

185. GGT's Revised Proposal continues to lack any transparency that would allow for review of the calculations by which it has determined its proposed allocation of corporate costs. The 3-component approach GGT now outlines is contrary to information initially submitted and GGT was unable to provide a reasonable response to indicate the materiality of corporate costs which are assigned to GGT at each of the 3 component stages. Its main premise is that the approach it outlines as part of its 'reasonableness test' produces a result that is close to the allocated amounts produced in its accounting systems and that therefore no adjustments to corporate overheads should be made.

186. In re-presenting a revenue-based allocation as a 'reasonableness test' GGT does not dispute the \$121m revenue that we took as the relevant value for GGP operating entities¹³¹. Neither is the approach / method used to allocate corporate costs in dispute and, despite GGT's rhetoric, it is clear that the approach that we presented in our Technical Report is the same approach as GGT has now laid out in a series of tables in its Revised Submission. However, GGT has challenged the input assumptions used in our initial assessment to determine a reasonable allowance for corporate costs.

187. In order to demonstrate our interpretation of GGT's reasonableness test, we modelled a number of approaches which use the same allocation calculation but different input assumptions. None of these produce estimates in the region of \$8.48m per year (before allocation to covered services) as proposed by GGT in its Initial Proposal (Table 6).

¹²⁹ As advised by GGT during our initial review EMCa Technical Report, paragraph 226

¹³⁰ EMCa Technical Report, paragraph 249

¹³¹ GGT used a figure of \$123m to represent GGP revenue in table 11 of its RRP submission to support its 'reasonableness test'. We assume that the \$123m represents an approximate figure used to demonstrate the actual allocation method used; the actual GGP revenue used was \$121m as reported in the corporate overheads spreadsheet GGT submitted in response to EMCa18.

Table 19: Approaches to estimating corporate overheads (\$m per year)

	EMCa original	GGT reasonableness test	Method 1 (includes Epic Energy)	Method 2 (excludes Epic Energy)
APA corporate costs to be allocated	45.6	50.1	51.56	45.6
<i>Numerator:</i>				
Revenues for the GGP operating entities	121	123	121	121
<i>Denominator:</i>				
APA Group revenue	911.56	756.30	911.56	756.30
Corporate allocation allocator %	13.3%	16.3%	13.3%	16.0%
Corporate cost allocated to GGT	6.05	8.15	6.84	7.30
Allocation to Covered Pipeline (54.5%)	3.29	4.43	3.72	3.97

EMCa analysis based on GGT submissions

188. We find that GGT has not demonstrated the validity of the corporate cost amount that it proposes should be allocated to GGT. In place of demonstration by GGT of its cost allocation assumptions and calculations, we rely for our opinion on the cost build-up information from the KPMG report and on revenue allocation-based cross checks, as described in our initial Technical Report. In regards to revenue-based allocation, a range of assumptions is possible regarding the inclusion or exclusion of Epic Energy (in regards to revenue and, consistently, in regards to corporate costs) and the inclusion or exclusion (in the denominator) of revenues for businesses including asset management services and other business ventures.
189. Taking all of these factors into account, we consider that an adjusted value of \$3.3m per year is a reasonable allowance. This is in line with our initial recommendation which can be found in section 7.9.4 of our Technical Report.

5.6 Implications

190. The following tables show the adjusted opex, and the source of the adjustments made¹³².

Table 20: EMCa adjusted AA3 opex - \$m, real Dec 2013

	GGP previously proposed	EMCa previously adjusted	ERA Draft Decision	GGP Revised proposal	Inflation correction adjustment	EMCa current adjustments	EMCa Adjusted
APA Operations	51.754	49.237	49.237	54.031	-2.277	-2.517	49.237
GGT Operations	17.378	15.367	15.366	18.111	-0.765	-2.032	15.315
APA Commercial Operations (excl. regulatory)	10.781	6.714	4.606	10.414	-0.523	-4.123	5.767
Regulatory	7.170	4.931	4.930	7.480	-0.233	-2.170	5.078
Corporate Costs	30.123	16.344	16.492	31.448	-1.325	-13.779	16.344
Total	117.206	92.592	90.631	121.485	-5.124	-24.621	91.740

Sources: GGP Opex forecast 2015 – 2019 spreadsheet. EMCa previously adjusted and ERA figures from initial Technical Report and ERA calculations

¹³² GGT submitted revised opex for its Revised Proposal, the revisions were based on (i) substitution of actual 2015 data rather than the forecast data used in its Initial Proposal, (ii) differences in the conversion between real and nominal expenditure between the Initial and Revised Proposals, and (iii) changes to some of its forecast expenditure.

Table 21: GGT proposed and EMCa adjusted opex - \$m, real Dec 2013

	As proposed	Inflation correction	Adjustments			EMCa Adjusted
			Labour	Component	covered / uncovered	
APA Operations	54.031	-2.277			-2.517	49.237
GGT Operations	18.111	-0.765		-0.475	-1.557	15.315
APA Commercial Operations (excl. regulatory)	10.414	-0.523	-0.970		-3.153	5.767
Regulatory	7.480	-0.233	-0.611	-0.430	-1.129	5.078
Corporate Costs	31.448	-1.325		-6.600	-7.179	16.344
Total	121.485	-5.124	-1.581	-7.504	-15.535	91.740

Sources: EMCa analysis derived from Table 26 AASI p170 and GGT Opex 2015 – 2019 spreadsheet emailed 16/09/2014. EMCa previously adjusted and ERA figures from initial Technical Report and ERA calculations

Appendix A Resumes

Paul Sell

Paul Sell is an energy economist, specialising in energy markets and market reforms. He has over 30 years' experience, which includes providing major advice on restructuring, on deregulation, on the design and implementation of electricity and gas markets and on network regulatory arrangements in Australasia. He has worked extensively with energy utilities, governments, energy regulators and energy market agencies.

Career summary

- Managing Director of Energy Market Consulting associates (EMCa), Sydney, NSW
- Vice President of Cap Gemini Ernst & Young, Global Services Unit (GSU), Sydney, NSW
- Partner of Ernst & Young Consulting, based in Sydney, NSW
- Consultant/Manager/Senior Manager/Principal of Ernst & Young Consulting, Wellington, New Zealand
- Economist in NZ Ministry of Energy, Planning and Forecasting Division Wellington, New Zealand

Expertise

- Electricity and gas utility network pricing, regulation and associated cost analysis
- Energy utility analyses including investment decisions and investment justification processes, energy forecasting and planning studies, and business modelling
- Electricity and gas wholesale markets design and operations
- Energy utility sector reform, restructuring and deregulation policies
- Retail competition in energy markets

Mark de Laeter

Mark de Laeter is an electrical engineer with 30 years' experience in all aspects of the electricity industry, ranging from executive to line management positions in Western Power, a Top 500 Australian company with over 5,000 personnel.

Mark has strong affinity with the needs and desires of customers and is able to bring his deep technical knowledge to bear to help safely and affordably serve customers of all types and sizes.

Mark joined EMCa in May 2013.

Career Summary (all at Western Power)

- General Manager Networks at Western Power, the government trading enterprise responsible for managing the distribution and transmission network in the south west of Western Australia.
- General Manager Customer Service which, in addition to his responsibilities as the GM Networks, included accountability for all service offerings to Western Power's 1m customers and for engineering design
- General Manager Asset Management – transmission & distribution
- Manager Asset Integration - responsible for transmission asset management, engineering design, and project management
- Manager Regional Power Procurement - securing Power Purchase Agreements with private generators
- Construction Services Manager – responsible for transmission substation and line construction and maintenance

Expertise

- Electricity transmission and distribution planning
- Electricity network access
- Asset management practices
- Project management
- Advanced metering infrastructure
- Electricity operations management
- Customer service and community engagement

Elly Watson

Elly Watson is a regulatory economist specialising in network expenditure assessments. With over 10 years' experience, Elly has expertise in delivering high-quality economic analysis, with a track record across several industries in the UK including the energy and utilities sectors. Elly played a significant role in implementing the new RIIO regulatory price control framework used by Ofgem - the UK energy regulator – to assess gas and electricity network business plans and associated forecast expenditure. Elly has experience working in a variety of organisations including regulators, government and consultancy.

Career summary and experience

- Analyst in the UK government - delivered projects to investigate the economy, efficiency and effectiveness of local bodies and central government policies.
- Senior consultant, working for Jacobs where she managed a diverse number of assessment projects including a quantitative review of energy and associated carbon emissions for a leading UK water company to meet the water regulator's (Ofwat) reporting requirements.

- Senior Manager at Ofgem where she specialised in energy regulation and pricing issues. She has experience in relation to evaluating network company regulatory submissions. As part of the RIIO price controls she assessed consultation submissions from stakeholders including energy market participants, government and consumer groups to determine key issues from detailed and complex material.

Expertise

- Electricity and gas utility pricing, regulation and associated cost analysis
- Energy utility analyses including investment decision-making, expenditure budget planning and related assessments.
- Regulatory economics and econometric benchmarking
- Electricity and gas networks operations

Qualifications

- MSc (Hons.) Environmental Technology, Imperial College, London, United Kingdom

Hugh Driver

Hugh Driver has a mechanical engineering background and has developed leadership, governance and management skills having been involved in lead roles in strategic development, corporate and operational risk, multi-million-dollar construction projects, business operations and logistics, large change management processes and multi-million dollar divestment projects.

Hugh has experience across a range of technical and commercial roles in the corporate sector of New Zealand's energy and gas industries plus some time in Australia.

His most recent New Zealand corporate role was with Vector Gas Limited (formerly NGC New Zealand Ltd) as the Gas Transmission Asset Manager however he has in more recent times been working as an independent contractor/consultant involved in a variety of assignments including for Contact Energy and Powerco Gas.

Prior to the 6 years at Vector Gas, as an independent contractor, he also worked for all the New Zealand oil and gas companies. During the late 90's early 2000's he was based in Perth, as Facilities and Maintenance Manager for Kleenheat Gas with national engineering responsibilities which took him to all states in Australia not only associated with the LPG business but also tempered LPG distribution networks.

Other prior roles include a variety of commercial, operational and engineering management roles with BP New Zealand Limited plus mostly project engineering roles for MWD pipeline project and New Zealand electricity.

Eddie Syadan

Eddie Syadan is a finance, economics and accounting specialist recently recruited from the WA government. He has had several years' experience undertaking detailed

analysis and providing recommendations and reports related to complex budget and finance matters to senior management at an agency level in both the Queensland and Western Australian Governments. He has considerable experience in operational budget development, budget planning and budget forecasting as well as the development of financial plans and strategies.

Career summary

Eddie has managed the budgets of state government funding programs at the agency level in both Queensland and Western Australia. This included developing financial plans and strategies and preparing the annual financial reports, preparing budget submissions, including resource allocation, monitoring budget performance and forecasting. Eddie has assisted in the development of policies and programs to facilitate the development of regional economies and communities.

Expertise

- Undertaking detailed analysis, recommendations and reports related to complex budget and financial matters.
- Preparing budget submissions, monitoring budget performance and forecasting.
- Preparing reports, including financial and project reports
- Analytical and problem solving including activity-based costing analysis, cost benefit analysis and variance analysis.

Appendix B Glossary

AA	Access Arrangement
AASI	Access Arrangement Support Information
AMP	Asset Management Plan
ALARP	As Low As Reasonably Practicable
BD	Business Development
Capex	Capital Expenditure
CEAR	Capital Expenditure Approval Request
COTS	Commercial off the shelf
EOL	End of Life
ERA	Economic Regulation Authority
EMCa	Energy Market Consulting associates
Economic value test	Test set out in rule 79(2)(a)
FSA	Formal Safety Assessment
GIP	Good industry practice
Incremental revenue test	Test set out in rule 79(2)(b)
HAZOPs	Hazard and operability study
IT	Information Technology
KPI	Key performance indicator
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
NPV	Net Present Value
OEM	Original equipment manufacturer
Opex	Operating Expenditure
QRA	Quantitative Risk Assessment
PV	Present Value
Prudent service provider test	Test set out in rules 79(1)(a) and 91(1) of the NGR.
RPP	Revenue and Pricing Principles
SAM	Strategic asset management
SAP	Enterprise management system
SIL	Safety Integrity Levels