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

Review of Technical Aspects of the Proposed Access Arrangement

Report to

Economic Regulation Authority of Western Australia

Energy Market Consulting associates

December 2014

This report has been prepared to assist the Economic Regulation Authority (ERA) with its assessment of Goldfield Gas Transmission Pty Ltd's (GGT) 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).

This report relies on information provided to EMCa by the ERA and by GGT up until 1st December 2014. 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 Access Arrangement Supporting Information (AASI) or other documents due to rounding.

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About EMCa

Energy Market Consulting associates (EMCa) is a niche firm, established in 2002 and specialising in the policy, strategy, implementation and operation of energy markets and related access and regulatory arrangements. Its Director, Paul Sell, is an energy economist and previous Partner in Ernst & Young and Vice President of Cap Gemini Ernst & Young (now Capgemini). Paul has advised on the establishment and operation of energy markets and on matters such as electricity network open access, pricing and regulation and forecasts for over 30 years.

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1 Introduction

1.1 Purpose of this report

1. The Economic Regulation Authority (ERA), in accordance with its responsibilities under the National Gas Law (NGL) and the National Gas Rules (NGR), is currently reviewing Goldfields Gas Transmission Pty Ltd's (GGT) revised access arrangement (AA) proposal for the Goldfields Gas Pipeline (GGP) for the period 1 January 2015 – 31 December 2019 (AA3).

2. To assist with its assessment of GGT's revised AA proposal, the ERA has engaged Energy Market Consulting associates (EMCa) to review and provide technical advice on the following aspects of the proposal:
   - the capital expenditure (capex) incurred (or to be incurred) by GGT in the current AA period, which extends from 1 January 2010 to 31 December 2014 (AA2);
   - GGT's proposed capex for AA3;
   - GGT's proposed operating expenditure (opex) for AA3; and
   - the governance arrangements, forecast methodology and cost estimation processes employed by GGT when developing its expenditure proposals.

3. The results of our technical assessment are set out in this report.

1.2 Regulatory framework

4. The provisions the ERA is required to have regard to when assessing GGT's capex and opex proposals are set out in Part 9 of the NGR. In short, these rules require the ERA to accept GGT's proposal if:
   - the capex complies with the conforming capex criteria in rule 79 of the NGR and any forecasts or estimates underpinning the capex proposal are arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances (r. 74(2)); and

- the opex complies with the criteria set out in rule 91(1) of the NGR and any forecasts or estimates underpinning the opex proposal satisfy rule 74(2).

5. The ERA's discretion under rules 79 and 91(1) is limited, which means it may not withhold its approval, if it is satisfied the opex and capex proposals comply with the relevant rules and/or provisions in the NGL.

1.3 Scope of the review

6. The overarching objective of this review is to determine whether the actual capex incurred by GGT in AA2 and its proposed capex for AA3 complies with the criteria set out in rule 79 of the NGR and its proposed opex for AA3 complies with rule 91(1).

7. In carrying out this review, the ERA has asked us to evaluate a range of matters that can affect capex and opex including, amongst others:

- GGT's substantiation and justification for forecast increases in opex and capex;
- GGT's project governance arrangements (e.g. procurement practices and delivery models), and the methods or models used by GGT to estimate its expenditure requirements and to prioritise areas of expenditure;
- the methodology GGT has used to develop capacity and utilisation forecasts as part of developing its capex and opex forecasts;
- the extent to which GGT has factored efficiencies into the opex and capex forecasts;
- GGT's ability to deliver its proposed capex programme;
- the asset lives assumed by GGT when calculating depreciation; and
- the Key Performance Indicators (KPIs) used by GGT to support its capex and opex forecasts including comparison with industry standard indicators and any proposed changes to GGT's operational and service level performance.

1.4 Data sources

8. In the course of carrying out this review, we have examined a large number of documents. This includes the AA Support Information (AASI) and other documents that GGT provided to the ERA in support of its proposed AA, and a number of other significant documents that were provided by GGT during on-site meetings (held on 16-17 September 2014), and in response to our Information Requests.

9. Unless otherwise denoted, values are real ($December 2013). Where we have had to derive real values from nominal values provided by GGT, we have used GGT's AASI Tables 23 and 24 (for the AA2 period) and Tables 25 and 26 (for the AA3 period)[1] to derive conversion factors. Unless otherwise denoted, we have used the full-year data provided by GGT for our analyses.

[1] GGT *Access Arrangement Revised Proposal: Supporting Information (AASI) 15 August 2014*, Tables 23 (p163), Table 24 (p164), Table 25 (p169), and Table 26 (p170)

10. We wish to acknowledge the assistance that GGT has provided during this review in responding to our requests for additional information.

1.5 Structure of this report

11. The remainder of this report is structured as follows:
    - Section 2 provides an overview of our key findings and recommendations;
    - Section 3 describes the frameworks we have used to assess GGT's proposed capex and opex and our general approach to undertaking this review;
    - Section 4 outlines the results of our review of the governance arrangements, forecast methodology and cost estimation processes employed by GGT when developing its expenditure proposals and the KPIs used by GGT to support its proposal;
    - Section 5 sets out the results of our examination of the capex incurred (or to be incurred) by GGT in the AA2 period;
    - Section 6 sets out the results of our assessment of GGT's proposed capex for the AA3 period and the asset lives that have been assumed in GGT's depreciation calculations; and
    - Section 7 sets out the results of our review of GGT's proposed opex for the AA3 period.
12. Further supporting information is provided in appendices.

1.6 Our qualifications

13. To support our management-level approach, the review team is comprised of people with senior management, and senior advisory experience in both gas and electricity network businesses. The credentials of the authors of this report are summarised in Appendix A.

2 Overview of findings and recommended adjustments

2.1 Introduction

14. In this section we provide an executive summary of our findings, including the recommended adjustments to the capex and opex that GGT has proposed. The supporting information for these findings is contained in sections 3 to 7.

2.2 Governance, forecasting framework and performance

15. We consider that:

(i) GGT's governance framework comprises the appropriate components for managing a gas transmission pipeline of the size and complexity of the GGP. However (a) GGT's apparent lack of a top-down challenge process to refine the forecast expenditure, (b) the preliminary state of the cost estimates with a light-handed capital investment governance and project management approach and (c) the apparent lack of management response to the significant capital expenditure underspend in the AA2 period (compared to the ERA-approved allocation) undermines confidence in the AA3 expenditure forecast;

(ii) There is a lack of explicit linkage between corporate objectives, key performance indicators, the Asset Management Plan and the Safety Case. Clear top-down and bottom-up alignment of objectives and requirements would assist with assessing the need for the expenditure. It would also increase confidence that GGT will undertake the nominated pipeline opex and capex, noting that it cancelled or deferred $10.31 (37%) of its ERA-approved AA2 capex allocation;

(iii) We consider that GGT's governance of its actual expenditure reflects good industry practice and shows evidence of efficient expenditure outcomes and prudent deferrals where initially proposed work was found not to be required.

(iv) The 70% underspend of the ERA-approved AA2 capex forecast casts serious doubts over GGT's forecasting methodology and the quality of the input data and assumptions underpinning its AA3 forecast. Crucially, GGT has not presented compelling evidence that it has recognised and learned from the evident cost forecasting issues; and

(v) Assessment of GGT's opex performance against available benchmarks reveals that, despite the proposed modest real reduction in AA3 opex, GGT is not currently operating at or near the efficient frontier nor is it likely to over the course of AA3.

2.3 AA2 conforming capex

16. We find that:

(i) GGT has sought to justify its AA2 capex primarily on the grounds of safety and integrity of the service;

(ii) GGT has not adequately demonstrated in all cases that it has appropriately allocated expenditure between the Covered Pipeline and other GGP assets. In these cases, we have made adjustments to the actual expenditure to determine the Conforming Expenditure in accordance with NGR rule 93(2 ;

(iii) Based on our assessment of the information provided by GGT, we recommend that the ERA accept $6.50m of the $8.23m AA2 capex proposed by GGT as Conforming Capex in accordance with NGR r.79(2), as shown in Table 1.

2.4 Proposed AA3 capex

17. We find that:

(i) There is sufficient information for us to conclude that the majority of proposed projects are justified under one or more of the criteria in rule 79(1)(b);

(ii) Rule 74(2) requires forecasts or estimates to be arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances. GGT's 70% underspend on its forecast and approved AA2 capex requirements led us to look for compelling evidence that in deriving the preliminary estimates for AA3 capex GGT had identified and taken into account the reasons for the AA2 underspend. We did not find sufficient evidence of material improvement to forecasting practices or investment governance for the majority of proposed projects. We are not satisfied that the expenditure forecasts in all cases satisfy r. 74(2). In these cases we have recommended adjustments that we believe result in estimates that are derived on a reasonable basis; and

(iii) GGT has not adequately demonstrated in all cases that it has appropriately allocated forecast capex between the Covered Pipeline and other GGP pipeline assets. In these cases, we have made adjustments to the proposed expenditure based on a fair allocation between the assets to determine the Conforming Expenditure in accordance with NGR rule 93(2).

18. We therefore recommend the ERA approve $8.56m of the $12.86m proposed AA3 capex as shown in Table 2.

2.5 Proposed AA3 opex

19. Rule 91(1) requires that operating expenditure is such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services. In testing GGT's proposed expenditure against Rule 91(1), the requirements of Rule 74(2) (which requires that the forecasts or estimates have been arrived at on a reasonable basis and that they represent the best forecast or estimate possible in the circumstances), and Rule 93(2) (which requires that costs are appropriately allocated between reference and other services), we find that:

    (i) With two exceptions, we consider that the proposed opex activities for APA operations, GGT operations and APA commercial operations are necessary activities and satisfy the requirements of r.91(1). The exceptions are the proposed increase in Projects/operations expenditure in the GGT operations category, and the proposed increase in Marketing in the APA commercial operations category, neither of which have been adequately justified.

    (ii) The proposed labour rates underlying the APA commercial operations forecast are excessive and fail to satisfy the requirements of r.74(2).

    (iii) The proposed allocation of GGT operations, APA operations and APA commercial operations expenditure has not been derived on a reasonable basis and does not represent the best forecast or estimate, as is required by r.93(2). We consider that the proposed allowances are significantly biased towards imposing those costs on the users of Reference Services and Negotiated Services on the Covered Pipeline such that these users would effectively subsidise GGT in its provision of services to other users.

    (iv) The proposed Regulatory Costs have not been derived on a reasonable basis. We consider that they assume a higher level of corporate resource than is likely to be used, are biased towards imposing those costs on the users of Reference Services and Negotiated Services on the Covered Pipeline to a greater degree than is warranted and do not represent the best forecast or estimate, as is required by rule 74(2). We consider that they are not supported by a proper interpretation of the benchmark information provided by KPMG.

    (v) The proposed allowance for Corporate Overheads has not been derived on a reasonable basis. We consider that the allowance is biased towards imposing a higher proportion of APA Group's corporate overheads on GGP, and a higher proportion of its GGP allocation on the users of Reference Services and Negotiated Services on the Covered Pipeline in GGP, than is reasonable and does not satisfy rule 93(2). We consider that the proposed amount is not supported by a proper interpretation of the benchmark information provided by KPMG and that GGT has not provided satisfactory evidence to support its claims that its proposed allocation is consistent with its allocations for JV budgeting or for AER determinations for other regulated pipeline operations.

20. We therefore recommend excluding $24.61m (21%) of the opex allowance of $117.20m that GGT has proposed, as shown in Table 3.

2.6 Aggregate implications

21. Tables 1 to 3 show the summarised EMCa-recommended adjustments to GGT's proposed AA2 capex, AA3 capex and AA3 opex respectively.

Table 1: *Summary of AA2 Capex adjustment - $m, real Dec 2013*

	Total GGT Actual	Total EMCa adjustments	Total EMCa Adjusted
Pipeline and laterals	-0.065	-0.026	-0.091
Main line valve and scraper stations	0.000	0.000	0.000
Compressor stations	2.249	-0.541	1.708
Receipt and delivery point facilities	0.305	0.000	0.305
SCADA and communications	2.647	-0.596	2.050
Cathodic protection	0.000	0.000	0.000
Maintenance bases and depots	1.507	-0.301	1.205
Other assets	1.593	-0.266	1.326
Non-depreciable assets	0.000	0.000	0.000
Total	**8.235**	**-1.731**	**6.504**

Sources: EMCa analysis derived from AASI attachment 5 – table 2 to table 7.

Table 2: *Summary of AA3 Capex adjustment - $m, real Dec 2013*

	Total GGT Proposed	Total EMCa adjustments	Total EMCa adjusted
Pipeline and laterals	5.514	-1.326	4.188
Main line valve and scraper stations	0.641	-0.128	0.513
Compressor stations	2.328	-0.917	1.411
Receipt and delivery point facilities	1.388	-0.742	0.646
SCADA and communications	1.268	-0.408	0.859
Cathodic protection	0.262	-0.262	0.000
Maintenance bases and depots	0.620	-0.277	0.344
Other assets	0.836	-0.239	0.598
Non-depreciable assets	0.000	0.000	0.000
Total	**12.858**	**-4.299**	**8.559**

Sources: EMCa analysis derived from Table 9 AASI p59 and Attachment 6

Table 3: *Summary of AA3 Opex adjustment - $m, real Dec 2013*

	Total GGT Proposed	Total EMCa adjustments	Total EMCa Adjusted
APA Operations	51.753	-2.516	49.237
GGT Operations	17.378	-2.011	15.367
APA Commercial Operations (excl. regulatory)	10.780	-4.066	6.714
Regulatory	7.170	-2.240	4.931
Corporate Costs	30.123	-13.779	16.344
Total	**117.204**	**-24.612**	**92.592**

Sources: EMCa analysis derived from Table 26 AASI p170 and GGT Opex 2015 – 2019 spreadsheet emailed 16/09/2014

3 Review framework

3.1 National Gas Law and National Gas Rules

22. As the manager and complying service provider of a Covered Pipeline, GGT is required to submit a full AA to the ERA and to obtain its approval for the price and non-price terms and conditions of access to the reference service(s) GGT provides through the GGP. The current AA expires on 31 December 2014.

23. When assessing the AA, the ERA is required to have regard to:

- the access arrangement provisions set out in Part 8 of the NGR;
- the price and revenue regulation provisions set out in Part 9 of the NGR; and
- the National Gas Objective (NGO) and the revenue and pricing principles (RPP) set out in sections 23-24 of the NGL.

24. Of particular relevance in this context are the provisions the ERA is required to consider when assessing the capex and opex elements of GGT's revised AA proposal, which are set out in Part 9 of the NGR. An overview of these provisions is provided below.

3.1.1 Capex provisions

25. By virtue of the operation of rules 77(2)(b) and 78(b),[2] the ERA is required to carry out both:

- an ex post assessment of the capex incurred (or to be incurred) by GGT in AA2 to determine whether it satisfies the conforming capex criteria in rule 79(1); and
- an ex ante assessment of the capex GGT proposes to incur in AA3 to determine whether it is likely to satisfy the conforming capex criteria in rule 79(1).

26. Conforming capex is defined in rule 79(1) as capex that satisfies the following criteria:

- the capex 'must be such as would be incurred by a prudent service provider acting efficiently, in accordance with good industry practice, to achieve the lowest

[2] Rule 77(2) sets out how the opening value of the capital base at the commencement of a new AA period is to be calculated, while rule 78 sets out the value of the capital base during the AA period is to be calculated. In short, these two rules only allow conforming capex to be rolled into the value of the capital base.

sustainable cost of delivering pipeline services' (the 'prudent service provider test') (r. 79(1)(a)), and

- the capex must be justifiable on one of the following grounds (r. 79(1)(b)):
  - (a) the overall economic value of the expenditure is positive (the 'economic value test') (r. 79(2)(a));[3] or
  - (b) the present value (PV) of the expected incremental revenue exceeds the PV of the capex (the 'incremental revenue test') (r. 79(2)(b));[4] or
  - (c) the capex is necessary to:
    - (i) maintain and improve the safety of services (r. 79(2)(c)(i)); or
    - (ii) maintain the integrity of services (r. 79(2)(c)(ii)); or
    - (iii) comply with a regulatory obligation or requirement (r. 79(2)(c)(iii)); or
    - (iv) maintain the service provider's capacity to meet levels of demand for services existing at the time the capex is incurred (r. 79(2)(c)(iv)); or
  - (d) the capex is divisible into two parts, with one part referable to incremental services and justifiable under 79(2)(b) and the other part referable to a purpose under 79(2)(c) and justifiable on this basis (r. 79(2)(d)).

27. In accordance with rule 79(6), the ERA's discretion under rule 79 is limited. It cannot therefore withhold its approval of the capex incurred by GGT in AA2 or the capex it proposes to incur in AA3, if it is satisfied the capex complies with:
    - the criteria set out above;
    - rule 74(2), which states that any forecast or estimate must be arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances; and
    - any other relevant provision in the NGL and/or the NGR.

28. Specifically, rule 93(2) requires that costs are to be allocated between reference and other services as follows:
    - (a) Costs directly attributable to reference services are to be allocated to those services; and
    - (b) Costs directly attributable to pipeline services that are not reference services are to be allocated to those services; and

[3] Rule 79(3) sets out the matters to be considered when applying the economic value test. In short, this rule only allows consideration to be given to the economic value directly accruing to the service provider, gas producers, users and end-users when determining whether the overall economic value of the capex is positive.

[4] Rule 79(4) sets out what is to be considered when applying the incremental revenue test. In short, this rule requires:
- a tariff to be assumed for the incremental services based on (or extrapolated from) prevailing reference tariffs, or an estimate of the reference tariffs that would have been set for comparable services if those had been reference services; and
- incremental revenue to be taken to be the gross revenue to be derived from the incremental services less incremental opex; and
- the discount rate is to be based on the rate of return implicit in the reference tariff.

(c) Other costs are to be allocated between reference and other services on a basis (which must be consistent with the revenue and pricing principles) determined or approved by the AER.

29. Finally, in determining whether capex is efficient and complies with other criteria prescribed in the rules, rule 71 states that the ERA may, without embarking on a detailed investigation, infer compliance from the operation of an incentive mechanism or any other basis the ERA considers appropriate. It must, however, consider, and give appropriate weight to, submissions and comments received.

Conforming capex vs non-conforming capex

30. Where the capex proposed by GGT (in whole or in part) is found to:
    - satisfy rules 79 and 93, it will be considered conforming capex for the purposes of rules 77(2) and 78 and rolled into the capital base (i.e. it will be included in the derivation of the reference tariff(s)); or
    - not satisfy rules 79 and 93, it will be considered non-conforming capex and excluded from the capital base (i.e. it will be excluded from the reference tariff(s)).

31. In this context that while non-conforming capex cannot be recovered through the reference tariff(s), GGT may still undertake this form of capex and either:
    - recover that expenditure, or a portion thereof, through a surcharge (r. 83) or a capital contribution (r. 82); or
    - include the investment in a notional fund, referred to as the 'speculative capital expenditure account', which may be rolled into the capital base at a later date if the capex is found to satisfy the conforming capex criteria (r. 84).

3.1.2 Opex provisions

32. The criteria the ERA is required to consider when assessing GGT's proposed opex for AA3 are set out in rule 91 of the NGR, which is reproduced below:

> *Operating expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.*

33. The ERA's discretion under this rule is limited (r. 91(2)), which means the ERA may not withhold its approval, if it is satisfied GGT's proposal complies with:
    - the criteria set out in rule 91(1);
    - rule 74(2), which states that any forecast or estimate must be arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances; and
    - any other relevant provisions in the NGL and/or the NGR, such as rule 93.

34. In a similar manner to capex, rule 71 states that in determining whether opex is efficient and complies with other criteria prescribed in the rules, the ERA may, without embarking on a detailed investigation, infer compliance from the operation of an incentive mechanism or any other basis the ERA considers appropriate. It must, however, consider, and give appropriate weight to, submissions and comments received.

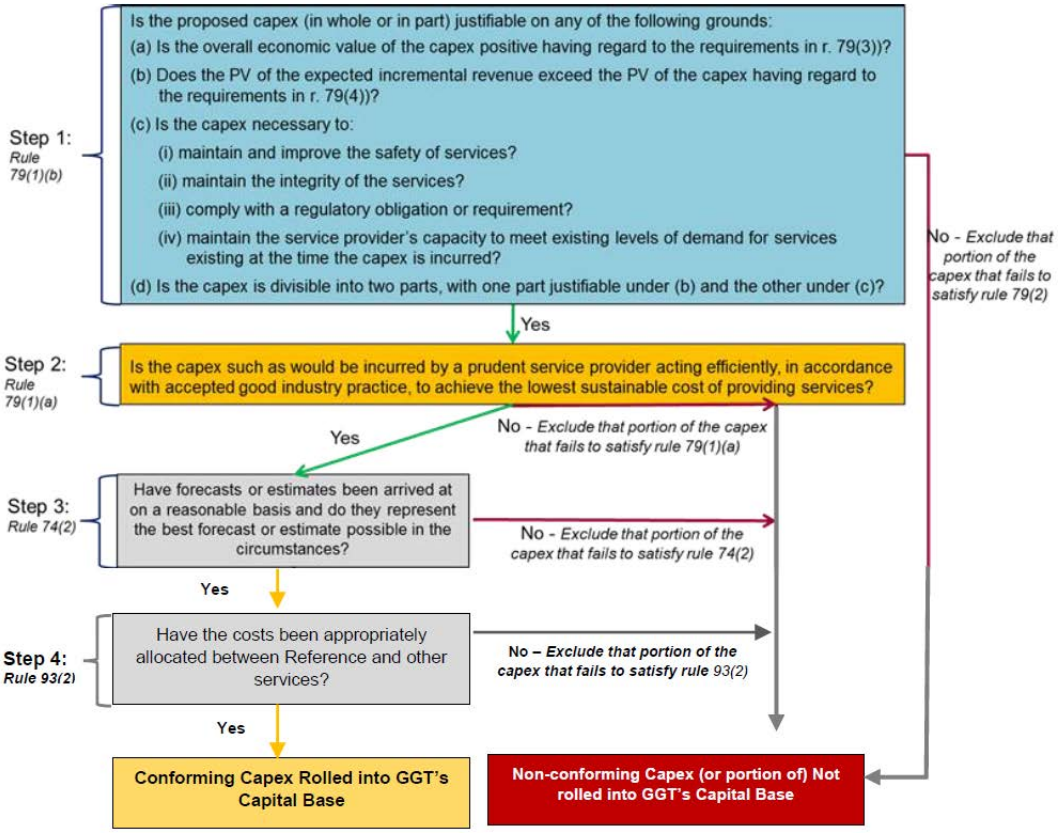
3.2 Assessment framework

35. An overview of the frameworks we have used to assess GGT's capex and opex proposals is provided below.

3.2.1 Capex assessment framework

36. The framework we have used to assess whether the capex incurred (or to be incurred) by GGT in AA2 and its proposed capex for AA3 can be considered conforming capex is depicted in Figure 1.

Figure 1: Capex assessment framework



37. As Figure 1 highlights, the framework consists of four steps, which are based on the specific requirements set out in rules 79, 74(2), and 93(2). Where there is discretion as to which ground is relevant under rule 79(2), we have based our assessment on the grounds that GGT has identified and have reviewed the evidence GGT has provided in support of this ground. Further detail on the matters we have considered in each step is provided below.

Step 1: Is the expenditure justifiable on a ground set out in rule 79(2)?

38. The first matter we have considered when assessing GGT's capex proposal is whether the expenditure can be justified on any of the grounds set out in rule 79(2).

39. For those capex projects (or a portion thereof) that GGT has claimed the economic value is positive (r. 79(2)(a)) or that the expenditure satisfies the incremental revenue test (r. 79(2)(b)), we have had regard to a range of matters, including:

- rules 79(3) and 79(4), which set out how the economic value of a project and the present value of incremental revenue are to be calculated; and
- the analysis GGT provided in support of its claim and its underlying assumptions.

40. For those capex projects (or a portion thereof) where GGT has claimed the expenditure is necessary to maintain the safety or integrity of the services, comply with a regulatory obligation and/or maintain the capacity to meet existing levels of demand (r. 79(2)(c)), we have, amongst other things, had regard to:
    - GGT's Asset Management Plan (AMP);
    - GGT's Safety Case and the formal safety assessments (FSA) carried out by GGT;
    - the Gas Standards (Gas Supply and System Safety) Regulations 2000;
    - Australian Standards AS/NZS4645 (Gas Distribution Networks) and AS2885 (Pipelines – Gas and Liquid Petroleum Pipelines);
    - other regulatory requirements that GGT is required to comply with; and
    - the analysis GGT provided in support of its claim and its underlying assumptions.
41. As Figure 1 indicates, if the capex project in whole, or in part, is found to:
    - be justified under rule 79(2), we have then considered whether it satisfies the prudent service provider test in rule 79(1)(a) (Step 2); and
    - not be justified under rule 79(2), then we have deemed the expenditure to be non-conforming capex.

Step 2: Does the capex satisfy the prudent service provider test in rule 79(1)(a)?

42. The second matter we have considered is whether the proposed expenditure on capex projects that are justified under rule 79(2) is 'such as would be incurred by a prudent service provider acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of providing the service'.
43. In conducting this assessment, we have considered a range of matters (some of which are more or less relevant to particular projects or programmes of work), including:
    - The project governance framework employed by GGT, the key elements of which are GGT's: business planning process, AMP and Safety Case, investment governance arrangements, forecasting methodology, and procurement policy.
    - The project management and procurement processes employed by GGT on particular projects and the nature of any outsourcing arrangements it has entered into (e.g. competitive tender or related party transaction);
    - GGT's capability to deliver the proposed projects efficiently in the time proposed;
    - The extent to which GGT has adequately assessed and accounted for any benefits from productivity or efficiency enhancing programmes (benefits realisation);
    - The actual costs incurred by GGT in AA2 relative to what it has proposed for AA3;
    - GGT's compliance with relevant Australian standards, and
    - Benchmarking of approaches and/or costs against other gas pipelines and/or regulated businesses.
44. As Figure 1 indicates, where the expenditure in whole, or in part, is found to:

- Satisfy the prudent service provider test, we have considered whether the proposed expenditure satisfies rule 74(2) (Step 3); and
- Not satisfy the prudent service provider test, then we have excluded that portion of the expenditure that is deemed to fail this test.

Step 3: Do any forecasts or estimates comply with rule 74(2)?

45. We then consider whether the forecasts or estimates underlying those capex projects that are justifiable under rule 79(2) and satisfy the prudent service provider test, have been arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances, as required by rule 74(2).

46. As Figure 1 highlights, where the forecasts and/or estimates are found to:

- satisfy this rule, the proposed expenditure has been deemed to comply with the conforming capex criteria; and
- not satisfy this rule, then we have excluded that portion of the expenditure that fails to satisfy this rule, on the grounds that a prudent service provider would not expect to incur this expenditure (r. 79(1)(a)).

Step 4: Do the allocated costs comply with rule 93(2)?

47. The final matter we have considered is whether the forecasts or estimates underlying those capex projects that are justifiable under rule 79(2) and rule 74(2) have been allocated to correctly between the Reference and other services, as required by rule 9(2).

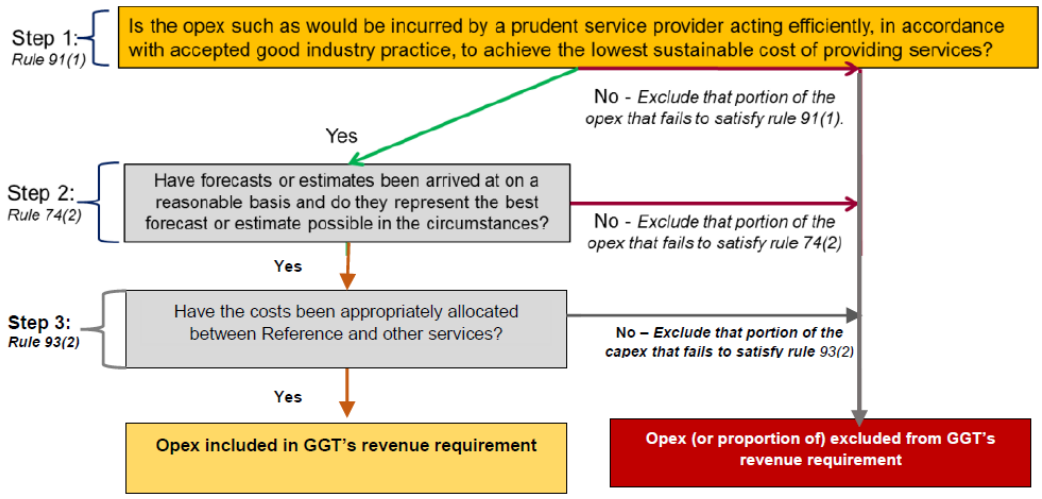
48. As Figure 1 highlights, where the forecasts and/or estimates are found to:

- satisfy this rule, the proposed expenditure has been deemed to comply with the conforming capex criteria; and
- not satisfy this rule, then we have excluded that portion of the expenditure that fails to satisfy this rule, on the grounds that a prudent service provider would not expect to incur this expenditure (r. 79(1)(a)).

3.2.2 Opex assessment framework

49. Figure 2 sets out the framework we have used to assess GGT's proposed AA3 opex.

Figure 2: Opex assessment framework



50. When compared with Figure 1, it is clear that the questions considered under steps 1, 2 and 3 of this framework are broadly the same as those considered under steps 2, 3 and 4 of the capex assessment framework. The matters that we have considered when applying this framework are therefore largely the same as those set out in section 3.2.1; albeit focused on opex rather than capex.

51. The only additional matters that we have considered under Step 1 of this framework, which are not relevant to capex are:

- The methods used by GGT's parent company (the APA Group) to allocate corporate overheads to GGT and the extent to which:
  - the APA Group provides services that justify this as an expenditure item recoverable through regulated tariffs; and
  - there is any overlap in services provided by GGT and the APA Group.
- The nature of any discretionary opex projects proposed by GGT (e.g. business development and marketing) and the extent to which these projects are expected to yield a net economic benefit for consumers.

3.3 EMCa's approach to this review

52. Our review has entailed:

- Carrying out a first pass review of GGT's capex and opex proposals to identify any areas where there has been a material change in either:
  - the capex incurred (or to be incurred) by GGT in AA2 relative to what was approved by the ERA in its 2011 final decision; and
  - the expenditure GGT has proposed for AA3 relative to what it spent in AA2.
- Agreeing to a set of key focus areas with the ERA, which included:
  - The expenditure on SIB capex and MEJ capex during AA2;
  - The proposed expenditure on SIB capex and MEJ capex during AA3; and
  - The proposed expenditure on network opex and corporate support costs during AA3.

- Conducting a more detailed assessment of significant capex and opex expenditure drivers (determined by the value of the projects) using the assessment framework outlined in the preceding section and having regard to information provided by GGT in its initial submission to the ERA, the on-site meetings and in response to our information requests.
- Carrying out a high level review of the remainder of GGT's capex and opex proposals.

53. In this way our review has placed emphasis on those matters that are of greatest significance in driving the level of reference tariffs the ERA is being asked to approve and we have deepened our assessment process on such components of proposed expenditure, so as to provide the ERA with the necessary supporting evidence and supporting logic on matters of most significance.

4 Review of governance, forecasting and performance

4.1 Introduction

54. To inform our assessment of the capex incurred by GGT in the AA2 period and its forecast conforming capex and opex for the AA3 period, we have reviewed the project governance framework, cost estimation process and forecasting approach (including demand forecasting) employed by GGT. We have also examined the KPIs that GGT has provided in support of its capex and opex proposals. The results of our review are set out below.

4.2 Governance framework

4.2.1 Introduction

55. We have reviewed GGT's governance framework with the emphasis on the policies, processes, procedures and key documents that it has in place to:
    - Develop projects and programs of work;
    - Approve individual projects of work in the context of the business's portfolio of work, and
    - Manage the delivery of approved work.
56. GGT's methodology for forecasting work for the AA3 period is considered in Section 4.7, and its proposed KPIs are considered in Section 4.8.
57. Our review has focused on the following aspects:
    - The alignment of the governance framework with GGT's corporate objectives, including its regulatory and statutory obligations;
    - The alignment with good industry practice;
    - The evidence that the processes and procedures being used in practice, and

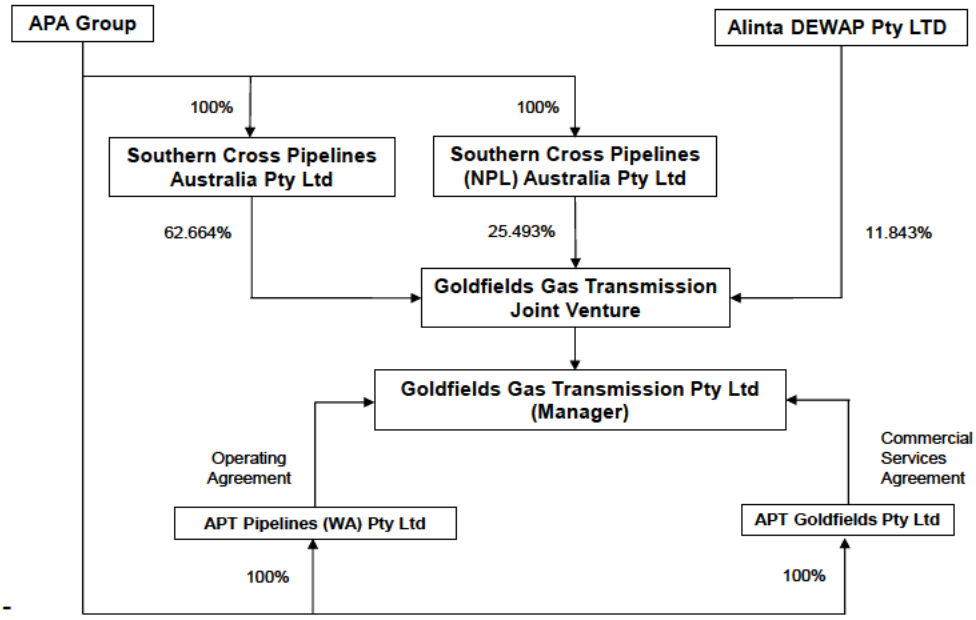
- The effectiveness of the governance process.

58. The AA2 program of work was derived in 2009/10. Where practicable and relevant, the changes over time are noted.

4.2.2 Management and operation of the GGP

59. Figure 3 shows the commercial arrangement between the APA Group, Alinta DEWAP Pty Ltd (Alinta), the GGT JV and the GGT as Manager of the pipeline on behalf of the GGT JV participants. GGT is owned by the APA Group (ie. it is an APA Group Entity) and it controls and operates the GGP (which in turn is owned by the GGT JV participants). The GGT manages both the Covered Pipeline and other GGP assets. The AA3 proposal is intended to apply expenditure only applicable to the Covered GGP assets.

Figure 3: Ownership and management of the GGP



Source: Reproduction of information provided by GGT in presentation document 'Goldfields Gas Pipeline' on 16 Sep 2014

4.3 Asset management

4.3.1 GGT's approach

60. GGT's 2014 AMP which addresses the Covered Pipeline and the other GGP assets is a part of GGT's annual planning process; it draws on individual asset class plans to present a five year outlook and annual maintenance and capital works programs. The document summarises the assessment of capacity requirements, estimated expenditure required and potential threats to future operation. It also considers the requirements to fulfil the pipeline's regulatory, safety, environmental and performance targets over the five year period (in this case 1 July 2014 – 30 June 2019).[5]

[5] APA Group, *Asset Management Plan: GGP 2014-2019, Rev A,* June 2014, p4

4.3.2 EMCa Assessment

61. The 2014 AMP is operated under an integrated management system[6] and GGT refers to the AS2885 suite of standards for the design, construction, operation and maintenance of the pipeline. This approach to structuring its asset management system is appropriate and consistent with good industry practice.

62. The 2014 AMP considers three major drivers for expenditure: capacity, integrity, and compliance, which is appropriate for a transmission pipeline. The conclusions of the assessment of the GGP against these drivers are:

- Capacity is now adequate due to recent enhancements[7] and considering the projected growth;
- There are no concerns about the structural integrity of the pipeline, but ongoing inspections are required and compressor maintenance and upgrades/rectifications are required over the next five years, and
- The operating Licence requires inspections to be undertaken by 2016[8] and Hazardous Area rectification reviews on a four year cycle.

63. When we reviewed the *content* of the 2014 AMP, we found four aspects which diminish our confidence in GGT's prioritisation and timing of capex for condition-based or reliability-based expenditure, noting that GGT decided to defer or cancel $10.31m (37%) of its ERA-approved AA2 capex (as discussed in detail in Section 4.3, below):

(i) *Lack of link of risk assessment to proposed expenditure* **–** for example GGT's 2014 AMP typically does not present the consequences posed by the condition of its equipment, instead allocating expenditure to address 'unacceptable conditions'[9] which in turn are defined as those elements that are expected to fail within the next six months (from inspection). However, the justification for defining these conditions as unacceptable on the basis of consequences of failure (to provide a *risk* assessment rather than just a condition assessment) is not evident.

(ii) *Lack of link between expenditure and KPIs* – the AMP states that its outputs are (a) budget amount and timing, and (b) technical queries (for follow-up). There is no discernable link between the risk assessment (noting the limitations described above) and the key performance measures reported in Section 5.1 of the AMP. No operational targets are presented, although reference is made to integrity, availability and reliability incentives on offer to staff on the GGP.[10] It is noted that reliability and availability of rotating plant has been acceptable for the last two years. There is no apparent analysis of the extent to which performance might deteriorate for any delay or change to the proposed capex or opex.

(iii) *Lack of link between Safety Case and the AMP* – the AMP only makes reference to the GGP Operational Safety Case in Section 3.2 and only to point out its existence and that it was reviewed and accepted by the Department of Mines and Petroleum (DMP, the Western Australian transmission pipeline regulator) in January 2014. To

[6] GGT note certification to ISO 9001:2008, ISO 14001:2004, AS/NZS 4801:2004 and OHSAS18001:2007, *ibid,* p10

[7] Compressor units were installed at Yarraloola Compressor Station and Paraburdoo Compressor Station in 2013/14

[8] Remaining Life Review is required upon expiry of PL24

[9] *Ibid,* p25

[10] *Ibid,* p15

assist with providing confidence that the forecast expenditure is prudent, we would expect to see direct links between the requirements of the approved Safety Case and the AMP expenditure proposals.

(iv) *The 2013 AMP[11] for 2013-2018 has been truncated* - whilst it is designated as a five year plan, it includes only the 2013 and 2014 planned investment.[12] Despite our requests,[13] GGT has refused to provide the 5 year view of the investment plan. This has diminished our ability to understand the evolution of GGT's asset management plans.

64. Our concerns with the AMP described above are mitigated by supplementary information that GGT has provided information in Attachments 5 (for AA2 capital expenditure) and Attachment 6 (for proposed AA3 capital expenditure) to the AASI. However, the combination of (i) the 70% capex and 14% opex underspend against the ERA-approved AA2 forecast (discussed in detail in Section 4.4 below) and (ii) the issues with the AMP discussed above, combine to indicate that there are material flaws in (i) GGT's application of its certified asset management methodology, and (ii) its governance process. This in turn casts significant doubt about the GGT's capability to accurately forecast the prudent and efficient capital and operating expenditure necessary to satisfy the expenditure drivers denoted above. We have taken this high level assessment into account in our detailed assessment of the proposed conforming capital expenditure in Section 5 (AA2 capex) and Section 6 (AA3 capex).

4.4 Safety Case and Formal Safety Assessments

4.4.1 GGT's approach

65. The Safety Case describes the minimum standards and requirements for operation and maintenance of the GGPS. In the Safety Case, the Operator is designated as the APA Group.[14]

66. The Safety Case was first developed in 2003 and has been revised at least eight times (most recently in January 2014). It was accepted by the Department of Mines & Petroleum, the relevant regulator, in May 2014.

67. A key component of the Safety Case is Formal Safety Assessments (FSA), the objectives for which are to:

- Identify all major hazards and assess those that pose particular risk to personnel, public, pipeline and environment;
- Ensure adequate and effective control, mitigation and recovery measures have been or will be put in place to manage the risks; and

[11] GGT *Asset Management Plan 2013 Rev B*, provided in response to IR EMCa01

[12] GGT response to IR EMCa33

[13] Per IR EMCa30 and EMCa35

[14] For consistency with our understanding of the commercial and operating obligations of GGT with respect to the Covered Pipeline we will continue to refer to GGT as the respons ble entity noting that it is 100% owned by APA Group and contracts operational requirements to APT Pipeline (WA) Pty Ltd and APT Goldfields Pty Ltd, both 100% owned and resourced by APA Group

- Reduce risks have been reduced to a level that is tolerable and as low as reasonable practicable (ALARP).

68. As we understand GGT's FSA process, they are developed and agreed to on a consensus basis by representatives of GGT's staff through an internal validation process as required by Australian Standards AS2885.[15]

4.4.2 EMCa Assessment

69. The Safety Case is a comprehensive document. It contains an extensive description of the facilities, the Safety Management System, and Formal Safety Assessments. The FSAs are integral to generating capital and operating expenditure forecasts and were the focus of our assessment of the Safety Case.

70. GGT undertakes the risk assessments underpinning FSAs using one or more approaches, including HAZOPs, SIL studies, AS2885 threat assessments, HAZIDs and QRAs.

71. We have two concerns with GGT's Safety case documentation:

(i) *Lack of demonstration of ALARP* – a cornerstone requirement of AS2885 is the principle of ALARP. GGT describes its approach for Major Accident Events (MAE) as firstly defining a level of acceptable risk and progressively applying controls until *in the opinion of all present at the study that the level of control has reduced the risk to ALARP*.[16] What is not evident in the Safety Case is that an economic analysis has been undertaken to demonstrate that the risk has or will be reduced to ALARP through the prescribed control measures (as required by AS2885[17]). In the absence of this analysis, it ***may*** be the case that GGT is overinvesting (or underinvesting) in pipeline risk mitigation.

(ii) *Risk may have been overstated* - Whilst GGT (and its predecessors) have undertaken a number of Risk Assessments and the DMP has accepted the Safety Case, the GGT's significant capital under-expenditure in the AA2 period indicates that the extent of risks may have been overstated[18] and/or the cost estimation process is biased towards over-estimating required expenditure.[19]

[15] Safety Case, Formal Safety Assessment, GGT-OSC-4-21-004, p9

[16] *Ibid,* p16

[17] Section F5.2.

[18] For example, the ERA- approved allowance for SIB other assets capex 2010-2014 was $2.623m capex; actual expenditure was $0.333m, or 87% less than forecast (source: *GGP_2010-214 CAPEX AA forecast and actual 3-Oct-2014.xls*, provided by GGT in response to IR EMCa09)

[19] For example, the ERA-approved forecast expenditure for the Yarraloola compressor hazardous area declassification was $1.02m; actual expenditure was $0.28m, or 78% less than forecast (source: *GGP_2010-214 CAPEX AA forecast and actual 3-Oct-2014.xls*, provided by GGT in response to IR EMCa09)

4.5 Investment governance

4.5.1 GGT's approach

72. GGT does not explicitly explain its capital investment governance framework in its AASI. However, in response to requests for further information,[20] we understand that GGT applied a 'bottom-up' approach to deriving its expenditure forecasts and a 'top-down' challenge process in preparing its AA3 proposal.

73. It based its bottom-up expenditure forecast for the AA3 proposal on its five-year rolling operating and capital expenditure budgets which are derived from a five-step process:

- At the beginning of each calendar year, GGT prepares draft budgets of the capital projects and operating activity for the following five years – it bases the budget on the advice of the asset management team within APA contained in the latest version of the Asset Management Plan for the GGP;
- The draft budget is reviewed by the GGT's General Manager and by senior engineers within the APA Group;
- The draft budget is issued to the GGT JV in March each year for review – the APA Group and Alinta independently review the budget forecasts; each party to the JV is entitled to challenge the forecasts;
- The review by the JV may proceed through several iterations (which we are told was the case in 2014);[21]
- Once the JV is satisfied with the draft budget, it is submitted to the Management Committee for formal approval.

74. The routine monitoring and control of the approved budget follows a two-step process:[22]

- Monthly capital expenditure reports (current forecast of expenditure for the financial year compared with the approved budget) are provided to the JV participants for review
- Quarterly reports are submitted to the Management Committee.

4.5.2 EMCa Assessment

75. We would have increased confidence in an expenditure program that has had a meaningful 'top-down' challenge – in this case from the GGP JV Management Committee. We have not been provided with evidence that the challenge approach was followed. We would expect that the Management Committee would have reviewed:

[20] At the on-site meetings and via Information Requests EMCa08, 09, 10, 12, 16

[21] However, we have not been provided with evidence of the iterations (eg. the decisions made and the rationale for the decisions)

[22] Per GGT response to IR EMCa12

- The investment strategies, volume, cost and benefit assumptions and conclusions for at least the larger expenditure components (based on the best available information); [23]
- Justifications for material changes in expenditure;
- The expected impact of the program on the state of the pipeline and its performance using established KPIs;
- Sensitivity analyses that help demonstrate that increased or reduced expenditure would be sub-optimal in achieving the JV's business objectives, and
- Evidence that the reasons for over- or under-expenditure (eg. from the preceding AA period) are well understood and have been taken into account in deriving the forecast AA3 expenditure.

76. However, despite our request for evidence, the GGT has not provided us with a description of the review process nor with the extent of and reasons for any changes to the proposed expenditure that resulted in the final submission.

77. Another source of confidence in forecasts that may be derived from an effective governance process is evidence that:

- At the portfolio level there is consistency between forecast and actual expenditure;
- At the project level, there are compelling explanations of any variance between actual and estimated expenditure;
- Forecasting issues have been identified, the processes improved and the outcomes are progressively improving, and
- Expected benefits from the expenditure have been realised.

78. Based on the information provided, we have found:

- Evidence of *considerable variance* between the actual and forecast expenditure at a portfolio level without compelling reasons for the variance;
- Evidence of *considerable variance* between actual and forecasts expenditure at the project level without compelling reasons for the variance;
- *Lack of compelling evidence* that the forecasting issues have been identified and addressed, and
- *Lack of compelling evidence* of an explicit benefits realisation phase for its projects – we would expect to see expenditure requests for large pipeline capital and operating items to delineate the expected benefits and a post-project review of the achievement or otherwise of the benefits being realised. [24]

79. These apparent failures in governance and sound portfolio and project-level governance indicate systemic issues, which in turn diminishes confidence in the prudency and efficiency of the proposed programs of work (per rule 79(2)).

80. The impact of each of these issues on our assessment of capex and opex expenditure is discussed in Sections 5 to 7.

[23] Acknowledging that at this stage of the project development lifecycle, there would be a relatively low percentage of projects with business cases

[24] Acknowledging that in AA2 and AA3 there was/are a small number of large (multi-million dollar) projects

4.6 Procurement and contract management

4.6.1 GGT approach

81. All purchasing decisions for capital expenditure are made in accordance with GGT's Procurement Policy[25]. The Policy requires a tender to be conducted if the value of goods to be purchased is greater than $100k and/or if the purchase of goods or services could create material risk to the business.

4.6.2 EMCa Assessment

82. The Procurement Policy has not been updated since 2008, despite GGT designating that annual reviews are required. Generally, however, the principles, processes, scope and required actions are consistent with good industry practice.

4.7 Forecasting

4.7.1 GGT's approach to forecasting

Capex forecasting methodology

83. The capital project requirements are derived from the GGT's AMP as part of the GGT's annual planning process. As discussed in more detail in Section 0, it draws on individual asset class plans to present a five year capital works program. We are advised that this is the basis for the Access Arrangement proposal for 2015-19.

84. APA's project cost estimation process for capital works is scaled to the type, size and risk of the project:[26]

- *Business & technology projects*: if the estimated project cost is >$150,000, and/or impacts more than one business unit, APA uses the Portfolio Project Management services provided by its corporate Portfolio Office. Under those processes, project cost estimations are conducted via an Estimations Forum which draws on the expertise from the core project delivery disciplines;
- *Infrastructure projects*: APA has a dedicated Infrastructure Development area that manages infrastructure projects >$2m (non-stay-in-business). It uses a standard high level framework for the management of projects; and
- *Small/simpler projects*: Cost estimation methodologies for these projects are developed and applied on a case by case basis, largely driven by the nature of the project. The project plans and costings are developed in the local engineering areas and are presented for approval through the annual budget process. Many smaller projects involve using local labour and contractors, such that past experience in the cost of delivering similar projects is used as a guide for future expenditure. Projects that involve one-off replacement of assets are often based on quotes.

[25] APA Group, *Procurement Policy,* 2008

[26] GGT response to IR EMCa08

Opex forecasting methodology and key assumptions

85. Two forecasting methodologies are used in assembling the opex forecast. The first applies to the derivation of the forecasts for APA operations, GGT operations, and APA commercial operations. For these categories, GGT states that it has based its GGP Covered Pipeline AA3 forecast on the internally-approved five-year operating expenditure budget for the GGP as follows[27]:

    (i) All expenditure directly attributable to uncovered assets are removed;

    (ii) Forecast expenditure attributable to both the Covered Pipeline and other GGT JV assets are allocated to the Covered Pipeline using the ratio of TJ km/d of service provided using the Covered Pipeline to total TJ km/d of service provided, and

    (iii) Selecting 2012 as a 'Base Year' of actual expenditure, with comparisons of the five year forecast against the Base Year, with adjustments made to budget forecasts on a case-by-case basis.

86. As discussed in more detail in Section 7.9.1, to derive its forecast Corporate cost, GGT proposes an allocation of its APA Group corporate opex in a two-step process:

- Total APA Group corporate expenditure has been apportioned across each revenue earning entity based on relative income;
- GGT allocates a proportion of the GGP service providers' allocation to the Covered Pipeline based on the ratio of contracted Covered Pipeline to total GGP transportation capacity-distance (TJ km/d).

4.7.2 EMCa assessment

Capex forecasting methodology is satisfactory

87. GGT's methodology to deriving total cost estimates for capex projects is consistent with common industry practice, however, as discussed in detail below, the outcomes of its approach indicate that there are often material flaws in its application.

88. Only two IT-based capital project cost estimations for AA3 have been prepared using the forecasting methodology denoted above - the WA SCADA Satellite replacement project and the Enterprise Asset Management project. The prudency and efficiency of these projects are considered in Section 5.3.1.

89. None of capital projects for which a forecast of capital expenditure has been advanced in the proposed revisions to the GGP Access Arrangement are estimated to cost more than $2m and so all capital projects have been estimated following the 'small projects procedure' outlined above. The prudency and efficiency of individual projects and programs of work are examined in Section 5.3.1.

90. GGT's cost allocation approach is an important factor if it is to achieve the appropriate apportionment of the total estimated project capex to the Covered Pipeline (ie. in accordance with rule 93(2), and is discussed in detail in Sections 5.3.1 and 6.3.1.

[27] AASI, *Section 10.3,* p165

Evidence of unsatisfactory capex project forecasting accuracy

91. We assessed GGT's forecasting performance for AA2 projects. The results are shown in Table 4.

Table 4: *AA2 capex project expenditures against forecasts - $m, real Dec 2013*

Asset category	ERA-approved AA2 capex	Actual AA2 capex	Variance $	Variance %
Pipeline	0.000	-0.065	-0.065	100%
Mainline valve and scraper stations	0.072	0.000	-0.072	-100%
Compressor stations	9.892	2.249	-7.642	-77%
Receipt and delivery point facilities	0.347	0.305	-0.042	-12%
SCADA and communications	5.431	2.648	-2.784	-51%
Cathodic protection	0.186	0.000	-0.186	-100%
Maintenance bases and depots	2.936	1.506	-1.430	-49%
Other assets	8.892	1.591	-7.302	-82%
Total	**27.757**	**8.234**	**-19.523**	**-70%**

Source: EMCa analysis from information provided by GGT in response to IR EMCa09 converted to real Dec 2013

92. GGT's AA2 forecast of the cost of projects that it proposed and undertook during this period had an aggregate over-estimation / underspend of $19.33m (-70%). Table 5 shows that over-estimation and roll-outs are the major drivers of poor estimation, with roll-ins (spent but not forecast) being a trivial amount.

Table 5: *AA2 capex project expenditures against forecasts - $m, real Dec 2013*

Expenditure type	AA2 forecast	Actual	Variance $	Variance %
Forecast and spent	17.350	8.299	-9.052	-52%
Forecast and not spent	10.407	0.000	-10.407	-100%
Spent but not forecast	0.000	-0.065	-0.065	N/A
Total	**27.757**	**8.234**	**-19.523**	**-70%**

Source: EMCa analysis from information provided by GGT in response to IR EMCa09 converted to real Dec 2013

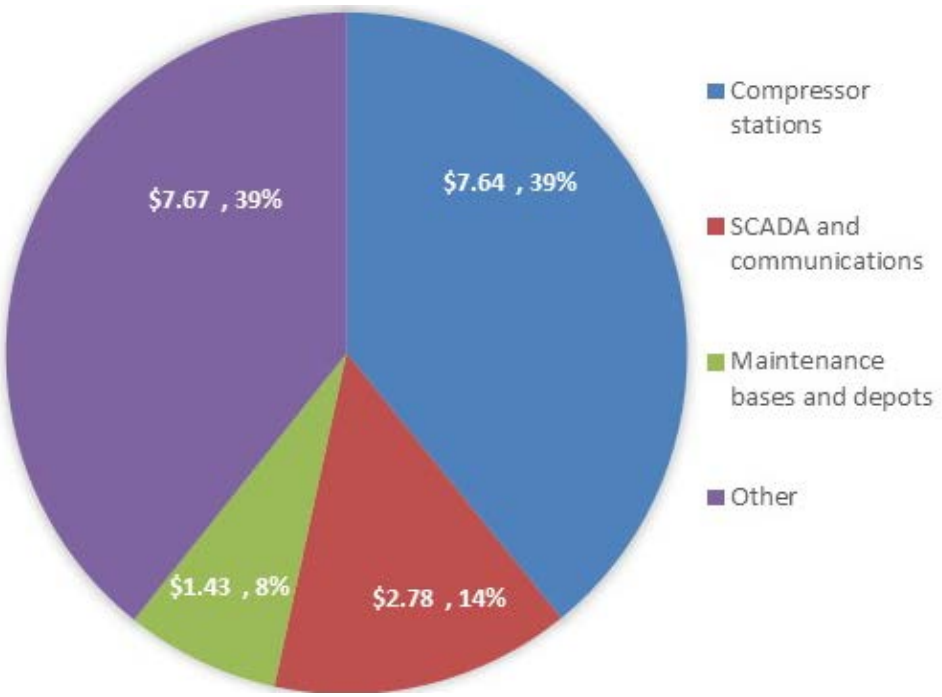
93. Figure 4 shows the major sources of variation were work planned for compressor stations and the many small projects designated collectively as 'Other assets'.[28] GGT has provided little explanation of the reasons for the variance in its AASI, but based on GGT's response to our request for further information,[29] the main reasons appear to be:

- Compressor stations: a lower cost solution to that provided by external consultants was found in-house;
- SCADA & comms: The work benefitted from the lessons learned from similar installations in other states, and GGT benefitted from the economies of scale available from participation in a larger national project;
- Other assets: ongoing review led to expenditure being less than forecast, and
- Maintenance bases and depots: unspecified scope changes.

[28] 'Other' comprises in this case, a combination of Other assets, Mainline valves and scrapers, Receipt and delivery point facilities, and Cathodic protection

[29] Footnotes to capex tables presented in GGT's response to IR EMCa09 and information in Attachment 5

Figure 4: Variance between approved and actual AA2 expenditure by category



Source: EMCa analysis from information provided by GGT in response to IR EMCa09 converted to real Dec 2013

Expenditure forecasts not linked to performance outcomes

94. GGT presents five KPIs[30]: annual operating expenditure, operating expenditure/PJ per day of capacity reservation and throughput, and $/PJ km per day of capacity reservation and throughput.

95. Annual AA3 operating expenditure in real terms is forecast to be less than the AA2 average, levelling at an average of $23.44m pa. GGT maintains that the level of operating expenditure is a function of Covered Pipeline utilisation and therefore regards the $/PJ km per day performance as providing the best indicator of its performance.

Summary - Forecasting approach for AA3 capex

96. The application of the 'small projects procedure' to the bulk of the AA3 expenditure and GGT's AA2 estimating performance gives rise to two significant concerns regarding GGT's forecast expenditure required for AA3:

    (i) It is likely that GGT has again significantly overestimated the cost of work on the Covered Pipeline – we have seen insufficient evidence that GGT has recognised the issues that led to the overestimation of its approved AA2 capex and addressed them in deriving AA3 forecast expenditure, and

    (ii) It is likely that GGT will not complete the work it deems necessary – not necessarily because of delivery constraints but because on closer inspection it may decide again that it can prudently defer or cancel a significant portion of the work. The

[30] In its Asset Management Plan it refers to a different set of KPIs focussed on reliability and availability of the compressor stations and units as GGP staff are offered integrity, availability and reliability incentives. However, these are not presented in the AA submission.

justification for the work in AA2 that was deferred was sufficiently robust to convince the regulator that it was required, however, GGT was able to cancel or defer $10.31m (37%) of the approved work. GGT has not provided us with confidence that this issue has been addressed in its expenditure forecast.

4.8 Key Performance indicators (KPIs)

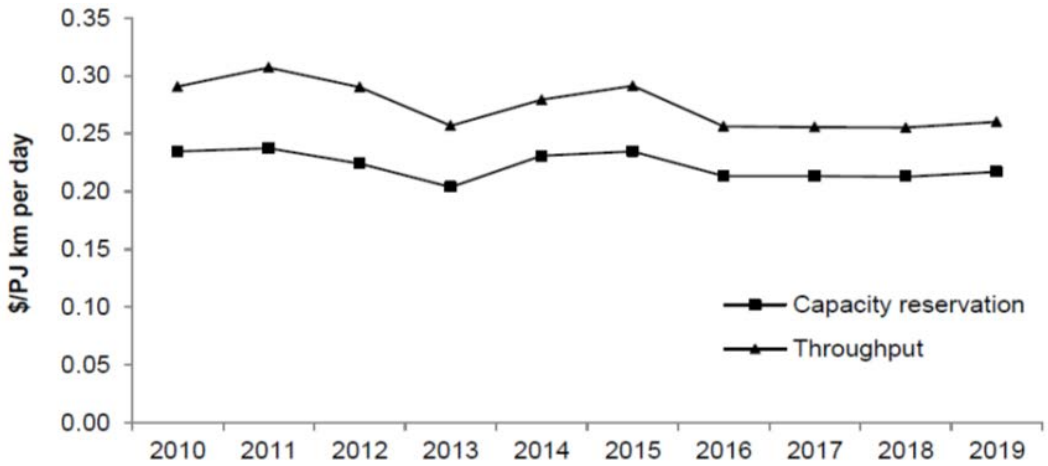
4.8.1 GGT's proposed KPIs

97. Figure 5 shows GGT's preferred historical and forecast operating expenditure KPI. GGT claim to have made significant efficiency gains which have been incorporated into the AA3 forecast.[31] GGT also provide the operating expenditure normalised by PJ per day (for capacity reservation and throughput).

98. Operating cost KPIs are typically presented in Regulatory submissions. GGT's approach of normalising for throughput and pipeline length is a reasonable basis for accounting for the long GGP pipeline length (affecting field services opex) and throughput (affecting compressor operating costs). GGT claims that the efficiency of its operations is demonstrated by the reduced expenditure from a simple projection of its proposed 2012 base year opex.

99. GGT claims to have strong commercial incentives to find and implement efficiency improvements whilst maintaining the integrity of the pipeline. GGT claims that it will achieve operation at or near the 'efficiency frontier' with its forecast reduction in overall opex. However, GGT presents no comparison of its operating costs ($/PJ km per day) with peer transmission pipeline operators to demonstrate that its opex is or will be at or near the efficiency frontier. Furthermore GGT does not present other 'outcomes-based' KPIs in its AA proposal.

Figure 5: Operating cost per PJ km per day ($December 2013)



Source: Figure 13, GGT AASI, p187

100. As discussed elsewhere, whilst we concur that GGT does have an incentive to minimise its direct operational costs, we believe it has a perverse incentive to maximise its corporate overhead allocation to the Covered Pipeline.

[31] Section 10.5.1, AASI

101. In response to our request for further information in support of its claim to have introduced '*significant efficiency improvements which are reflected in the five-year budget for the GGP'*,[32] GGT advised that: [33]

- Corporate costs have declined because revenue from the GGP is now a smaller proportion of APA Group revenue and the Covered Pipeline is a smaller proportion of the GGP assets as a result of expansion of other GGT JV pipelines in 2013, and
- Since APA Group took over day-to-day operation of the Covered Pipeline, it has explored and implemented ways of operating more efficiently (eg. by using staff suggestions and/or leveraging off experience gained from the Group's national asset base) and this has led to, and will continue to, deliver opex reductions. GGT provided an example of in-sourcing maintenance work which it claims has led to operating cost reductions.

102. Whilst GGT do not provide the proportion of benefit derived from these two sources, GGT acknowledge that only incremental efficiency improvements are able to be derived from improvements to gas pipeline field and engineering initiatives as it's transmission pipeline technology is relatively stable and mature. Based on our calculations[34], approximately 6% of the 7% reduction in total opex from AA2 is derived from the reduction in the Corporate cost allocation to the GGP Covered Pipeline. This indicates that over the course of AA3 a 1% reduction in opex is derived from other sources, some of which are likely to be efficiency-related initiatives.

4.8.2 Alternative indicators and benchmarks

103. As GGP did not present comparators for its opex KPI (other than with its predecessor), we have sought benchmarking information to compare GGP opex against other transmission pipeline opex results. We could not derive from publicly available information opex/PJ km per day comparators for other transmission pipelines. Two alternative KPIs are used in other relevant regulatory submissions.

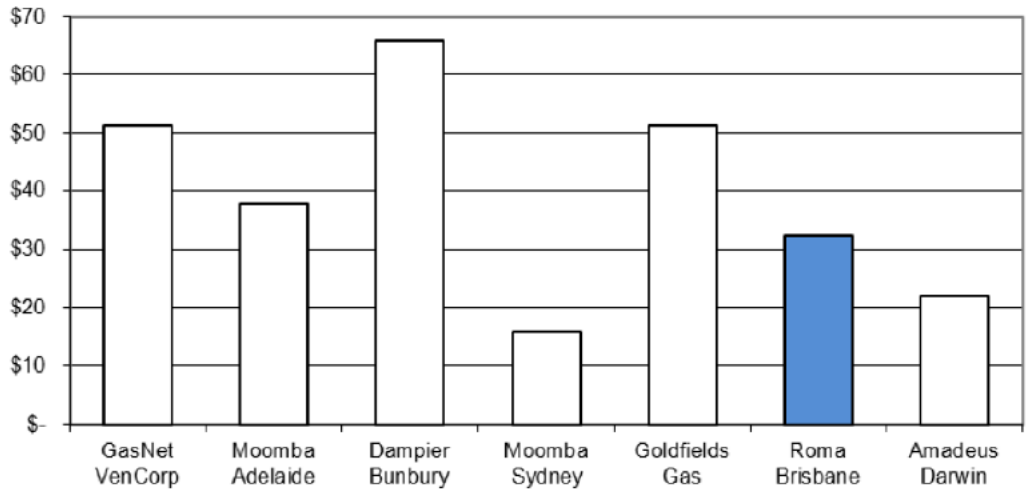
104. Figure 6 shows operating costs normalised by both the pipeline diameter and pipeline length. GGP opex is the (equal) second highest on this measure, derived in *2011* (when operating costs were 14% higher than the average forecast for AA3).

[32] GGT, AASI, *Section 10.9,* p185

[33] GGT response to IR EMCa13

[34] Based on comparing AA2 and AA3 opex with and without the Corporate Cost component

Figure 6: Operating expenditure/mm-km comparison: various pipelines

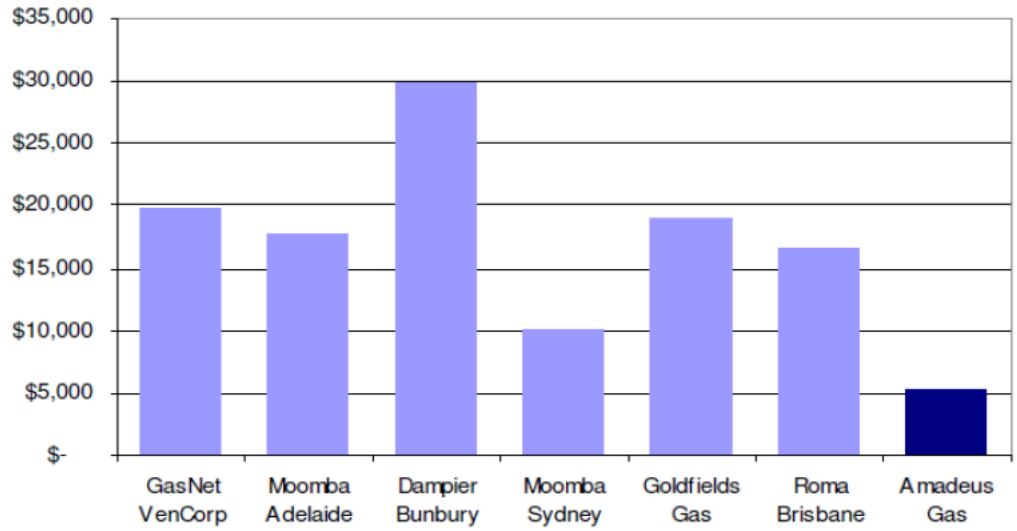


Source: APTPPL - Roma Brisbane Pipeline Access Arrangement Submission, Figure 8.2 (Oct 2011)

105. Figure 7 shows a similar set of transmission pipeline opex benchmarks, with opex normalised only by pipeline length. In this case, the GGP result *in 2010* is the third highest of the seven results.

106. Whilst not definitive, Figures 6 and 7 point to room for improvement from 2010 and 2011. Noting that GGT's forecast is for a 4% reduction over the course of AA3, we have examined the opportunities for further reduction from our detailed review of forecast pipeline and non-pipeline opex summarised in Section 7.

Figure 7: Operating expenditure/km comparison: various pipelines



Source: N.T. Gas Pty Ltd, Access Arrangement Revision Proposal Submission Dec 2010, Figure 9.7

107. Neither GGT nor any of the other Transmission pipelines for which publicly available, current, Access Arrangement determinations nominate other forms of outcomes-based performance indicators. Based on KPIs in GGTs AMP, the ERA could consider requiring GGT to include pipeline integrity and availability KPIs and targets in its Access Arrangement and link expenditure to them.

Compliance with Rule 72(1)(f)

108. In accordance with the requirements of rule 72(1) of the NGR, GGT is required to include key performance indicators supporting expenditure to be incurred over the access arrangement period.

109. GGT has provided a KPI (Operating expenditure/PJ km per day) which is intended to support its expenditure over the AA3 period. Whilst we believe this is a satisfactory KPI for this purpose, we do not concur that GGT's explanation of the link between its forecast operational expenditure and the KPI conclusively supports that its forecast opex is efficient. Rather, we find that the reduction in opex is mainly a result of a dilution of Corporate costs allocated to GGP.

110. We recommend that the ERA requires GGT to present an opex KPI based on $/km to facilitate comparison with other transmission pipelines.

4.9 Demand forecast

4.9.1 GGT's demand forecast

111. GGT has produced forecasts of growth in customer connections, maximum demand and volumes to support its justifications for growth capex, as shown in Table 6. Capacity and throughput forecasts are shown for the current GGT JV participants.[35]

112. GGT advise that, *'demand for pipeline services provided by the Covered Pipeline is dependent on conditions in international commodity markets, principally the markets for nickel and gold.'*[36]

Table 6: *GGT demand forecasts for AA3*

	2015	2016	2017	2018	2019
Reserve capacity					
Initial JV (TJ/d)	75.26	85.80	85.50	85.50	85.50
Third party users (TJ/d)	19.54	19.54	19.54	19.54	19.54
Total reserved capacity (TJ/d)	**94.80**	**105.34**	**105.04**	**105.04**	**105.04**
growth		*11%*	*0%*	*0%*	*0%*
Throughput					
Initial JV (TJ/d)	54.59	61.20	61.20	61.20	61.20
Third party users (TJ/d)	16.84	16.84	16.84	16.84	16.84
Total reserved capacity (TJ/d)	71.43	78.04	78.04	78.04	78.04
growth		*9%*	*0%*	*0%*	*0%*

Source: EMCa analysis from AASI Table 1

[35] Alinta DEWAP, Southern Cross Pipelines Australia, and Southern Cross Pipelines (NPL) Australia

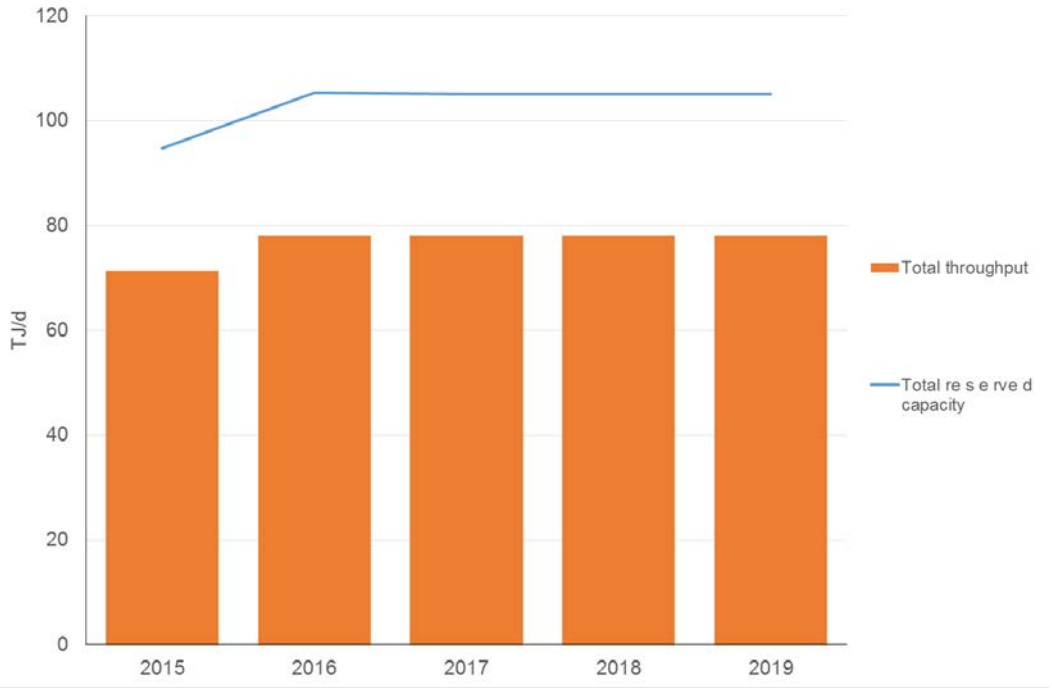
[36] GGT AASI, *Section 4.1,* p31

4.9.2 EMCa assessment

113. Our terms of reference required us to investigate the key drivers behind the capacity and utilisation forecasts and how these have been used to develop GGT's capex and opex forecasts, and to report on trend information.

114. GGT has made no provision in AA3 for expansion of pipeline services. Figure 8 indicates that there was a net increase in reserve capacity, maintaining a significant margin between forecast throughput and capacity. The forecast 11% increase in reserve capacity is due to the net effect of three members of the initial JV altering their capacity reservation forecasts from 2016 onwards. The GGT JV is however investing in significant expansion of pipeline and related assets that are not part of the Covered Pipeline.

Figure 8: GGP pipeline capacity and throughput forecasts



Sources: AASI table 1

115. As Corporate operating costs (the costs of APA Group corporate functions which provide services to the Covered Pipeline) are allocated to entities within the APA Group on the basis of revenue earned (which in turn varies with throughput), opex is materially affected by throughput assumptions. Any variation to the allocation of Corporate costs over the period is likely to be as a result of variations in other sources of APA Group revenue. Corporate cost allocation is discussed in detail in sections 7.9 and 7.10.

116. To a lesser extent, the field services component of APA operations opex will also be affected by changes in throughput, primarily through more or less maintenance requirements attributed to compressor stations (ie. depending on the duty cycle). The flat throughput forecast has been used by GGT to forecast upcoming maintenance requirements, as discussed in Section 6.3.

5 Review of AA2 capex

5.1 Introduction

117. This section contains the results of our review of AA2 capex. We have undertaken this review using the assessment framework set out in Section 3.2.1 and having regard to the findings in Section 4.

118. As agreed with the ERA, we undertook:

- A more detailed review of the most significant projects (determined by the proportion of total capital expenditure incurred); and
- A higher level review of the other areas of GGT's AA2 capex programme.

119. The results of our review and our overall assessment of whether this capex can be considered conforming capex (r.79) for the purposes of r.77(2) are set out below. Unless otherwise stated all references to dollar values are real, expressed in December 2013 dollars.

5.2 GGT's AA2 proposed conforming capex

120. During AA2 GGT has spent $8.23m[37] on Sustaining (SIB) capex (i.e. projects that are required to maintain and improve the safety or integrity of services and/or comply with a regulatory obligation or requirement) on the Covered Pipeline assets. There was no expenditure on Growth capex[38] (i.e. projects that are carried out to extend or expand the network to accommodate new/increased demand).

[37] GGT, AAI

[38] Growth related expenditure was undertaken, but on GGP pipeline assets other than the Covered Pipeline

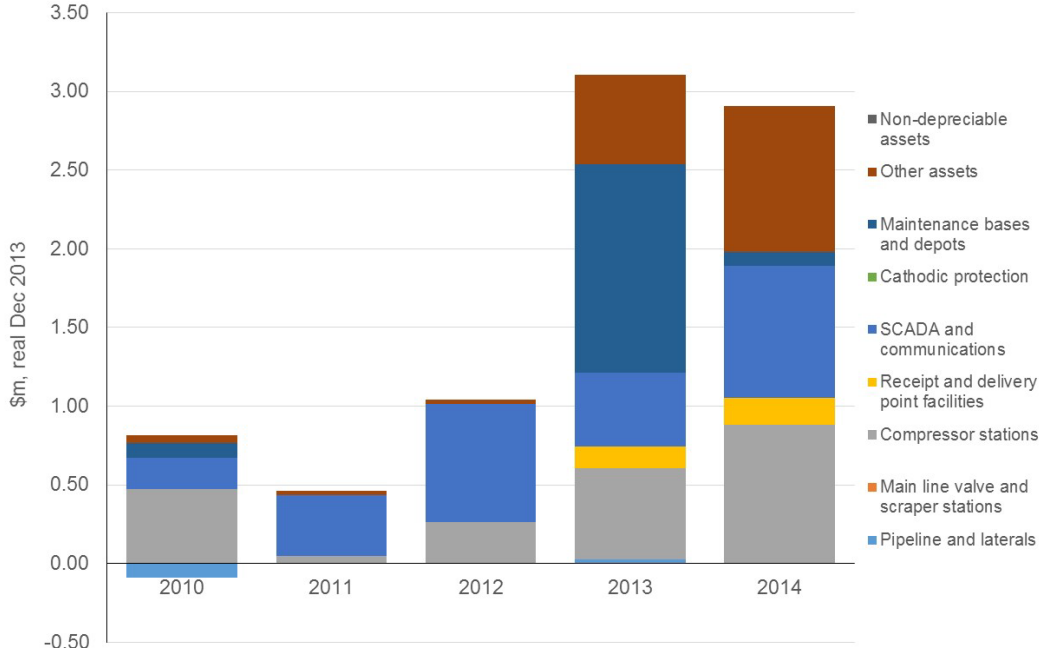
121. As Table 7 and Figure 9 show, GGT directed the majority of its AA2 capex to SCADA and communications and Compressor stations, also rebuilding three maintenance bases/depots in 2013. GGT spent only 30% of the $27.55m ERA-approved AA2 capex.

Table 7: *AA2 expenditure on sustaining capex - $m, real Dec 2013*

	2010	2011	2012	2013	2014	Total
Pipeline and laterals	-0.091	0.000	0.000	0.026	0.000	**-0.065**
Main line valve and scraper stations	0.000	0.000	0.000	0.000	0.000	**0.000**
Compressor stations	0.471	0.050	0.266	0.580	0.883	**2.249**
Receipt and delivery point facilities	0.000	0.000	0.000	0.136	0.169	**0.305**
SCADA and communications	0.199	0.386	0.749	0.473	0.840	**2.647**
Cathodic protection	0.000	0.000	0.000	0.000	0.000	**0.000**
Maintenance bases and depots	0.097	0.000	0.000	1.320	0.089	**1.507**
Other assets	0.049	0.024	0.027	0.568	0.924	**1.593**
Non-depreciable assets	0.000	0.000	0.000	0.000	0.000	**0.000**
Total	**0.726**	**0.460**	**1.041**	**3.103**	**2.905**	**8.235**

Sources: EMCa analysis derived from AASI attachment 5 – table 2 to table 7

Figure 9: AA2 capex by category



Sources: Sources: EMCa analysis derived from AASI attachment 5 – table 2 to table 7

Figure 10: Capex incurred by GGT in AA2 vs capex approved by the ERA

Source: EMCa analysis from GGT's response to IR EMCa09 converted to real Dec 2013

122. Apart from reversal corrections, GGT has sought to justify all of the expenditure on capex in AA2 under one or more of the grounds in rule 79(2)(c) of the NGR (i.e. safety, integrity, compliance and/or maintaining capacity to meet existing levels of demand). GGT has also claimed that all the expenditure satisfies the prudent service provider test per rule 79(1)(a).

5.3 EMCa assessment

5.3.1 Justification for the expenditure (r. 79(2))

123. To determine whether GGT comply with conforming capex criteria, we have, in the first instance, considered whether the Covered Pipeline projects are justified under one or more of the grounds set out in rule 79(2) of the NGR.

124. In doing so, we have had regard to:

- The rationale provided by GGT for each project (principally provided in AASI *Attachment 5: Conforming Capex 2010-2014*);
- The risk assessment process provided by GGT, essentially applying Australian Standard AS2885;
- The 2013 Asset Management Plan (2013 AMP); and
- The practices employed by other gas transmission pipeline operators.

125. We also assessed whether or not the expenditure had been incurred on a reasonable basis by considering, in particular, the procurement process adopted by GGT in undertaking the work.

126. In cases where GGT has provided insufficient information to convince us that it satisfies one of the provisions in Rule 79(1)(b), we have disallowed 100% of the expenditure.

127. We also took into account the appropriateness of the apportionment of the expenditure to the Covered Pipeline, in accordance with Rule 93(2), applying the following criteria:

(i) 100% of expenditure should be allocated to the Covered Pipeline if the expenditure is directly attributable to the Covered Pipeline,[39] and

(ii) If expenditure is directed towards the Covered Pipeline and other GGP assets, the expenditure should be allocated to the Covered Pipeline assets and the balance to other GGP assets.[40]

128. Where GGT has provided insufficient information for us to be convinced that it has correctly allocated expenditure appropriately to the Covered Pipeline, we have assumed that the allocation has not been done appropriately and we have adjusted the proposed expenditure to reflect a justifiable proportion. In determining the justifiable proportion, two cases arose:

(i) Expenditure was directed to assets at Compressor stations – we re-apportioned expenditure in accordance with the ratio of Covered compressor assets to the other compressor assets at the designated station; and

(ii) Expenditure was incurred on assets that could be used in relation to the Covered Pipeline or the other GGP assets (eg. purchase of bore scope) – we apportioned 80% of the expenditure to the Covered Pipeline.

129. The results of our review are summarised in Table 8.

[39] We determined what assets are designated as forming part of the Covered Pipeline based on information provided by GGT at the site-meeting 21 Sep 2014

[40] This is consistent with the approach explained by and used by GGT in the EAM Business Case 13 - 80% is the ratio of capacity of the Covered Pipeline (measured in TJ km/d) to the capacity of the GGP in 2013

Table 8: *Assessment of proposed conforming AA2 capex ($m, December 2013)*

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
Pipeline & Laterals			
Work near easement	-0.091	0.000	Reversal (correction) for costs incurred for action required and subsequently reimbursed by instigator. Satisfies r.79(2)
Gorgon-GGP interconnection	0.026	-0.026	This expenditure was incurred at the request of a Major User and was based on a speculative requirement. This expenditure does not satisfy r79(1)(b)
Sub Total	**-0.065**	**-0.026**	
Main line valve and scraper station			
Sub Total	**0**		
Compressor stations			
Yarraloola engine rebuild at 48,000 hours	0.241	0.000	Followed OEM recommended timing and is consistent with GIP - justified under rule 79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2).
Purchase of bore scope	0.050	-0.010	The purchase contributes to improved compressor station and receipt/delivery facility condition assessment - justified under r79(2)(c)(ii). However, GGT do not denote that the expenditure is that attributed to the Covered Pipeline only. We therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Wiluna compressor station GEA	0.185	0.000	The work was based on the OEM recommended overhaul period - justified under r79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2).
Yarraloola replacement ESD, fire and gas systems	0.502	-0.166	Project was to replace obsolescent systems - justified under r79(2)(c)(i). However, GGT do not confirm work was undertaken only on Covered Pipeline assets at Yarraloola - we therefore find that only 67% of the proposed expenditure satisfies r.93(2)
Yarraloola lightning protection upgrade	0.014	-0.004	Current lightning protection is non-compliant with AS2885 - justified under r79(2)(c)(i), (II) & (iii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 67% of the proposed expenditure satisfies r.93(2)
Paraburdoo replacement pressure safety valves	0.017	0.000	Purchase of spares to minimise down time - justified under r79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2)
Yarraloola hazardous area compliance	0.066	-0.022	Compliance requirement (AS2885) - justified under r79(2)(c)(i) & (iii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 67% of the proposed expenditure satisfies r.93(2)
Hazardous area remediation	-0.026	0.000	Reversal correction. Satisfies r.93(2)

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
GGP hazardous area upgrade	0.308	-0.102	Compliance requirement (AS2885) - justified under r79(2)(c)(i) & (iii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 67% of the proposed expenditure satisfies r.93(2)
Yarraloola hazardous area reclassification	0.276	-0.091	
Ilgarari hazardous area reclassification	0.243	0.000	Compliance requirement (AS2885). Justified under r79(2)(c)(i) & (iii)
PLC support software	0.098	-0.098	Extra copies of software were required to improve staff efficiency. Purchases should have been self-funding, but no case presented. Not justified under r79(2)(a), (b), (c) or (d)
Yarraloola controls upgrade	0.002	0.000	Minor modification and expenditure - justified under r79(2)(c)(ii) and satisfies r.74(2)
Yarraloola capital spares	0.128	-0.042	Assists with pipeline integrity - justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 67% of the proposed expenditure satisfies r.93(2)
Yarraloola spare parts storage	0.019	-0.006	
Reference meter replacement	0.126	0.000	Replacement of failed meter which measures the flow of gas from Varanus Island. Assists with pipeline integrity - justified under r79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2).
Sub Total	**2.249**	**-0.541**	
Receipt and delivery point facilities			
DBNGP-GGP inlet filter upgrade	0.022	0.000	Allows maintenance to be carried out without interruption to gas flow. Justified under r79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2).
Yarraloola station flow meter upgrade	0.283	0.000	Validates gas quantity. Justified under r79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2).
Sub Total	**0.305**	**0.000**	
SCADA & Communications			
GGP satellite communications upgrade	0.199	-0.040	Assists with pipeline integrity - justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Replacement of SCADA system master station	1.993	-0.399	
Yarraloola SCADA communications upgrade	0.336	-0.111	Assists with pipeline integrity - justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 67% of the proposed expenditure satisfies r.93(2)
Paraburdoo SCADA communications upgrade	0.050	-0.033	Replacement of obsolete system - justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
			therefore find that only 33% of the proposed expenditure satisfies r.93(2)
GGP UPS Upgrade	0.069	-0.014	Provides back-up in case of power supply failure. Assists with pipeline integrity - justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Sub Total	**2.647**	**-0.596**	
Cathodic protection			
Sub Total	**0**	**0.000**	No expenditure was incurred in this category in the AA2 period
Maintenance bases and depots			
Karratha maintenance base repairs	0.017	-0.003	Repair to base of building - justified under r79(2)(c)(ii). However, as the base can be used to service both the Covered Pipeline and other GGP assets and as GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only, we find that only 80% of the proposed expenditure satisfies r.93(2)
Karratha spare parts storage	0.015	-0.003	Purchased for safe storage to support pipeline repair. Justified under r79(2)(c)(ii). However, the storage facilities can be used for both the Covered Pipeline assets and other GGP assets. GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Yarraloola accommodation	1.320	-0.264	However, as the base can be used to accommodate staff servicing both the Covered Pipeline and other GGP assets and as GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only, we find that only 80% of the proposed expenditure satisfies r.93(2)
Accommodation units (Paraburdoo and Leinster)	0.155	-0.031	
Sub Total	**1.507**	**-0.301**	
Other depreciable assets			
Tools and gas detectors	0.160	-0.160	Inadequate justification for the purchases was provided. This expenditure does not satisfy r79(1)(b)
Purchase of test instruments	0.004	-0.004	
Office furniture	0.002	-0.000	For Perth office. Justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Reversal of accounting errors	-0.016	0.000	Reversal correction. Satisfies r.79(2)
Fluke process calibrator	0.029	-0.029	Inadequate justification for the purchases was provided. This expenditure does not satisfy r79(1)(b)

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
IT equipment	0.008	-0.002	Obsolescent equipment. Justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Enterprise Asset Management system	1.099	0.000	Replaces multiple disparate systems with integrated system. Justified under r79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2).
Kalgoorlie West battery charger	0.037	0.000	Replacement of failed unit. Justified under r79(2)(c)(ii). We are also satisfied that the expenditure was correctly allocated to Covered Assets and that in other respects the expenditure was reasonable and satisfies r.74(2).
GGP BM85 replacement program	0.018	-0.004	Replacement of obsolete modules. Justified under r79(2)(c)(ii). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
IDMT Phase II	0.140	-0.028	Improved asset management. Justified under r79(2)(c)(i). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
E&I field response equipment	0.021	-0.021	Inadequate justification for the purchases was provided. This expenditure does not satisfy r79(1)(b)
Hut LED lighting	0.051	-0.010	Safety hazard (lack of lighting). Justified under r79(2)(c)(i). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Miscellaneous capital	0.039	-0.008	Multiple miscellaneous items which satisfy one or more of r.79(2)(c). However, GGT do not provide evidence that the expenditure was apportioned correctly to the Covered Pipeline assets only - we therefore find that only 80% of the proposed expenditure satisfies r.93(2)
Sub Total	**1.593**	**-0.266**	
Grand Total	**8.235**	**-1.731**	*Based on the information provided by GGT, we find that $6.502m satisfied r.79(2)*

Sources: EMCa analysis derived from AASI attachment 5 – table 2 to table 7

Comments on specific projects

130. We have examined in more detail the three largest AA2 capital projects: Replacement of SCADA system master station; Yarraloola accommodation, and the Enterprise Asset Management system.

131. **Replacement of SCADA system master station**: GGT reports spending $1.99m of the forecast (and ERA-allocated) $2.94m on this project in AA2. The $0.95m balance has been deferred to AA3. The project driver – system obsolescence[41] - is a valid reason for

[41] Having reached the end of its technical life and exceeded its economic life, obtaining support for the critical operational system is increasingly difficult (GGT AASI, Attachment 5, *Section 5.2.2*)

replacement; it is consistent with industry IT-based infrastructure management strategies. In relation to costs, GGT reports being able to take advantage of the scale economies afforded by the common approach being adopted by the APA Group to replace all its outmoded SCADA systems to help explain the underspend. The replacement program was procured following APA Group procurement policies, including a competitive tender. We are therefore satisfied that the project is prudent and the expenditure is likely to be efficient. GGT has not provided any information pertaining to the '*more efficient business processes'*[42] claimed in support of the $1.99m expenditure. As discussed in Section 4.8, GGT proposes that these sorts of efficiency savings, whilst not quantified, contribute to the reduction in overall opex from AA2 to AA3. The expenditure should be apportioned between the Covered Pipeline and other GGP assets based on the ratio of reserved capacity of the Covered Pipeline to the total GGP pipeline reserved capacity.[43] There is no indication that it has done so, therefore we recommend that 20% of the proposed expenditure is disallowed[44]. The balance of $1.59m can be considered conforming capex in accordance with r. 79(2).

132. **Yarraloola accommodation**: GGT report spending $1.32m on upgrading the accommodation to be '*consistent with industry standards for remote operations in the Pilbara.'*[45] As the Yarraloola compressor station is 150km from the nearest major town, GGT propose that provision of industry-standard accommodation at the compressor station is the best option. The original accommodation was established in 1995 and had deteriorated rapidly due to the harsh environment. GGT report following its procurement practices in procuring contractor services to undertake the upgrade. We are satisfied that this approach should ensure that a competitive price was secured. The expenditure should be apportioned between the Covered Pipeline and other GGP pipeline assets as staff working on both assets will take advantage of the upgraded facilities. As there is no indication that it has done so, we recommend that 20% of the proposed expenditure is disallowed[46]. The balance of $1.06m can be considered conforming capex in accordance with r.79(2).

133. **Enterprise Asset Management system:** GGT report spending $1.10m over the course of AA2 on replacing six disparate systems with an EAMS using a widely used software package (MAXIMO). Five of the six systems are obsolete (and not supported by the vendor) and the supporting IT infrastructure is nearing the end of its serviceable life.[47] GGT argue that this represents a significant operational risk and that the replacement EAMS will '*provide improved maintenance scheduling capabilities and facilitate analysis of equipment performance, leading to the development of more efficient maintenance strategies and programs.'*[48] GGT propose three sources of efficiency savings, but fail to quantify them in the business case or elsewhere. Rather, GGT proposes that these sort of efficiency savings contribute to the reduction in overall opex from AA2 to AA3. The EAMS has been introduced across all APA Group pipelines and is managed by APA group '*to ensure a consistent and most cost effective delivery'* with expenditure on

[42] GGT ASI Attachment 5 – *section 5.2.2*, p21

[43] Commensurate with the approach taken by GGT for the EAM, *BC13 EAM Business Case,* Dec 2013

[44] This adjustment is made in accordance with r.74(2)

[45] *Ibid*, *section 6.1*, p24

[46] This adjustment is made in accordance with r.74(2)

[47] *Ibid*

[48] *Ibid*

replacing GGT's systems forecast to continue through to 2016.[49] The Business Case for this project indicates an appropriate apportionment of expenditure between the Covered Pipeline (80%) and other GGP pipeline assets (20%). We accept this proposal and are satisfied that the full $1.10m can be considered conforming capex in accordance with r.79(2).

5.3.2 Prudent service provider test (r. 79(1)(a))

134. In keeping with the assessment framework set out in Section 3, we have assessed whether the expenditure on the proposed Conforming Capex satisfies the prudent service provider test set out in rule 79(1)(a).

135. GGT seek to justify the AA2 capex predominantly on the basis of maintaining pipeline integrity. This focus on integrity is also reflected in the regulatory obligation *Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010* and the Safety Case (approved by DMP). Compliance with the latest standards is also a requirement, together with addressing obsolescence and safety. In general, we are satisfied that the focus on the integrity and safety of the pipeline provides sufficient assurance that the asset will be maintained to a level that will meet and possibly exceed its design life - in keeping with good industry practice.

136. However, in accordance with our assessment criteria, and as indicated by our comments in the table above and our description of our analysis for the three largest projects, we are not satisfied in every case that:

(i) GGT has provided sufficient justification for expenditure (in which case we have disallowed the expenditure), or

(ii) GGT has not demonstrated that it has appropriately apportioned the expenditure between the Covered Pipeline and other GGP assets (in which case we have made an adjustment that we believe is based on the appropriate allocation between the Covered Pipeline and other GGP assets in each case).

Compliance with the conforming capex criteria

137. Based on the findings set out above, we are satisfied that $6.50m of the $8.23m expenditure on 2010-2014 AA2 Capex complies with rule 79 and can be considered Conforming Capex for the purposes of rule 77(2) of the NGR.

138. The balance of the expenditure fails to satisfy r.79(1)(a), in each case because insufficient justification was presented by GGT.

139. With respect to the cost forecast/estimate test (r.74(2)), we find that GGT has not demonstrated that it has appropriately apportioned the expenditure between the Covered Pipeline and other GGP pipeline assets in all cases. We therefore recommend that the ERA disallow a further a further $1.39m of the $8.23m expenditure. This results in a recommended total adjustment of -$1.73m as shown in the summary table below.

[49] *Ibid*

Table 9: *Summary of EMCa AA2 Capex adjustment ($m, real Dec 2013)*

	Total GGT Actual	Total EMCa adjustments	Total EMCa Adjusted
Pipeline and laterals	-0.065	-0.026	-0.091
Main line valve and scraper stations	0.000	0.000	0.000
Compressor stations	2.249	-0.541	1.708
Receipt and delivery point facilities	0.305	0.000	0.305
SCADA and communications	2.647	-0.596	2.050
Cathodic protection	0.000	0.000	0.000
Maintenance bases and depots	1.507	-0.301	1.205
Other assets	1.593	-0.266	1.326
Non-depreciable assets	0.000	0.000	0.000
Total	**8.235**	**-1.731**	**6.504**

Sources: EMCa analysis derived from AASI attachment 5 – table 2 to table 7

6 Review of proposed AA3 capex and depreciation lives

6.1 Introduction

140. This section contains the results of our review of GGT's proposed capex for AA3, which we have conducted using the assessment framework set out in section 3.2.1 and having regard to the findings in section 4.

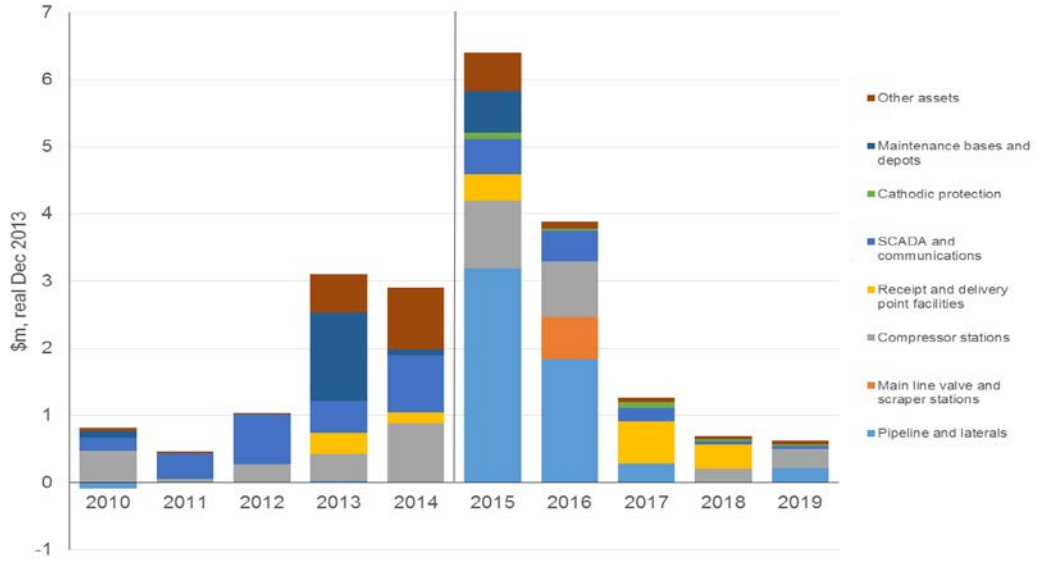
141. The results of our review and our overall assessment of whether this capex can be considered conforming capex (r. 79) for the purposes of rule 78 are set out below, along with our assessment of the asset lives GGT has proposed for depreciation.

6.2 Overview of proposed AA3 capex

142. GGT is proposing to spend $12.86m on a range of sustaining (or Stay In Business, SIB) capex projects in AA3 on the Covered GGP pipeline. Over a five year period, this is $4.62m *higher* than the actual capex of $8.23 in the AA2 five year period and $14.69m lower than $27.55m allowance approved by the ERA in 2011 for the AA2 period. There is no provision for any Growth Capex associated with the Covered pipeline. A number of the projects continue work commenced in the AA2 period.

143. The distribution of expenditure across the AA2 and AA3 periods for the various categories of expenditure is shown in Figure 11.

Figure 11: Profile of GGT's proposed AA3 capex



Source: EMCa analysis from data in GGT, AASI, Tables 26 and 54.

144. Table 10 shows the proposed expenditure in eight categories. In support of their expenditure proposal, GGT have provided 18 business cases which total $11.25m of the $12.86m proposed in the AASI. Except for projects exceeding $2m, the business cases have been derived specifically for the AA submission – they are not developed as part of the business-as-usual process because of their relatively small value (ie. less than $2m). The detail provided in the business cases goes some way to offsetting the deficiencies we noted in Section 4.3 regarding the AMP 2014.

145. The largest single category of proposed capex is associated with in line inspection (ILI) of the main pipeline and laterals at a total cost of $5.51m.

146. The AMP expenditure forecasts exclude the [redacted] margin for overhead recovery and project management applicable under the Operating Services Agreement,[50] however the margin is included in the Business Cases provided. This margin is included in the results presented in Table 10.

Table 10: *AA3 capex forecast by asset class - $m, real Dec 2013*

	2015	2016	2017	2018	2019	Total	Percentage
Pipeline and laterals	3.193	1.830	0.278	0.000	0.214	**5.515**	43%
Main line valve and scraper stations	0.000	0.641	0.000	0.000	0.000	**0.641**	5%
Compressor stations	1.009	0.823	0.000	0.209	0.288	**2.328**	18%
Receipt and delivery point facilities	0.385	0.000	0.641	0.363	0.000	**1.388**	11%
SCADA and communications	0.534	0.456	0.192	0.043	0.043	**1.268**	10%
Cathodic protection	0.096	0.033	0.084	0.024	0.024	**0.261**	2%
Maintenance bases and depots	0.620	0.000	0.000	0.000	0.000	**0.620**	5%
Other assets	0.559	0.096	0.075	0.053	0.054	**0.837**	7%
Total	**6.396**	**3.878**	**1.269**	**0.693**	**0.622**	**12.858**	**100%**

Source: EMCa table from AA document table 6 converted to real

Basis on which GGT has sought to justify AA3 capex

147. GGT has sought to justify its proposed expenditure on Sustaining capex under one or more of the grounds in rule 79(2)(c) of the NGR (i.e. safety, integrity or compliance) Maintaining system integrity is the basis of justifying 92% of the expenditure; three

[50] EMCa022

business cases covering the balance of expenditure are justified solely on safety grounds. [51]

6.3 EMCa assessment

148. In keeping with the assessment framework outlined Section 3.2, we set out below our assessment on whether GGT has satisfied the conforming capex criteria.

6.3.1 Justification for the expenditure (r. 79(2))

149. To determine whether GGT comply with conforming capex criteria, we have, in the first instance, considered whether the projects are justified under one or more of the grounds set out in rule 79(2) of the NGR. In doing so, we have had regard to:

- The rationale provided by GGT for each project (principally provided in AASI *Attachment 6 – Forecast conforming capital expenditure: 2015-2019, and Attachment 10: Major Expenditure jobs:2015-2019);*
- The revised Safety Case that was accepted by DMP in May 2014;
- The risk assessment process provided by GGT in the business case documents, essentially applying Australian Standards AS2885;
- The 2014 Asset Management Plan (2014 AMP); and
- The practices employed by other gas transmission pipeline operators.

150. We have examined the material GGT has provided in support of each of the projects to determine whether it can be justified under rule 79(2).

151. As discussed at length in section 4.7, we did received insufficient evidence from GGT that it had adequately taken into account the 70% underspend of its AA2 regulated allowance. The AA2 forecasts were based on preliminary or initial estimates and GGT consistently found ways to prudently deliver the required work for much less than estimated or to defer work completely. Accordingly, in assessing the proposed AA3 capex, where GGT has provided insufficient information for us to be convinced that its estimates satisfy Rule 74(2), we have made adjustments in accordance with our expectation that GGT will be able to prudently identify ways of delivering the proposed work for much less than its preliminary estimate as follows:

(i) If the estimate is derived from a competitive tender, then the estimate is accepted;

(ii) If the estimate is based on a single quote or is similar to work completed in AA2, then we assume that GGT will deliver the project for 80% of the preliminary estimate;

(iii) Noting that, on average, GGT delivered AA2 projects for 52% less than its preliminary forecast, if GGT has provided little or no information to support the robustness of its preliminary estimate, we have assumed that it will be able to deliver the project for 65% of its preliminary estimate.

152. We have also taken into account the appropriateness of the apportionment of the expenditure to the Covered Pipeline, according to the following criteria:

[51] BC12, BC14 & BC22

(i) 100% of expenditure should be allocated to the Covered Pipeline if the expenditure is directly attributable only to covered assets,[52] and

(ii) If expenditure is directed towards both Covered Pipeline and other GGP assets, a justifiable proportion of the expenditure should be allocated to the Covered Pipeline assets and the balance to the other GGP assets.[53]

153. Where GGT has provided insufficient information for us to be convinced that it has correctly allocated expenditure appropriately to the Covered Pipeline, we have assumed that the allocation has not been done appropriately and we have adjusted the proposed expenditure to reflect a justifiable proportion. In determining the justifiable proportion, two cases arose:

(i) Expenditure was directed to assets at Compressor stations – we re-apportioned expenditure in accordance with the ratio of Covered compressor assets to the other compressor assets at the designated station; and

(ii) Expenditure was incurred on assets that could be used in relation to the Covered Pipeline or the other GGP assets (eg. purchase of bore scope) – we apportioned 70% of the expenditure to the Covered Pipeline.

Justification Review of individual projects

154. Table 11 provides a summary of our analysis of the projects proposed by GGT to be undertaken in AA3. No justification has been provided for seven projects, collectively comprising $1.29m (9% of total proposed AA3 capex). Justification for all other projects is provided by way of Business Cases written to support the AA3 submission.

Table 11: *Summary of assessment of AA3 capex projects*

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
Pipeline & Laterals			
Mainline and Newman lateral ILI (BC01)	[redacted]	-0.596	Licence compliance inspection using a magnetic flux leakage pig in accordance with GIP and as required to meet Licence requirements (incl DMP-approved derogation) by 2016. We are satisfied that the expenditure is justifiable on the basis of r.79(2)(c)(i), (ii) and (iii). However, we have been provided with insufficient evidence to confirm that the preliminary cost estimate derived for this work has taken into account the 52% over-estimation bias prevalent in work undertaken in AA2. As APA has some experience with this work and has a preferred (and tested) vendor we find that only 20% of the proposed expenditure does not satisfy r.74(2)
Apache and DBNGP interconnect ILI (BC02)	[redacted]	-0.059	As for the mainline and Newman lateral, this work is required as a Licence condition by 2016. The same technology is proposed as for the mainline. We are satisfied that the expenditure is justified under r.79(2)(c)(i), (ii) and (iii). However, for the same reason outlined for the Mainline and Newman lateral work, we

[52] We determined what assets are designated as GGP Covered assets vs other GGP assets based on information provided by GGT at the site-meeting 21 Sep 2014

[53] As used by GGT in the EAM Business Case 13, the ratio of capacity of the Covered Pipeline (measured in TJ km/d) to the capacity of the GGP, which in 2015 and beyond is forecast to be approximately 70%.

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
			find that only 80% of the proposed expenditure satisfies r.74(2)
Easement upgrade for ILI (BC12)	[redacted]	-0.043	We are satisfied that inspecting and maintaining the easement and access tracks prior to ILI commencement is justified r.79(2)(c)(i) However, we have not been provided with sufficient evidence to convince us that the systemic over-estimation bias evident in the AA2 period has been fully addressed. As this work is undertaken periodically but with an uncertain scope of work, we find that only 80% of the proposed expenditure satisfies r.74(2)
ILI verification digs (BC17)	[redacted]	-0.308	We find that this work is a requisite aspect of assessing the integrity of the pipeline by verifying/calibrating the ILI results. However, we believe that only 2 digs rather than the assumed 6 digs per section should be required on the Newman lateral and the two interconnects. This reduces the number of digs from 72 to 60. Furthermore, we have not found sufficient evidence to convince us that the overestimation bias prevalent in work undertaken in AA2 has been addressed. As GGT has undertaken this work in the past, we propose that the estimate for each of the 60 digs be reduced by 20%.
Pipeline protection repair (no BC)	[redacted]	-0.064	There is no Business Case for the work, nor any alternative explanation for the scope and cost of work. We therefore cannot find sufficient evidence to conclude that expenditure is justifiable on any of the grounds set out in rule 79(2)
Easement upgrade (BC09)	[redacted]	-0.256	GGT propose funding sufficient for 2-year cycle of grading of damaged easements post flooding. In conjunction with the 2015 grading work to be done in conjunction with the ILI project, this results in provision for two further upgrades in AA3. Whilst we accept that severe flooding can lead to the need to repair the pipeline easement from time to time, GGT has not provided sufficient evidence that flooding of the magnitude that requires extensive grading occurs on average every 2 years. We therefore believe that only provision for a single easement upgrade satisfies r. 79(2)(c)(ii). Furthermore, we have not found sufficient evidence to convince us that the overestimation bias prevalent in work undertaken in AA2 has been addressed. We therefore find that for the single repair project, only 80% of the proposed estimate satisfies r.74(2)
Sub Total	**5.514**	**-1.326**	
Main line valves and scraper stations			

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
Install scraper station facilities on DBNGP-GGP and Apache interconnect pipelines	[redacted]	[redacted]	This work is required to enable the use of ILI 'pigs' for the inspections required by 2016 under the agreement with the DMP. We are satisfied that the expenditure is justified under r.79(2)(c)(i), (ii) and (iii). However, for the same reason outlined for the Mainline and Newman lateral work, we find that only 80% of the proposed expenditure satisfies r.74(2)
Sub total	[redacted]	[redacted]	
Compressor stations			
Compressor station hazard area upgrades (BC03)	[redacted]	-0.398	7 inspections and rectification at 4 sites as required by AS/NZS 60079.17:2009. We concur that based on the 4 year cycle required under c4.4.2, the proposed schedule of upgrades is necessary and satisfies r.79(2)(c)(i), (ii) and (iii). The compressor stations were all upgraded in AA2 and 2 stations are scheduled to have 2 inspections in AA3. We consider that it is unreasonable to assume that the cost at each site will be commensurate with the cost in AA2 (as without evidence to the contrary, the extent of upgrade work from successive inspections can reasonably be expected to decline). We find therefore that only 80% of the proposed expenditure satisfies r.74(2)
Compressor station PLC upgrades (BC05)	[redacted]	-0.043	The work is required to replace obsolete equipment. We are satisfied that the expenditure is justifiable under r.79(2)(c)(ii). However, we have not been provided with sufficient evidence to confirm that the cost estimate derived for this work has taken into account the 52% over-estimation bias prevalent in work undertaken in AA2. As APA has some experience with this work and has a preferred vendor we find that 80% of the proposed expenditure satisfies r.74(2)
Replace lighting towers (BC14)	[redacted]	-0.075	We accept that replacing poles with hinged design for safer maintenance is justified under r.79(2)(c)(i). However, the estimate is preliminary and based on GGT's proven ability to consistently deliver actual work for much less than the initial cost estimate, we find that only 65% of this work satisfies r.74(2).
GEA major servicing (BC20)	[redacted]	-0.136	45,000hr gas engine alternator servicing for three Units, in accordance with OEM recommendations. However, GGT propose servicing Unit 2 at Paraburdoo, which is not part of the Covered Pipeline. We therefore do not accept that the proposed expenditure for that unit satisfies r.93(2). With respect to the cost estimate for the work on the other 2 units, we find that the estimate is preliminary and based on GGT's proven ability to consistently deliver actual work for much less than the initial cost estimate, we find that only 65% of the proposed expenditure satisfies r.74(2).
Paraburdoo Unit 1 turbine exchange (BC23)	[redacted]	0.000	50,000 hr major service (in excess of OEM recommendation) – justified under r.79(2)(c)(ii). We also find that the cost estimate has been arrived at on a reasonable basis, as GGT has secured a firm quote from the OEM service provider (fixed price including a discount). The expenditure proposed satisfies r.74(2)

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
Yarraloola fire system (BC24)	[redacted]	-0.020	The work is to replace the obsolete Intergen gas system with a system common to APA - justified under r.79(2)(c)(i), (ii). GGT has a preferred vendor for this work, however, we have not been provided sufficient information to mitigate our view that for this project GGT can reasonably be assumed to deliver the project for 20% less than the preliminary estimate on the basis that it has been able to do so consistently in AA2. We therefore find that only 80% of the proposed expenditure satisfies r.74(2).
Other	[redacted]	-0.246	GGT has not provided sufficient justification (eg. via a business case) for the work proposed. We therefore find that none of the expenditure satisfies the requirements of r.79(2).
Sub total	**2.328**	**-0.917**	
Receipt and delivery point facilities			
Hydrocarbon dew point monitoring (BC19)	[redacted]	-0.011	HCDP programming and implementation in flow computers and gas chromatograph installations/upgrades at Yarraloola will provide an indication of HCDP, aligning that station with the requirements of AS4568 (specification for NG). We therefore find that the proposed expenditure is justifiable per r.79(2)(c)(ii). However, we have no indication from the Business Case (BC) that the expenditure has been correctly apportioned to the Covered Pipeline. We therefore find that only 67% of the proposed expenditure satisfies r.93(2).
Flow computer upgrade (BC21)	[redacted]	-0.336	The project involves proactive replacement of six obsolete Modicon flow computers on the Covered Pipeline- justified under r.79(2)(c)(ii). However, the estimate is preliminary and based on GGT's proven ability to consistently deliver actual work for much less than the initial cost estimate, we find that only 65% of this work satisfies r.74(2).
Leonora offtake battery upgrade	[redacted]	-0.395	GGT has not provided sufficient justification (eg. via a business case) for the work proposed. We therefore find that none of the expenditure satisfies the requirements of r.79(2).
Sub total	**1.388**	**-0.743**	
SCADA and communications			
BM 85 replacement program phase 2 (BC04)	[redacted]	-0.052	Replacement of 8 obsolescent multiplexers - justified under r.79(2)(c)(ii). However, the estimate is very preliminary and based on GGT's proven ability to consistently deliver actual work for much less than the initial cost estimate, we find that only 65% of this work satisfies r.74(2).
Upgrade Quantum station RTUs (BC11)	[redacted]	-0.110	Proactively replace obsolescent RTUs - justified under r.79(2)(c)(ii). However, the estimate is very preliminary and based on GGT's proven ability to consistently deliver actual work for much less than the initial cost estimate, we find that only 65% of this work satisfies r.74(2).

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
WA SCADA satellite replacement strategy (BC25)	[redacted]	-0.140	Continuation of replacement of obsolescent Speedcast service with Ursys (common to APA Group) is consistent with the requirements of AS2885.3 section 8.9 - justified under r.79(2)(c)(ii). However, the estimate is preliminary. Based on GGT's proven ability to consistently deliver actual work for much less than the initial cost estimate and the ability to leverage off lessons learned from similar replacement programs for other APA pipelines, we find that only 80% of this work satisfies r.74(2).
Wiluna compressor station AB PLC5 upgrade	[redacted]	-0.085	GGT has not provided sufficient justification (eg. via a business case) for the work proposed. We therefore find that none of the expenditure satisfies the requirements of r.79(2).
Engineering PCs in Gas Control centre	[redacted]	-0.021	GGT has not provided sufficient justification (eg. via a business case) for the work proposed. We therefore find that none of the expenditure satisfies the requirements of r.79(2).
Sub total	**1.268**	**-0.408**	
Cathodic protection			
Small projects	[redacted]	[redacted]	GGT has not provided sufficient justification (eg. via a business case) for the work proposed. We therefore find that none of the expenditure satisfies the requirements of r.79(2).
Sub total	[redacted]	[redacted]	
Maintenance bases and depots			
Karratha maintenance base repair (BC22)	[redacted]	[redacted]	Building foundations inspection and repair - justified under r.79(2)(c)(i). GGT has not confirmed that the cost estimate is for that proportion reasonably assumed to be for operation of the covered network. Furthermore, the cost estimate is preliminary (based on one quote from a local contractor). Based on GGT's proven ability to consistently deliver actual work for much less than the initial cost estimate, we find that only 80% of that proportion of the work we have allocated to the Covered Pipeline satisfies r.74(2).
Sub total	[redacted]	[redacted]	
Other assets			
Condition-based replacement (BC08)	[redacted]	-0.159	This is a provision for replacement of minor failed or end-of-life assets which, if incurred on the Covered Pipeline is likely to be justified under r.79(2)(c)(ii). However, GGT has not confirmed that the cost estimate is based on that proportion reasonably assumed to be for operation of the Covered Pipeline nor has it provided sufficient information to mitigate our view that for this project GGT can reasonably be assumed to deliver the project for at least 35% less than the preliminary estimate on the basis that it has been able to do so consistently in AA2. We therefore find that only 65% of the expenditure we have apportioned to the Covered Pipeline (67%) satisfies r.74(2).

Project	As Proposed	Adjustment	EMCa Review Observations – Justification with Rule 79 (2)
Enterprise Asset Management System (BC13)	[redacted]	0.000	This is a continuation of APA Group-wide AA2 project to replace and upgrade disparate and obsolete systems - justified under r.79(2)(c)(i), (ii) and (iii). We also find that the cost estimate is likely to be arrived at on a reasonable basis because it has (i) clearly identified the apportionment between the Covered Pipeline and other assets, (ii) the apportionment is reasonable (70%), and (iii) it has demonstrated that the cost estimate is based on very recent experience gained elsewhere in the APA Group and taking into account learning curve and scale efficiencies.
HA management software	[redacted]	-0.080	GGT has not provided sufficient justification (eg. via a business case) for the work proposed. We therefore find that none of the expenditure satisfies the requirements of r.79(2).
Sub total	**0.836**	**-0.239**	
Non-depreciable assets			
Sub total	**0.000**	**0.000**	
Grand total	**12.858**	**-4.299**	

Source: GGT's justification based on Business Case documentation unless otherwise denoted; Expenditure forecasts based on GGP_CAPEX 2015-2019 FINAL 15-Aug-2014.xlsm provided in response to IR EMCa05 unless otherwise denoted

6.3.2 Prudent service provider test (r. 79(1)(a))

155. The second matter we have considered is whether the proposed expenditure on capex projects that are justified under rule 79(2) is 'such as would be incurred by a prudent service provider acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of providing the service'.

156. In conducting this assessment, we have considered a range of matters (some of which are more or less relevant to particular projects or programmes of work), including:

- The project governance framework employed by GGT, the key elements of which are GGT's: business planning process, AMP and Safety Case, investment governance arrangements, forecasting methodology, and procurement policy.
- The project management and procurement processes employed by GGT on particular projects and the nature of any outsourcing arrangements it has entered into (e.g. competitive tender or related party transaction);
- GGT's capability to deliver the proposed projects efficiently in the time proposed;
- The extent to which GGT has adequately assessed and accounted for any benefits from productivity or efficiency enhancing programmes (benefits realisation);
- The actual costs incurred by GGT in AA2 relative to what it has proposed for AA3;
- GGT's compliance with relevant Australian standards; and
- Benchmarking of approaches and/or costs against other gas pipelines and/or regulated businesses.

157. As discussed at length in Section 4, we found that:

- GGT dramatically underspent its ERA-approved AA2 budget (by -70%) despite providing compelling justification (ie. given that it was approved by the ERA);
- GGT's cost estimation methodology, whilst based on common industry practices, was a primary driver of the 70% underspend in AA3; GGT has provided insufficient information to convince us that it has taken the necessary and prudent steps to prevent such a dramatic underspend occurring in AA3;
- It was not possible to reconcile GGT's proposed expenditure plans in the 2013 and 2014 Asset Management Plans (ie. produced only 12 months apart) as they were markedly different in quantum and construct. GGT deleted the forecast expenditure plans for 2015-18 from its 5-year 2013 AMP;
- GGT's capital investment governance procedures and practices are not robust enough to engender confidence in the extent of expenditure approved for submission in the AA3: (i) whilst GGT claim that a top-down challenge of the AA3 proposal was undertaken by the board (considering for example the need for the projects and the GGT's delivery capability in light of the AA2 performance), and (ii) improvements in GGT's capability to control its budget has not been demonstrated sufficiently well to give confidence that the proposed AA3 projects will be delivered on time and on budget to the specified scope; and
- Most of GGT's business cases have been prepared for the AA3 submission (ie. for projects of the expenditure level common to the AA3 submission, they are not developed as part of business-as-usual) and, among other things, lack any quantification of business benefits.

Compliance with the conforming capex criteria

158. GGT seek to justify the AA3 capex predominantly on the basis of maintaining integrity of supply. Compliance with pipeline Licence 24 requirement for and integrity test of the pipeline by 2016 (following a 5 year derogation approved by the DMP) results in $5.515m proposed expenditure for ILI and associated activities on the Covered Pipeline and laterals (43% of total proposed expenditure). In general, we are satisfied that the focus on the integrity and safety of the pipeline provides sufficient assurance that the asset will be maintained to a level that will meet and possibly exceed its design life - in keeping with good industry practice.

159. However, in accordance with our assessment criteria, and as indicated by our comments in Table 11, we are not satisfied in every case that:

(i) GGT has provided sufficient justification for expenditure (in which case we have disallowed the expenditure), or

(ii) GGT has not demonstrated that it has appropriately apportioned the expenditure between the Covered Pipeline and the other GGP assets (in which case we have made an adjustment that we believe is based on the appropriate allocation between the Covered Pipeline and the other GGP assets in each case).

160. With respect to the estimated cost of the prudent work, we have considered the proposed project expenditure in two 'categories':

(i) Where no justification for the project has been provided, all of the proposed expenditure has been rejected, and

(ii) Where the project is justified on one or more of r79(1)(b) we have assessed whether the forecast has been arrived at on a reasonable basis and whether it represents the best forecast or estimate possible in the circumstances (per r.74(2)).

161. In the latter case, we have taken into account the following factors:

(i) The early stage of the project life cycle (and therefore the likely accuracy of the estimates);

(ii) During the course of AA2, GGT was able to improve on its preliminary cost forecast by 70% through a combination of (a) completing the projects it did undertake for 52% less expenditure than forecast, and (b) determining that it did not need to undertake 37% of the forecast work;

(iii) We have not observed any compelling evidence that GGT has improved its forecasting methodology or any compelling evidence that the AA3 forecasts (at this point in the estimating 'life-cycle') are likely to be any more accurate than those presented to the ERA for approval for the AA2 period.

162. We have satisfied ourselves that $11.705m of the $12.858m Capex that GGT propose during the period 2015-2019 is justified under one or more of the following grounds:

- maintaining and improving the safety of the services (r. 79(2)(c)(i)); or
- maintaining the integrity of the service (r. 79(2)(c)(ii)); and/or
- complying with regulatory obligations or requirements (r. 79(2)(c)(iii)).

163. The balance of the expenditure ($1.153m) does not satisfy r.79(1)(b) as insufficient justification was presented by GGT.

164. With respect to the $11.705m that does satisfy rule 79(1)(a) and (b), we find that with respect to r.74(2) (for cost estimates) or r.93(2) (for apportionment of capex to the Covered Pipeline), we find that GGT:

(i) Has not demonstrated that it has provided cost estimates on a reasonable basis - we are confident that based on GGT's demonstrated over-estimation bias (in AA2) and its ability to find dramatic cost savings during the course of the detailed design and delivery phases, that its costs estimates are likely to be too high; and

(ii) Has not demonstrated that it has correctly apportioned the expenditure between the Covered Pipeline and the other GGP assets in all cases.

165. We therefore recommend that the ERA disallow a further a further $3.147m of the $11.506m expenditure. This results in a recommended total adjustment of -$4.299m (-33%), as shown in the summary table below.

Table 12: *Summary of AA3 Capex adjustment- $m, real Dec 2013*

	Total GGT Proposed	Total EMCa adjustments	Total EMCa adjusted
Pipeline and laterals	5.514	-1.326	4.188
Main line valve and scraper stations	0.641	-0.128	0.513
Compressor stations	2.328	-0.917	1.411
Receipt and delivery point facilities	1.388	-0.742	0.646
SCADA and communications	1.268	-0.408	0.859
Cathodic protection	0.262	-0.262	0.000
Maintenance bases and depots	0.620	-0.277	0.344
Other assets	0.836	-0.239	0.598
Non-depreciable assets	0.000	0.000	0.000
Total	**12.858**	**-4.299**	**8.559**

Sources: EMCa analysis derived from Table 9 AASI p59 and Attachment 6

6.4 Depreciation – asset lives

6.4.1 GGT's proposal

166. Table 13 sets out the asset lives that GGT has used when calculating depreciation in AA3. GGT has adopted the same asset lives that were approved by the ERA in AA2.

Table 13: *Asset lives proposed by GGT*

Asset class	Economic life (years)
Pipeline and laterals	70
Main line valve and scraper stations	50
Compressor stations	30
Receipt and delivery point facilities	30
SCADA and communications	15
Cathodic protection	15
Maintenance bases and depots	50
Other assets	10

Source: GGT, AASI, Table 11

6.4.2 EMCa assessment

167. We have compared GGT's proposed asset class economic lives with those approved by the AER and ERA in regulatory determinations for other transmission pipelines[54]. In all but two of the eight asset classes in the table above direct comparison with at least one other comparator is available – in each case the GGT's proposed economic life is commensurate with the other sources. In the case of Receipt and delivery point facilities, we assessed the range of asset lives for the sub-components of the asset category[55] and accept that 30 years, as nominated by GGT, is representative of the

[54] Roma to Brisbane, APA GasNet, Amadeus NT Gas, DBNGP

[55] Including meters, flow control, pressure regulation, over-pressure protection, and heaters

asset class[56]. In the case of Cathodic protection, we were not able to find a direct, publicly available comparator, but based on our experience, the nominated 15 years is an acceptable economic life[57].

168. We therefore recommend that the ERA accept the economic lives proposed by GGT.

[56] For example, meter system component economic lives vary from 10-50 years

[57] This includes experience from New Zealand

7 Review of proposed AA3 opex

7.1 Introduction

169. This section contains the results of our review of GGT's proposed opex for AA3, which has been carried out using the assessment framework set out in section 3.2.2 and having regard to our findings on matters relating to systemic governance and performance in section 4. In a similar manner to our capex review, we have conducted a more detailed review of those aspects of GGT's proposal that involve a material increase in expenditure.

170. The results of our review and our overall assessment of whether GGT's proposed opex complies with rule 91(1) of the NGR are set out below.

7.2 Overview of AA3 proposed opex

171. As shown in Figure 12 and Table 14, GGT states that its operating expenditure is incurred in five major categories:

- APA operations – incurred by APT Pipelines (WA) Pty Ltd in providing engineering and field technical services for the Covered Pipeline;
- GGT operations – incurred by the GGT in managing the operation of the Covered Pipeline;
- APA commercial operations – incurred by APT Goldfields Pty Ltd in providing the services required for commercial operation of the Covered Pipeline;
- Regulatory – which GGT presents as a sub-category of APA commercial operations, but which we have assessed separately because of the unique nature of and magnitude of the proposed expenditure; and
- Corporate costs – costs of APA Group corporate functions which provide services to the Covered Pipeline.

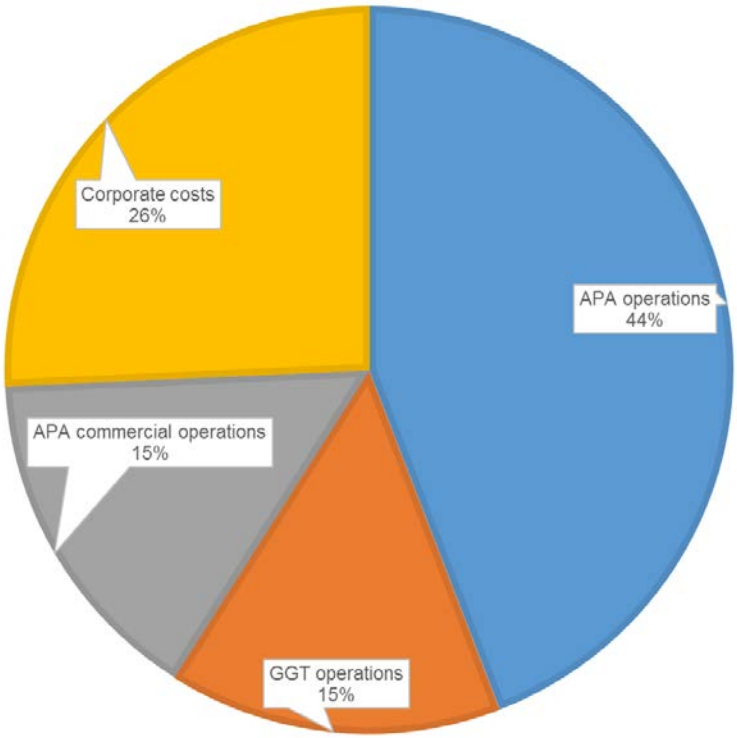
172. The breakdown of the proposed expenditure is set out in Table 14 and in Figure 12.

Table 14: *GGT proposed AA3 opex - $m, real Dec 2013*

	2015	2016	2017	2018	2019	Total
APA Operations	10.027	10.430	10.823	10.391	10.083	**51.753**
GGT Operations	3.449	3.480	3.483	3.483	3.483	**17.378**
APA Commercial Operations (excl. regulatory)	2.156	2.156	2.156	2.156	2.156	**10.780**
Regulatory	2.169	1.167	0.764	1.147	1.924	**7.170**
Corporate Costs	6.025	6.025	6.025	6.025	6.025	**30.123**
Total	**23.826**	**23.257**	**23.250**	**23.202**	**23.670**	**117.204**

Sources: EMCa table from GGP Opex 2015 – 2019 model emailed 16/09/2014

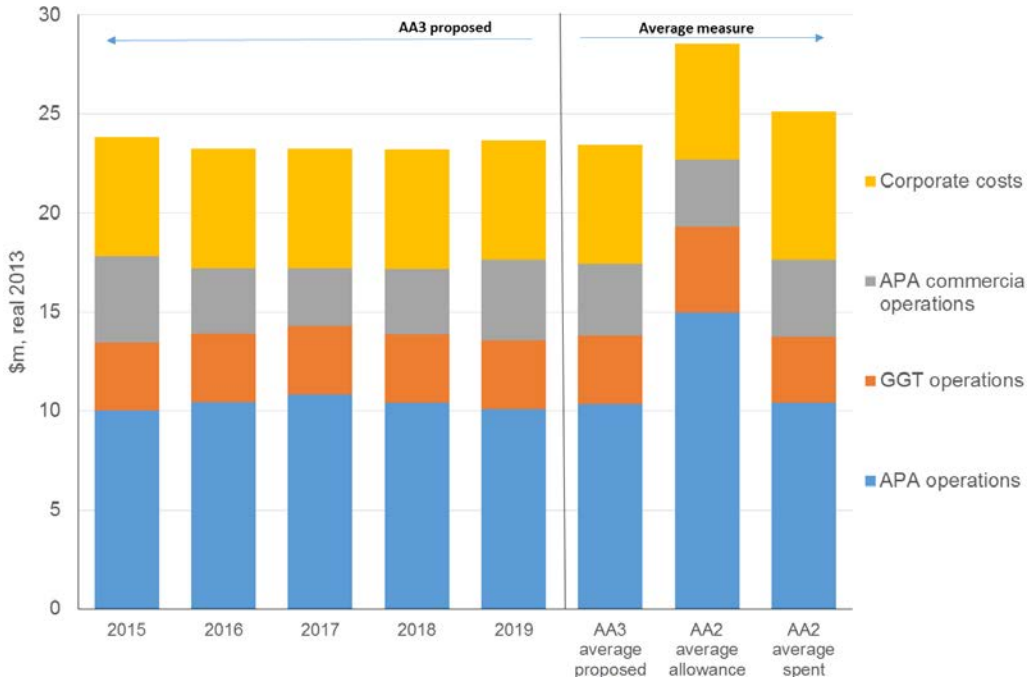
Figure 12: Breakdown of GGT's proposed AA3 opex



Source: EMCa analysis from data in GGT AASI, Table 26

173. The profile of GGT's proposed opex in AA3 is illustrated on the left hand side of Figure 13, while the right hand side of the figure compares the annual average allowance proposed by GGT for AA3, with the average allowance approved by the ERA for AA2 and the average amount spent by GGT in AA2.

Figure 13: Profile of GGT's proposed AA3 opex



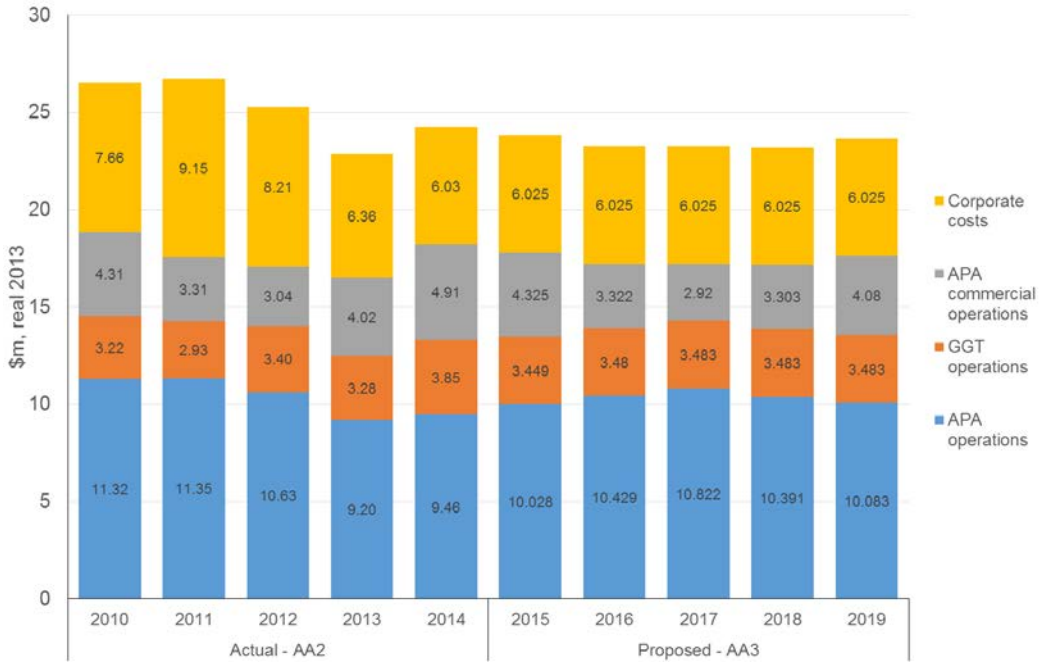
Source: EMCa analysis from data in GGT AASI Table 26 and GGT response to IR EMCa09

174. GGT is proposing to spend $117.21m on opex in AA3.[58] Over a 5 year period this equates to an average opex allowance of $23.44m p.a., which is 18% ($5.1m p.a.) *lower* than the allowance approved by the ERA for AA2 and 4% ($1.1m p.a.) *lower* than actually spent by GGT in AA2. Most of the proposed reduction can be attributed to a reduction in corporate costs as a result of a lower allocation from the APA Group. Figure 14 shows the step change in opex in 2015 resulting from the reduced Corporate cost.

175. We assess the key components of expenditure of the four opex categories in Sections 7.5 to 7.9.

58 GGT, AASI, Table 26

Figure 14: Actual opex vs proposed opex (2010-2019)



Sources: EMCa figure from table 24 & 26 AA supporting doc, p164 & 169

7.3 Base year

7.3.1 GGT's proposal

176. GGT proposes 2012 as a base year (ie. rather than 2013, the latest year for which GGT's actual expenditure is available) for assessing the efficiency and prudency of forecast operating expenditure for the AA3 period. GGT chose 2012 on the basis that:

(i) Expenditure on APA operations was abnormally low in 2013– GGT temporarily reassigned APT (Pipelines) WA to focus operational personnel on the capital projects pertaining to other GGP assets in 2013 and 2014 due to the inability to resource these projects from the market; similarly, GGT operations administration staff were temporarily reassigned to APA commercial operations.

(ii) Smaller increases over 2012 in GGT operations (recoverable) and APA commercial operations (carbon liability).[59]

7.3.2 EMCa assessment

177. By representing that it has used a particular base year, GGT implies that it has used some form of 'base step trend' approach to determine its forecast opex allowance using a calculation that originates from its base year expenditure. However GGT has not evidenced such a calculation. In its opex forecasting spreadsheet the forecasts are simply entered values that are not related through any formula to the base year amounts. In its AASI GGT 'compares' its forecast with its base year values, but makes only general and entirely qualitative statements as to why certain line items are proposed to increase and others to decrease.

[59] GGT AASI, *Section 10.3.1,* p166-167

178. In our assessment of the compliance of GGT's proposed AA3 opex with r.91(1) and r.74(2) we have therefore considered the proposed expenditure in each year of AA3 in the four categories of opex identified by GGT and the specific concerns that we have are addressed in the following sections.

7.4 Labour rates

7.4.1 APA Operations labour rates

Basis for APA operations labour rates

179. GGT obtains services for physical operation of the GGP under the Operating Services Agreement with a related third party – APT Pipelines (WA), an entity within the APA Group. The two parties secure services required for the performance of contractual obligations from other entities within the APA Group. The Operating Services Agreement does not specify the labour rates applicable under the contract. Instead, GGT has used the same rates as it applies to 22 labour resource categories from the APA Group.[60]

EMCa assessment

180. As APT Pipelines is a related party, and approximately 86% of forecast Field Services and Engineering expenditure comprises labour-related expenditure, it is important to ensure that the labour rates applied to derive forecast opex are reasonable.

181. Our assessment is based on our experience, reference to information in the KPMG report,[61] and taking into account (a) the sector GGT operates in, and (b) the remote location of much of its assets. We find that:

(i) The labour rates are likely to be in the upper quartile of a reasonable range of remuneration for the resource categories;

(ii) The non-salary payroll costs are reasonable; and

(iii) The non-payroll costs are reasonable.

182. On this basis we find that the APA operations labour rates are acceptable for use in forecasting APA operational expenditure.

7.4.2 APA commercial operations labour rates

Basis for APA commercial operations labour rates

183. GGT obtains services for commercial operations of the GGP under the Commercial Services Agreement with a related third party – APT Goldfields Pty Ltd, an entity within the APA Group. The Agreement was executed in 2003. Schedule 5 of the Agreement stipulates the hourly rates for nine categories of professional service which are to be escalated according to clause 9.1(a)(i) in the Agreement.

[60] GGT responses to Information Requests EMCa05, and 29

[61] GGT AASI – Attachment 11 – *KPMG Cost Benchmarking, 15 Aug 2015*

EMCa assessment

184. As APT Goldfields is a related party, and 41% of forecast APA commercial operations expenditure is internal labour-related expenditure, it is important to ensure that the labour rates applied to derive forecast opex are reasonable.

185. We have compared the hourly rates for the six resource categories[62] and compared them with the equivalent labour rates from the 22 APA Group labour categories. On average, the APA commercial operations labour rates derived according to the terms of the Commercial Services Agreement (ie. escalated from 2003 base rates) are 27% higher than the equivalent APA Group rates. Noting that in section 7.4.1 we concluded that the APA Group labour rates are high, but acceptable, we conclude that the APA commercial operations labour rates are excessively high and that the appropriate basis for the APA commercial operations labour rates is the internal (APA Group) comparator.

186. We sought information from GGT on the proportions of labour in this category of expenditure. GGT provided information (response to EMCa37) that its administration and marketing components are 100% labour, and provided annual labour proportions for regulatory expenditure. On this basis we propose an adjusted amount for commercial operations opex, and this adjustment is described in section 7.7.

7.4.3 GGT operations labour rates

Basis for GGT operations labour rates

187. GGT has based the GGT operations labour rates on the same basis as for APA operations (ie. the 'internal' APA Group labour rates).

EMCa assessment

188. For the reasons explained in the assessment of the APA operations labour rates, we believe the GGT operations labour rates are typically high, but not unreasonably so given the nature of the business and satisfy the requirements of r.74(2).

7.5 APA operations

189. Our assessments in this section consider the overall prudence and efficiency of expenditure as per rule r.91(1). We consider the impact of our separate assessment of GGT's allocation methodology in Section 7.10. Therefore the conclusions on expenditure prudence and efficiency in this section need to read in conjunction with our conclusions on the allocation of such expenditure in Section 7.10.

7.5.1 GGT's proposal

190. In AA3 GGT is proposing to spend $51.75m on APA Operations opex:[63]

- $40.81m on Field services;
- $7.32m on Engineering services;
- $1.94m on Major Expenditure Jobs, and

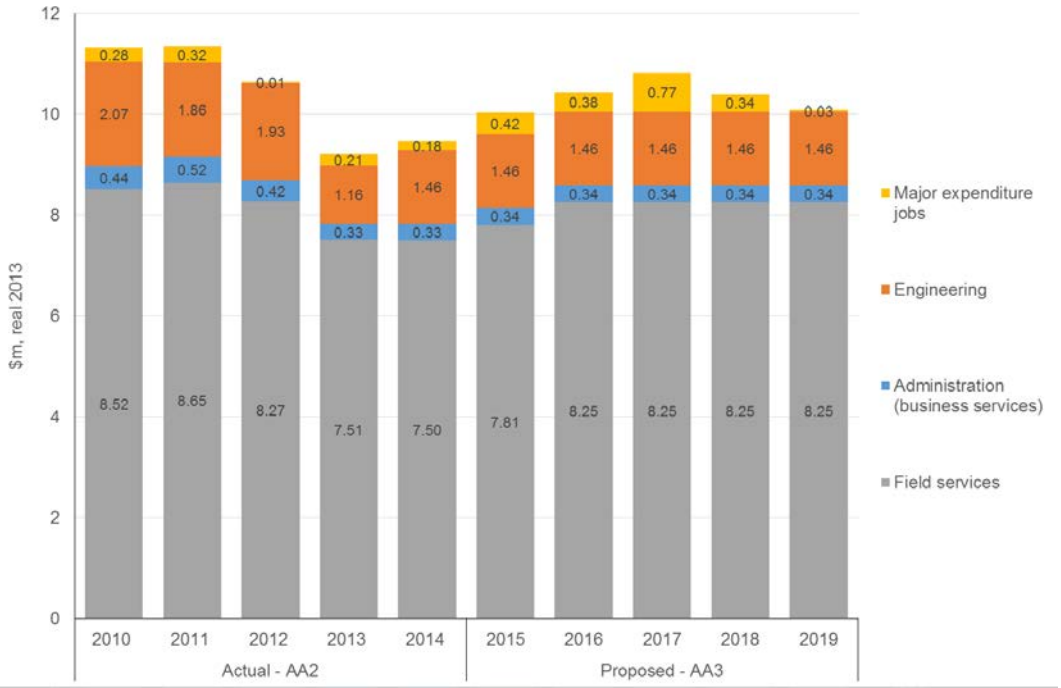
[62] Provided by GGT in response to IR EMCa24

[63] GGT, AASI, Table 26 converted to real Dec 2013

- $1.68m on administration.

191. Figure 15 shows the difference between the AA2 expenditure and the proposed AA3 APA operations expenditure. GGT advise that the 'dip' in field services and engineering expenditure in 2013 and 2014 resulted from temporary diversion of staff from work on the Covered Pipeline to other GGP assets. Other than those years, the expenditure profile is relatively consistent, with an annual average expenditure of $10.39m in AA2 and $10.35 forecast for AA3.

Figure 15: AA2 and AA3 APA operations expenditure



Sources: EMCa figure from table 24 & 26 AA supporting doc, p164 & 169

7.5.2 EMCa assessment

Major Expenditure Jobs (MEJ)

192. The proposed AA3 MEJ opex is almost double the total $1.00m AA2 MEJ expenditure. GGT has provided sufficiently compelling information to demonstrate that the proposed $1.94m MEJ opex is justified according to r.91(1)[64]. GGT's opex forecasting performance in AA2 (ie. Actual versus forecast) was sufficiently accurate[65] for us to conclude that the cost estimates have been arrived at on a reasonable basis in accordance with r.74(2). We therefore find that the proposed MEJ expenditure satisfies the requirements of r.91.

Engineering and Field Services

193. GGT identifies that the equivalent of 32 FTE field services staff work on the Covered portion of the 1,426 km long GGP Covered Pipeline, including and the six Compressor

[64] Attachment 10 provides a description of the projects

[65] Noting that the major variation between actual and forecast expenditure in AA2 was driven by the unplanned reallocation of field and engineering services staff from the Covered Pipeline to work on other GGP assets, not necessarily by cost estimation inaccuracy

units at four compressor stations.[66] Our experience, the scope of the services provided, the skills mix in the team, and the relative consistency with the AA2 expenditure level, lead us to conclude that this is a reasonably sized workforce. Similarly, we agree that the equivalent of 6.7 FTEs that are forecast to continue to be required to provide operational engineering services is a reasonable provision. As discussed in Section 7.4, we accept that the labour rates underpinning the expenditure forecasts are reasonable and would be incurred by a prudent service provider in accordance with r.91(1) and r.74(2).

Administration (business services)

194. APA operations business services include provision for 50% of the time of a Finance Manager, 60% of the time of a Management Accountant and an Administrative assistant. We are satisfied that these personnel are required to support the field and engineering services function and provide necessary information to 'head office'. Based on the findings in Section 7.4, we find that the labour rates are relatively high but nonetheless reasonable given the particular circumstances of the GGT's operations.

Efficiency improvement opportunity (including capex/opex trade-offs)

195. No capex expenditure has been justified solely on the basis of efficiency gains. In Section 4.8, we discussed GGT's description of efficiency improvements which it maintains have been built into the AA3 opex program. We have reviewed the claimed but unquantified operational benefits in two capex programs[67] and we are satisfied that the relatively minor efficiency improvements are likely to have been accounted for in the AA3 opex forecast. There may be further opportunities for further tangible efficiency gains from investments such as remote monitoring/diagnosis technologies (to reduce unproductive travel time associated with operation of a pipeline in remote locations) and from optimising the balance between scheduled and reactive work. However, we have not explored these further.

Compliance with rule 91(1)

196. We find that GGT's proposed APA operations opex activities are consistent with the requirements of the Safety Case and with good industry practice. Its proposed expenditure on the balance of activities also appears to be consistent with the costs that would be incurred by a prudent service provider acting efficiently and with the principles set out in rule 74(2).

7.6 GGT Operations

197. Our assessments in this section consider the overall prudence and efficiency of expenditure as per rule r.91(1). We consider the impact of our separate assessment of GGT's allocation methodology in Section 7.10. Therefore the conclusions on expenditure prudence and efficiency in this section need to read in conjunction with our conclusions on the allocation of such expenditure in Section 7.10.

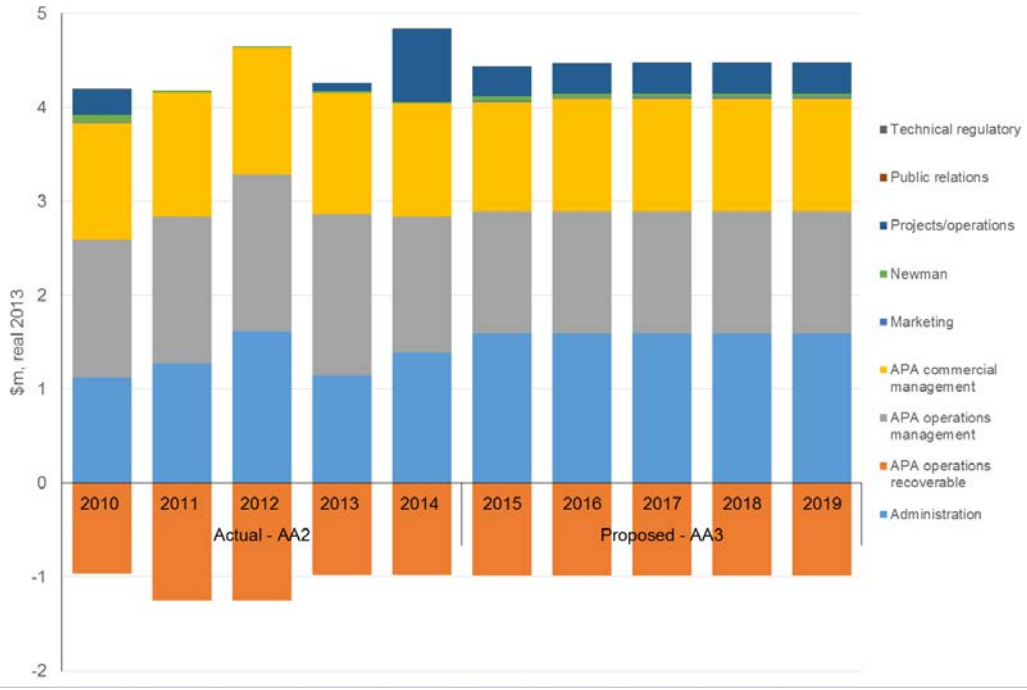
[66] GGT response to IR EMCa15, Table 2

[67] Enterprise Asset Management System and Replacement of SCADA Master Station

7.6.1 GGT's proposal

198. Figure 16 shows the expenditure profile over AA2 and AA3. GGT propose total net opex of $17.38m over AA3 (average of $3.48m pa) compared to $16.69m ($3.34m pa) over AA2.

Figure 16: AA2 and AA3 GGT operations expenditure



Sources: EMCa figure from table 24 & 26 AA supporting doc, p164 & 169

7.6.2 EMCa assessment

Administration

199. GGT propose annual expenditure of $1.69m over AA3. The largest expenditure items are (i) office accommodation related expenses ($0.98m, 62%), and (ii) taxes, levies and licence fees ($0.52m pa, 33%). We are satisfied that the administrative services are necessary to support the overall management of the Covered Pipeline. We are also satisfied that the quantum of expenditure forecast is reasonable.

APA operations recoverable

200. GGT recovers a portion of the rent it incurs from the proportion of its premises that is occupied by APT Pipelines (WA) and APT Goldfields. We are satisfied that the forecast recoverable amount of $0.99m pa complies with the requirements of r.91(1) and r.74(2).

APA operations management

201. GGT forecasts average annual expenditure of $1.31m in AA3 to compensate APT Pipelines (WA) for the overall management of engineering and field services delivery (including recruitment and development, and field plant & equipment maintenance). We are satisfied that the activity is justified in accordance with r.91(1) and that the charges are reasonable (based on our assessment of the applicable labour rates in section 7.4), in accordance with r.74(2).

APA commercial management

202. GGT forecasts average annual expenditure of $1.19m in AA3 to compensate APT Goldfields for the provision of services to support commercial operation of the Covered Pipeline. We are satisfied that the activity is justified under r.91(1) and that the charges are reasonable (based on our assessment of the applicable labour rates in section 7.4), in accordance with r.74(2).

Project/operations

203. GGT has allocated $0.32m pa ($1.60m total) as a provision for unspecified repairs to the pipeline easement and to surface facilities resulting from cyclones. GGT spent an average of $0.24m pa in AA2 and has not provided sufficient information to justify the increased provision in accordance with r.91(1). We therefore find that only $1.20m is a reasonable estimate of the total operating costs likely to be incurred on this activity during AA3 in accordance with r.91(1) and r.74(2). The adjustment is included in the covered/uncovered adjustment category in Table 19.

Other GGT operations expenditure

204. The aggregate forecast expenditure on Marketing, Newman, Public relations and Technical regulatory expenditure over the 5 year period is $0.29m ($0.06m p.a.). We are satisfied that the proposed expenditure is necessary and, based on our assessment of labour rates (Section 7.4), we are satisfied that the costs are justifiable and derived on a reasonable basis, complying with r.91(1) and r.74(2), respectively.

Compliance with rule 91(1)

205. We find that GGT's proposed GGT operations activities are consistent with the requirements of managing the GGP Covered Pipeline operations in accordance with good industry practice (per r.91(1)). However GGT has not justified its proposed increase in expenditure on the Projects/operations activity; on this basis we consider that it is not reasonable and does not satisfy r.74(2).

206. Noting that our assessment of the appropriateness of GGT's allocation of expenditure to the Covered Pipeline is discussed separately, on the basis of the assessment set out above, we are of the opinion that of the $17.38m that GGT proposes to spend on GGT Operations opex in AA3, $16.98m satisfies r.91(1) and r.74(2).

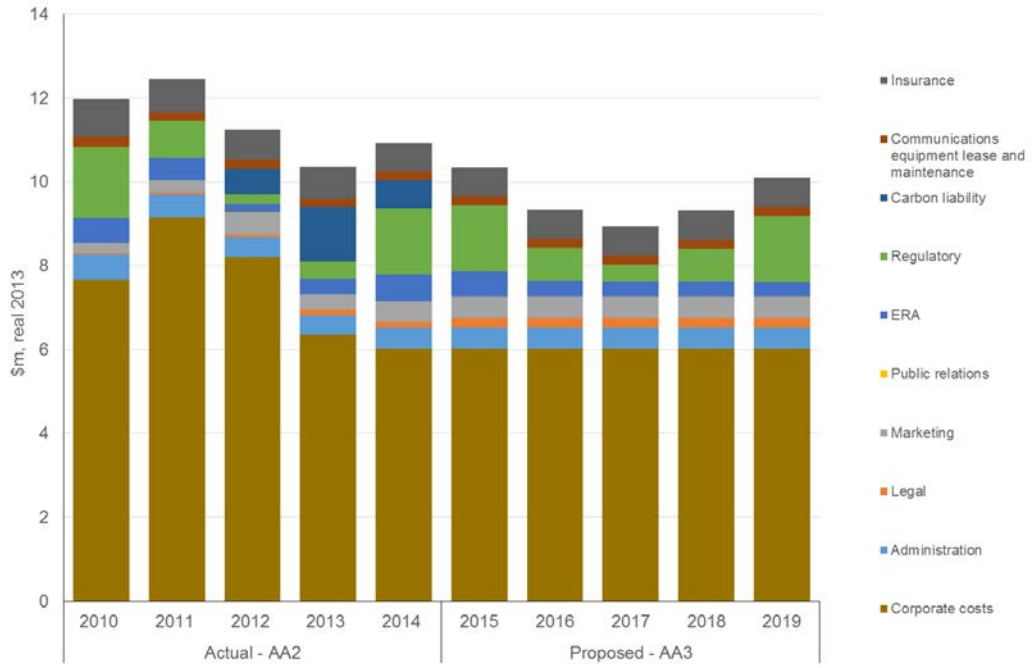
7.7 APA commercial operations (excluding Regulatory)

207. Our assessment in this section does not consider (i) provisions for Regulatory expenditure, discussed separately in Section 7.8, or (ii) the impact of our assessment of GGT's allocation methodology, discussed in Section 7.10 and does not further consider the adjustment for commercial operations labour rates (discussed in section 7.4).

7.7.1 GGT's proposal

208. Figure 17 shows the expenditure profile over AA2 and AA3. GGT propose total net opex of $17.95m over AA3 (average of $3.59m pa) compared to $19.59m ($3.92m pa) over AA2.

Figure 17: AA2 and AA3 APA commercial operations expenditure



Sources: EMCa figure from table 24 & 26 AA supporting doc, p164 & 169

7.7.2 EMCa assessment

Labour rates

209. As discussed in Section 7.4, we consider that all the labour rates applicable under the Commercial Services Agreement and as applied by GGT to determining its forecast commercial operations expenditure are unreasonably high (by an average of 27%). We have separately adjusted all the expenditure components that we consider otherwise meet the requirements of r.91(1). We do not discuss the labour rate issue further in the sub-sections below.

Administration (not including regulatory operations)

210. GGT propose annual expenditure of $0.50m over AA3 for support of the commercial operations of the Covered Pipeline. The amount is commensurate with the average annual expenditure in AA2. The Commercial Services Agreement (Schedule 1) specifies that APA Goldfields is required to provide management, administration, JV corporate services and financial administration and accounting. We are satisfied that the allocation of a portion of time of the General Manager, his assistant, a management accountant, and an administrative assistant is reasonable.

Legal

211. GGT propose annual expenditure of $0.22m over AA3 for support of the commercial operations of the Covered Pipeline. We are satisfied with GGT's explanation of the proposed increase. Whilst the amount is double that spent in AA2, we consider this to be a necessary activity and an increase is warranted for AA3.

Marketing

212. GGT propose annual expenditure of $0.52m over AA3 for generating new business for the Covered Pipeline and to retain existing customers. GGT reports spending an average of $0.38m over AA2. GGT has not provided a compelling justification for the any increase in expenditure. Whilst we accept that marketing activities are required, we consider that not all of the proposed $2.58m is justified in accordance with r.91(1) and satisfies the requirements of r.74(2). As discussed in section 7.4, we propose adjusting the labour rate for marketing and this adjustment results in a cost that is sufficiently close to actual AA2 expenditure as to be considered to provide a reasonable forecast.

Other AA3 commercial operations opex

213. We are satisfied with the justification for and quantum of expenditure on Public Relations ($0.004m p.a.), Communications equipment lease and maintenance ($0.22m p.a.), Insurance ($0.70m p.a.) and Carbon Liability ($0.0m p.a.) in accordance with r.91(1). We are also satisfied that the estimates satisfy r.74(2).

Compliance with rule 91(1)

214. Noting that the labour-rate adjustment, apportionment of expenditure between the Covered Pipeline and other GGP assets, and regulatory-related expenditure are all considered elsewhere, the summary of our assessment of APA commercial operations against the requirements of r.91(1) is presented in section 7.11.

7.8 Regulatory costs

7.8.1 GGT's proposal

215. GGT proposes allocating an amount of $5.11m (in real terms) to regulatory costs in the forthcoming AA. This compares with actual and forecast expenditure of $4.80m in the current AA period, to 31st December 2014.

216. We sought further information on the build-up of the proposed regulatory costs and, in its response to information request EMCa020, GGT provided a resource-based build-up for the years 2015 to 2017 and advised that it estimated that the costs for 2018 and 2019 would mirror respectively that for years 2016 and 2015. The information provided for 2015 is shown below.

Table 15: *GGT build-up for regulatory cost (2015) - $m, real Dec 2013*

		Note	FTE	Hourly rate $	Expenses
Labour		(1)			
	General Manager		[redacted]	[redacted]	0.030
	Regulatory Manager (WA)				0.299
	Regulatory Manager				0.157
	Regulatory Consultant	(2)			0.220
	Management Accountant				0.055
	Executive Assistant				0.181
Service					
	Legal advice	(3)			0.350
	Auditor reviews	(4)			0.020
	Travel & accommodation				0.010
	Specialist consultants				0.250
Total					1.572

Sources: Table 1 APA's response to EMCa20

GGT has forecast the following amounts for regulatory costs and the ERA levy.

Table 16: *GGT proposed regulatory costs and regulatory levy - $m, real Dec 2013*

	Total current AA (AA2)	2015	2016	2017	2018	2019	Total next AA (AA3)
Regulatory costs	4.803	1.571	0.785	0.393	0.785	1.571	5.105
Regulatory levy (ERA)	2.340	0.598	0.381	0.371	0.362	0.353	2.065
Total	7.143	2.169	1.166	0.764	1.147	1.924	7.170

Sources: EMCa table from table 24, p164 and table 26, p169 - AASI

7.8.2 EMCa assessment

Regulatory costs

217. We have the following concerns with the regulatory costs proposed by GGT:

- We would expect that the most intensive year would be the period when GGT prepares its AA and interacts with the ERA and its advisers in responding to requests for further information, that is, 2014. We would expect less effort to be required in the following year (i.e. 2015) in responding to any matters raised in the ERA's Draft Decision;
- We observe that GGT has undertaken significant regulatory activity to preserve the status of its other GGP assets and in particular to secure certain regulatory positions with regards to expanded use of the Covered Pipeline, providing it with incremental revenue from these users with no (or minimal) diminution of its regulated revenues from the use of the same asset. We do not consider it reasonable that users of the Covered Pipeline should bear the costs associated with these actions.
- We observe that GGT's forecast resourcing of its regulatory activity for 2015 shows 2.2 FTEs of effort, from its WA Regulatory Manager, its Corporate Regulatory Manager and a Regulatory Consultant. From information provided in response to information request EMCa018, it would appear that GGT contributes around one-eighth of the revenue of the APA Group. The allocation of 2.2 FTEs to GGT

appears disproportionate and would imply a total of around 13 Regulatory Managers across the APA Group.

- GGT asked KPMG to advise corporate costs for a stand-alone business, and KPMG assessed the cost of a regulatory function with a 'corporate' median cost of $282,000 per year plus the cost of one Perth-based regulatory manager which GGT's information shows at a cost of around $300,000 p.a. The sum of these of these values (rounding up) produces a benchmark value of the order of $600,000 p.a. on average or $3m over the 5-year period.

218. Taking these factors into consideration we consider that a more reasonable estimate of the regulatory costs attributable to the Covered Pipeline is derived as follows:

- We have made some relatively minor adjustments to the assumed corporate-level resourcing of the regulatory function that have the effect of reducing the total cost of the regulatory function from $5.11m to $4.66m, which is similar to the current AA.
- We have not applied all of the proposed GGP operation regulatory costs to users of the Covered Pipeline facilities since to some extent GGT incurs regulatory expenditures that have not been to the benefit of these users. Recognising that the Covered Pipeline involves the significant costs relating to an Access Arrangement, we have applied the regulatory costs to Covered Pipeline services in a ratio of 3:1, that is, with a 75% allocation to the Covered Pipeline.

The resulting recommended level of regulatory costs is as follows[68]:

Table 17: *EMCa adjusted regulatory costs - $m, real Dec 2013*

	Total current AA (AA2)	2015	2016	2017	2018	2019	Total next AA (AA3)
Regulatory costs							
As proposed	**4.803**	1.571	0.785	0.393	0.785	1.571	**5.105**
GGT's calculations per response to EMCa020		1.572	0.813	0.424	0.813	1.572	**5.194**
EMCa adjusted (before reallocation)		1.356	0.668	0.396	0.668	1.572	**4.661**
EMCa adjusted (after reallocation)		1.017	0.501	0.297	0.501	1.179	**3.496**

Sources: EMCa analysis from APA's response to EMCa20, table 24, p164 and table 26, p169 - AASI

219. We have taken account of the KPMG benchmarking report, which would tend to indicate that an appropriate allocation of costs for regulatory services in the order of $600,000 per year on average. The derived cost of $3.5m over the five years, or an average of $700,000/year, is closer to this benchmark than the cost of over $1m/year that GGT has proposed.

ERA levy

220. We are advised by the ERA that it will separately consider GGT's proposed allowance for the Regulatory levy. We have therefore not assessed GGT's forecast expenditure in this category.

[68] Our adjusted calculations are derived using information that GGT provided in response to information request EMCa020, as shown, and which differs slightly from GGT's proposed expenditure.

7.9 Corporate overheads

7.9.1 GGT's proposal

221. GGT has proposed to include an allocation of its corporate overheads in its required opex. The amount that it has proposed has been derived from its total corporate expenditure, which it has then allocated in a two-step process as follows:

- Total APA Group corporate expenditure has been allocated across its diverse businesses based on the reported incomes of each revenue earning entity in APA Group. This allocation includes APT Goldfields Pty Ltd, and GGP service providers Sothern Cross Pipelines Australia Pty Ltd and Sothern Cross Pipelines (NPL) Australia Pty Ltd[69].
- GGT has allocated a proportion of the GGP service providers' allocation of corporate overheads to the Covered Pipeline. It has done so on the basis of a ratio of contracted Covered Pipeline transportation capacity-distance to total GGP transportation capacity-distance (in TJ.km/day).

222. GGT states that its revenue-based approach to allocating corporate costs has been accepted by the AER in access arrangement approvals for regulated assets under its jurisdiction, and previously by the ERA, for GGP. It states that this approach is also used for internal budgeting purposes.

223. GGT also provided a report from KPMG to support its proposed level of corporate cost allocation[70]. This report takes a bottom-up build approach of identifying and quantifying a benchmark cost for the corporate functions that are considered necessary to support the delivery of GGP's gas transmission services.

224. GGT's has proposed corporate expenditure of $6m per year (constant in real terms) over the period. KPMG summarises its assessment of corporate costs as having a median of $6.5m, with low and high ranges of $4.5m and $8.2m respectively.

7.9.2 EMCa assessment of allocation approach

Allocation of group corporate costs to GGP

225. We have first assessed GGT's allocation of its total APA Group corporate expenditure. We understand that this comprises all expenditure that is not incurred directly in specific business operations. We sought information from GGT on the calculation of its allocation of corporate overheads to GGP and GGT provided this in a first written response with an associated spreadsheet[71]. The spreadsheet did not contain the calculation of the apportionment itself, and so we sought further clarification from GGT, who then provided some further information[72].

[69] AASI, Section 10.7.3

[70] *Attachment 11: Corporate Cost Benchmarking,* KPMG (June 2014)

[71] Response to Information Request EMCa 018

[72] GGT response to information request 12, EMCa 31

226. From the information provided in those two responses we assessed the corporate allocation using the methodology that GGT describes. Our assessment is summarised as follows:

- GGT's spreadsheet shows a total of $50.1m of corporate costs being allocated across the whole APA group. GGT's written response states that a number of line items that form part of this amount have been excluded from the allocation to GGP. We summed these line items, and find that they amount to $4.5m[73]. Therefore it would appear that the proportionate allocation to GGP should be from a pool of $45.6m;
- From the information provided in the spreadsheet, we find that GGP contributes 13.54% of total APA group revenue ($123m / $912m);
- Combining this information suggested an allocation of $6.17m to the GGP business. GGT's spreadsheet showed an allocation of $8.48m to GGP, however GGT's figure was derived from hard-coded data in GGT's spreadsheet, not from formulae consistent with GGT's stated methodology.[74].

227. We sought further explanation for this apparent discrepancy and GGT provide a further spreadsheet and written response[75]. The spreadsheet is labelled as a 'trial balance' and is in a similar format to the spreadsheet provided in response to request EMCa 18. While it still did not derive the proposed allocated amount internally, the written response directed us to particular cells which, if combined into formulae in accordance with the methodology that GGT described, provides a close approximation to the claimed amount of $8.48m. However in comparing GGT's trial balance spreadsheets in responses to EMCa 18 and EMCa 36, we observed significant differences, as follows:

- Total group revenue had previously been stated as being the denominator in the allocation process. As noted above, this was $911m, and we noted that this was a sum of row totals that excluded 'pass through costs', which would appear to be consolidations[76].
- In the updated spreadsheet, GGT did not change the sum of the row totals[77] (which in any case were hard coded) and instead pointed us to an allocation denominator that was the sum of selected column totals that were described as being external revenues (i.e. excluding consolidations). However the cells included in this formula differed not only from the row total revenue amount, but also from the equivalent formula in GGT's response to request EMCa 18. Moreover, a number of 'deductions' had been made that were not in GGT's previous responses on this matter. A significant example is the revenue for AGT Pipelines WA Ltd, for which revenue had been reduced from $83.9m to $2.3m[78]. In aggregate GGT had by

[73] We initially queried a number of line items, however we are satisfied with GGT's explanation of the line items it has included and that it has excluded line items that we would expect to be excluded.

[74] The figure of $8.48m is derived in GGT's spreadsheet from the addition of numerical values that are not derived by formulae in the spreadsheet, therefore it is not possible to identify why this figure differs from a calculation based on the methodology and base data that GGT has provided.

[75] Response to Information Request EMCa 36

[76] Column FC in the spreadsheet

[77] Column FC

[78] Profit centre B011 in the spreadsheet

these means reduced the aggregate revenue denominator that it stated it had used in determining the allocated corporate cost amount, to $658m[79].

228. We are concerned that GGT has not been able to plausibly explain its derivation of an allocation of corporate costs to its GGP business and support its claim that this allocation follows the same process as it has applied in regulatory resets with the AER and is as used internally for JV budget approvals. Through three information requests, we have sought but have not been provided with a calculation that shows this derivation of the proposed GGP corporate cost allocation from consistent and verifiable source data. The significant changes in data and formulae in the successive spreadsheets provided, the presence of hard coded data that does not add but contains excluded amounts that are not evident from inspection of the spreadsheet and changing descriptions of what value is used as the revenue denominator in the allocation undermine our confidence in the claimed calculation.

229. Internal budget information provided by GGT did not support its claim that the allocation of corporate costs for the AA is as per approved budgets. Corporate Overheads are not shown in either of the budget spreadsheets provided, except in a block of columns labelled as “Access Arrangement Revision”; in the adjacent “GGT JV Approved Budget” columns, the corporate costs are blank[80]. And GGT has not supported its claim that it has used the same allocation of corporate costs as used for the AER: a demonstration of this would be to present a spreadsheet that transparently illustrates revenue consolidations (with matching debits and credits) to determine a net external revenue figure, then determines allocations of a common total consolidated corporate cost to each of APA Group’s regulated businesses using this single source of data.

230. In the absence of transparent and stable information from GGT, we have determined an allowance on the following basis:

- Gross revenue of $911.5m, which we have determined from GGT’s response to EMCa 36[81]
- Revenues for the GGP operating entities of $121m, per GGT’s response to EMCa 36
- Group corporate costs for allocation of $45.6m, per GGT’s response to EMCa 36 and excluding the items referred to in GGT’s response to EMCa 31.

231. This results in an allocation to GGP of $6.1m per year.

Allocation of GGP costs to covered services

232. We then considered GGT’s allocation of its GGP costs to Reference Services and Negotiated Services applying to its Covered Pipeline in accordance with rule 93(2). GGT has reported that it is contracted to provide around 109 TJ/day of capacity under its Covered Pipeline services, and that it provides around 91 TJ/day of capacity to non-Covered Pipeline users, for a total contracted capacity of 200 TJ/day. This would result in a 54.5% allocation to users of the Covered Pipeline. However GGT’s proposed Access Arrangement allocates these costs based on the relative contracted capacity-

[79] To test for the origins of the differences, we also applied the new formula provided in GGT’s response to EMCa 36, to the data it provided in response to EMCa 18. This gave an ‘allocated revenue’ figure of $768m.

[80] Response to EMCa 17 re GGT JV approved budgets

[81] Sum of Column FC, excluding pass-through costs as per GGT’s response to EMCa 18

distance relationship (in TJ.km/day) and which it states results in a 69.2% allocation to users of the Covered Pipeline. GGT has not provided any specific justification for its allocation method.

233. While opex that relates to the pipeline itself is linked to the distance through which gas is transported, we do not consider that it is axiomatic that distance should be a factor in allocating corporate overhead costs. The 'corporate' activities that the KPMG report identifies[82] comprise:

- External relations;
- Finance;
- Information and communications technology;
- Administration and executive office;
- Legal counsel, company secretary and legal services; and
- Regulatory strategy management.

234. While the existence and size of each customer can be reasonably seen to drive activities such as KPMG has listed, it is difficult to envisage a distance-relationship applying to them. Moreover GGT has not used a capacity-distance relationship in allocating corporate costs between its income-generating entities. In the absence of better information or of compelling justification for GGT's proposed approach, we consider that a simple allocation based on contracted capacity provides a more appropriate reflection of the costs of providing the covered services. This would lead to an annual corporate cost allocation to covered services of 54.5% of $6.1m, or $3.3m p.a..

7.9.3 EMCa assessment of KPMG cost build-up

Overview

235. We have considered KPMG's assessment of corporate costs, which GGT has presented as validating its own allocation of $6.0m p.a. We have considered each of the component activities that KPMG has built up its estimate from, for reasonableness (in regards to its applicability to GGT). Since GGT proposes adding an allowance for Corporate Costs to its budgets for GGT Operations, APA Operations and APA Commercial Operations, we also considered whether any of the cost activities that KPMG has counted might double-count activities that GGT has included in its GGP budgets. For this assessment we have mostly relied on the line item-level descriptions provided in section 10.5 of the AASI, and the similarly detailed information in KPMG's report, and which describes its assumptions for each activity. We discuss this assessment according to the activities listed in the KPMG report.

236. As a general observation, while KPMG refers to having consulted with GGT to understand and document the relevant services[83], it would appear that KPMG may not have been privy to the GGT budgets for its GGP operations (even in draft form) and which have been subsequently provided in support of its proposed Access Arrangement. In any event, they are not listed in Appendix I of KPMG's report, which

[82] See next subsection

[83] KPMG report, section 3.1.1.8

lists the information that KPMG has relied on. With the benefit of both sets of information, we consider that there are some areas of duplication and which we draw attention to below.

External relations

237. The KPMG report lists 9 functions within external relations, and assesses a median cost of $192,000 p.a.. The majority of these activities can be reasonably described as marketing, and include 'identifying new business opportunities', 'market assessment' and 'market strategy'. GGT includes an allowance of $0.5m p.a. in its APA commercial operations budget. We consider that this covers the activities described in the KPMG report and no further allowance is required.

Finance

238. KPMG estimates a range of from $0.8m to $1.9m p.a., with a median of $1.6m, based on a percentages of gross revenue from 0.5% to 1.5% with a median of 1.3% based on benchmark information from global utility firms.

239. While the median chosen in the KPMG report is towards the upper end of the range, we consider that GGT is more likely to be at the low end of the range. Many utilities have a retail customer base with hundreds of thousands or millions of customers, adding a layer of complexity to finance that GGT, with 16 customers on its Covered Pipeline, does not require. We consider $0.8m p.a. to be a more reasonable interpretation of KPMG's benchmark.

Information and Communications Technology

240. As with Finance, the KPMG report provides an assessment based on benchmarking a percentage of between 1.6% and 2.4% of revenue, based on benchmarking with utilities generally. KPMG has chosen the midpoint of 2.0%.

241. Retail utilities require large billing and 9often0 settlement systems that GGT does not require in servicing 16 customers. We also note that the APA commercial operations costs include a communications lease costs of $0.2m p.a for SCADA and associated communications.

242. On balance we consider that the low end of the KPMG benchmark range is likely to be more applicable to GGT.

Administration and executive costs

243. The KPMG report assesses a cost of $1.7m p.a. for this activity. A significant component of this is an assumed CEO cost of $700,000 p.a.. The KPMG estimate also includes office overheads and accommodation costs.

244. We consider that there is considerable duplication and over-estimation in this cost component. First, we note that within the GGP budgets there is a full-time General Manager and accommodation costs and Executive Assistant costs are already included in the GGP budgets. There is therefore a degree of duplication with KPMG's assessed stand-alone costs of a CEO and associated EA, on-cost and accommodation requirements.

245. We also consider that the KPMG report significantly overstates the cost of a CEO for such an operation. The cost of the current GM who is responsible for the GGP is

$300,000 p.a., we consider that elevating this position to that of CEO would be likely to increase this to the vicinity of $400,000 p.a., which aligns with the lower end of KPMG's range. We note that KPMG's data set includes CEO costs for companies that we consider to be poorly related to GGP, including Challenger Diversified Property (CEO $5.5m p.a.), Melbourne IT (CEO $2.0m p.a.) and several resource development companies with CEO costs over $1m p.a.. By comparison the salary of the CEO of Western Power, a considerably larger business than GGP and with vastly greater complexity, is under $0.5m p.a..

246. We consider that the low end of KPMG's range provides a more relevant benchmark than the median and could be considered to consolidate out the duplication between this cost and GGP's own budgets.

Legal Counsel. Company Secretary and Corporate affairs

247. We concur with KPMG's assessment of this component in aggregate. However GGP's budgets include an allowance for legal consultancy services, which appears to largely duplicate this component of KPMG's allowance. In considering the KPMG benchmark, we have removed this duplication.

Regulatory strategy costs

248. KPMG's benchmark includes a component for regulatory strategy using corporate resources. This is already included in GGP's regulatory cost allowance in the APA Commercial budget. We therefore exclude this amount from the KPMG assessment to avoid duplication.

Resulting comparable benchmark using KPMG report

249. After taking account of the factors above, we estimate that a more relevant benchmarked value for a stand-alone corporate function for GGP covered services, would be around $3.8m p.a.. This exceeds the allocated value of $3.3m p.a. that we derived above using the AGA Group information and GGT's described allocation methodology. We would expect a lower value from an allocation process as opposed to an estimate on the stand-alone proxy basis that GGT asked KPMG to provide for it. In our opinion, this reflects the strong economies of scale and scope in providing corporate support to a business that is much wider than the GGP operation, which appears to comprise around 13% of APA Group by revenue.

7.9.4 Conclusion on corporate overheads allowance

250. GGT has proposed its corporate cost allowance using an allocation method and has justified this method, appropriately in our view, on an argument that this apportions such expenditure on a common basis across its other businesses, which include businesses that are regulated in other jurisdictions by other regulators. APA Group must justify corporate overhead allowances to different regulators at different times for different service operations; to use a stand-alone cost build-up for each such business will tend to lead to an over-estimation and therefore an over-recovery of corporate costs incurred by the whole Group, by failing to take account of economies of scale and scope within the Group.

251. We therefore propose substituting a corporate cost allowance based on an allocation method but the evidence that GGT has provided does not support the level of such allowance that GGT proposes.

252. We recommend that ERA rejects GGT's proposed corporate overheads allowance of $6.0m per year and substitutes an adjusted value of $3.3m per year. We consider that this adjusted value benchmarks satisfactorily against the information that KPMG has provided.

7.10 Allocation of opex to covered services

7.10.1 GGT's proposal

253. GGT's proposed method for allocating operating costs is not directly described in its AAI. GGT has provided its operational expenditure projection model, which contains the build-up of its total GGP costs and shows how GGT has allocated this between its Covered Pipeline and other GGP pipeline assets. In summary, GGT's Access Arrangement proposes allocation of opex on the following basis:

- Regulatory costs are allocated 100% to the Covered Pipeline
- GGT Operating costs are allocated 100% to the Covered Pipeline, except for the following
    - The APTG Commercial Services Fee are allocated based on relative distance-weighted contracted capacity (i.e. contracted TJ.km/day between Covered Pipeline contracted capacity and the contracted capacity for other GGT pipeline assets), with a resulting 69% allocation to the Covered Pipeline
    - The APT Operation Field Services costs and the GGT Operating "Operator Management Fee" are allocated based on GGT's assessment of the expected relative direct cost of Field Services in 2015, with a resulting 76% allocation to the Covered Pipeline.
    - The operating costs for the GGT Laterals costs for SCPs (and associated MEJ additional services and net of associated recoveries) and for the APT Operation SCP and Newman Laterals Labour are excluded from any allocation to the Covered Pipeline
- APA commercial operations costs are allocated 100% to the Covered Pipeline
- APA Corporate Overheads are allocated first to GGP based on relative revenue within the APA Group, and then within GGP are allocated to the Covered Pipeline based on distance-weighted contracted capacity of the Covered Pipeline, relative to that of the other GGP pipeline assets (i.e. 69%, as above).

254. GGT described its allocation of the above costs in its combined response to EMCa information requests EMCa 11, 14, 15 and 21 (GGT's opex allocation).

255. GGT has provided reports by two economic consulting firms in support for its cost allocation methodology, and which we consider in the following assessment[84].

[84] *Methodology for Allocating Goldfields Gas Pipeline Costs*, Houston Kemp (June 2014), provided as Attachment 2 to GGT's AAI; and *Cost Allocation for the Goldfields Gas Pipeline,* Competition Economists Group (CEG), (July 2014)

7.10.2 EMCa assessment

GGT's rationale

256. In section 4 of its opex allocation response, GGT states in relation to a range of costs for which it proposes 100% allocation to the Covered Pipeline that:

> *"GGT's incurrence of [administration] costs would not be avoided if the assets comprising the GGP did not include uncovered assets.*[85]
>
> *"The provision of office space for personnel providing services under the Operating Services Agreement is required irrespective of the designation of certain compression assets as uncovered assets"*[86]
>
> *"GGT markets the services of the GGP, and not the services provided by specific (mainly compression) assets – the uncovered assets – which have been constructed to meet the gas transportation requirements of particular pipeline users"*[87]
>
> *"Public relations activities, like marketing activities, are not focused on particular assets – the uncovered assets – which have been created to meet the gas transportation requirements of specific pipeline users.*[88]

257. In summary, GGT proposes that these significant categories of operational expenditure are solely required in providing services to those users of the GGP that are provided with the capacity that is made available through the "Covered Pipeline" and that none of these costs are required to provide gas transportation services to those users who make use of the augmented capacity.

258. We consider this to be a most unlikely scenario and one that GGT has done no more than assert. We observe that GGT operates a business that provides gas transportation services to a range of customers. There are a number of costs that GGT incurs in operating this business and which are common to the provision of this transportation service regardless of the particular assets used in providing a particular customer. These are ongoing costs and, to the best of our knowledge, the only factor distinguishing those customers that receive the reference service that is the subject of the current Access Arrangement from those that do not is that the reference service customers they do not make use of the additional capacity or delivery that has been enabled by the additional compression and laterals that have been built as "uncovered" assets.

259. Different reference service customers in effect make use of GGT's assets to different extents, depending on their daily capacity requirements and their location on the pipeline, yet they still bear a share of common GGP business costs in their Reference Tariffs. We see no reason why those customers that receive an identical gas

[85] GGT response to EMCa 11, 14, 15 and 21, section 4.1.

[86] Ibid section 4.2

[87] Ibid section 4.3

[88] Ibid section 4.5

transportation service that happens to have been enabled by the building of certain additional assets, should not also bear a share of these common costs.

260. Further, we consider that GGT's assertions that the cost categories should be allocated solely to Reference Service customers is inconsistent with the approach it has applied in allocating certain other costs. For example:

- APA has allocated its Corporate Overheads across all of its businesses in Australia, of which GGP is one. Like the costs referred to above, these too are 'common costs' and GGT has allocated them based on the relative revenues of those business operations.
- GGT has further allocated the Corporate Overheads within GGP between users of the Covered Pipeline and other GGP pipeline assets. For this, it has used a distance-weighted contracted capacity allocation factor.
- GGT has allocated the cost of pipeline operator management and field maintenance of the GGP between users of the Covered Pipeline and users of other GGP pipeline assets. For this is has used a ratio of 2015 field service direct costs.
- GGT has allocated the cost of Commercial Services between users of the Covered Pipeline and users of other GGP pipeline assets, based on relative distance-weighted contracted capacity.

261. We consider it is reasonable that all customers of GGP who utilise the transportation services provided by GGP should be allocated a proportion of the costs of providing the transportation service that they receive. For reasons that we address in the following subsections, we consider that this is not inconsistent with NGL and the NGR.

262. We are also conscious that the users of non-Covered Pipeline services have long-term contracts and, to the best of our knowledge, are likely to be unaffected by this allocation. In this regard, allocating all of GGT's common operating costs to its Reference Service customers simply allows GGT to underwrite these common costs from its regulated base and to thereby retain as profit a higher proportion of the income it receives from its non-Covered Pipeline customers. Alternatively, it allows GGT to provide a low-cost service to non-Covered Pipeline users that is partially subsidised by its Reference Service customers.

CEG report

263. In its report, CEG provides an assessment of GGT's cost allocation methodology against the economic principles contained in the NGL.

264. CEG describes the origins of the current situation, in which there is a Covered Pipeline comprised of certain assets and providing a Reference Service and other customers whose supply has been enabled by building additional compressions and laterals (the 'uncovered assets'), albeit their gas is also transported through the Covered Pipeline. CEG describes how the ERA found that these new customers were not receiving a service "provided by means of a Covered Pipeline", how BHPP appealed this decision, but the Electricity Review Board upheld it. CEG describes the main implication of this being that the existing customers of the Covered Pipeline continue to be allocated 100% of the cost of that pipeline, despite the fact that the new customers are transporting their gas through it.

265. CEG describes the methodology that GGT previously applied in a manner that it considered consistent with this ruling, namely that the reference and negotiated service tariffs are calculated by summing the return on and depreciation of the Covered Pipeline assets, the cost of tax using that income only and the costs of operating the pipeline. The costs exclude the return on and depreciation of capital investment in the 'uncovered assets" and they exclude the incremental costs of operating those assets.

266. In considering GGT's proposed allocation of its business operating expenditure, we take as given the inclusions and exclusions as stated by CEG above, resulting from the ERA's previous decision and that of the ERB. However CEG's advice appears to have considered only the costs of the assets themselves and, in its concluding sections, is particularly focused on sunk costs of the existing pipeline. It is unclear from CEG's report whether it is aware of the actual allocations that GGT has proposed; in particular whether it is aware of GGT's proposals in regards to its business operational costs.

267. We have considered the allocation of business opex by reference to the revenue and pricing principles in section 24 of the NGL[89]. We consider that the views that we came to in the previous subsection, namely that ongoing business operational costs should be allocated to all customers in some manner, are consistent with the NGL principles. For example the first principle is that *"a service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in providing the reference service*s". A 100% allocation of business costs to Covered Pipeline customers meets this principle, but so does a proportionate allocation given that GGT has already contracted with these customers.

268. Similarly, the efficient common costs of operating a pipeline are do not distort the efficient use of a pipeline by being charged to all users. It is standard practice and accepted regulatory practice for users of a network service to be charged according to a tariff that is determined through an allocation of common costs. While network pricing economists strive towards tariffs that are allocatively efficient, this is an aspiration that must be balanced against other pricing objectives, and is thus never able to be perfectly realised.

269. Other principles relating to risk, returns, continuity from previous arrangements are of little relevance to the allocation of business operational costs. And we do not consider that an even allocation of common business costs is likely to lead to under- or over-utilisation of a pipeline.

Houston Kemp report

270. Houston Kemp's report is intended to address the question of allocation of costs between what is referred to in this report as "Covered and Uncovered Capacity".

271. A with the CEG report, Houston Kemp does not directly describe GGT's operational cost allocation approach, but rather describes its Covered Pipeline revenue determination approach as comprising "….the total revenue of……. providing all GGP pipeline services but excluding:

[89] These are listed on page 6 of CEG's report

- the capital, operating and maintenance costs associated with the second compressor added at Paraburdoo in 2006 and compressors installed at Wyloo West and Ned's Creek in 2009; and
- the capital, operating and maintenance costs associated with the recently completed expansions in the Pilbara to service Rio Tinto and BHP Billiton."90

272. Houston Kemp notes that the NGR does not explicitly address allocation of costs between covered and uncovered capacity. Houston Kemp therefore undertakes its assessment solely by reference to the phrase " ….to promote efficient investment in, and efficient operation and use of natural gas services….." in the National Gas Law[91]. Houston Kemp interprets the relevant consideration as being allocative efficiency, as opposed to productive or dynamic efficiency and concludes in relation to cost allocation that:

> *"…. in order to promote allocative efficiency, the allocation of costs between the different services provided by the GGT – and so the determination of total revenue and then reference tariffs payable for use of the covered capacity – must result in a level of reference tariffs for GGP's covered capacity that:*
>
> - *is not less than the costs that are caused by (or, directly attributable to) the provision of the reference service; and*
> - *is not greater than the level at which existing users could procure the reference service from an alternative provider of pipeline services (also known as the standalone cost)."*[92]

273. This creates a wide band. We consider that it would be difficult to argue that a proportionate allocation of business costs to all customers (whether or not they use the uncovered facilities) would lead to a tariff for users of the uncovered facilities that was above the upper bound, particularly since these customers are not being required to contribute at all to the cost of the pipeline itself, nor that it would reduce tariffs for users of the covered facilities below the lower bound.

274. On review of the Houston Kemp report, we therefore conclude that while it may be of relevance to other aspects of the cost allocation process, it is of little relevance to allocation of business operational expenses, and that our conclusions do not conflict with its findings.

7.10.3 Allocation adjustments

275. We consider here the allocation of GGT's business expenses on a basis that would share them across all users of its gas transportation service. The allocation bases that we propose, and associated reasoning, is as follows[93]:

[90] Ibid page 3

[91] Natural Gas Law, clause 23

[92] Ibid page 8

[93] The cost categories referred to here are those contained in GGT's GGP OPEX 2015-2019 spreadsheet. GGT allocates costs at this level and subsequently aggregates the resulting costs to the categories shown in the AAI.

Costs allocated based on contracted capacity

276. For each of the following categories, GGT proposes a 100% allocation to the Covered Pipeline:

- APA Operations
    - Administration (Business Services and Office Costs Recovery)
- GGT Operations (not including regulatory costs)
    - Administration, Marketing and Public Relations
- APA Commercial Operations (not including regulatory and ERA charges)
    - Administration
    - Legal
    - Marketing
    - Public Relations
    - Communications Equipment Lease and Maintenance, and
    - Insurance.

277. We consider that these costs are not avoided simply because the provision of supply to certain customers also required additional assets to be built. Of simple allocators available, these costs could be considered to relate reasonably to the capacity of the customer and are largely independent of the length over which the gas is transported.

278. The Houston Kemp report quotes capacity of 109 TJ on the Covered Pipeline against total contracted capacity on the GGP of 200 TJ/day. This implies a ratio of 54% allocated to the Covered Pipeline and we recommend allocating the cost categories above in this proportion. The adjustments from these three categories are shown in Table 19.

Regulatory costs

279. GGT proposes allocating 100% of Regulatory costs to the Covered Pipeline. We observe that GGT has incurred significant effort in achieving certain regulatory outcomes that are favourable to its provision of non-reference services. The provision of information to regulators also does not solely relate to Access Arrangements and the provision of services to users of Covered Pipelines. In its determination of regulatory costs, we note that GGT has allocated its WA Regulatory Manager 95% to the Covered Pipeline, rather than 100%.

280. We consider it reasonable that some proportion of Regulatory costs is allocated to uncovered services and we recommend an adjustment to allocate 95% of Regulatory cost categories to the Covered Pipeline, rather than 100%.

Costs for which no change in allocation is proposed

281. We consider that GGT's proposed allocation for all other cost categories is reasonable. This includes the allocation of all MEJ expenditure on the Covered Pipeline to that service, no allocation of any of the costs of the uncovered assets to the Covered Pipeline service and proportionate allocations of the GGT Operator Management Fee and APTG Commercial Services Fee, as proposed by GGT.

7.11 Implications

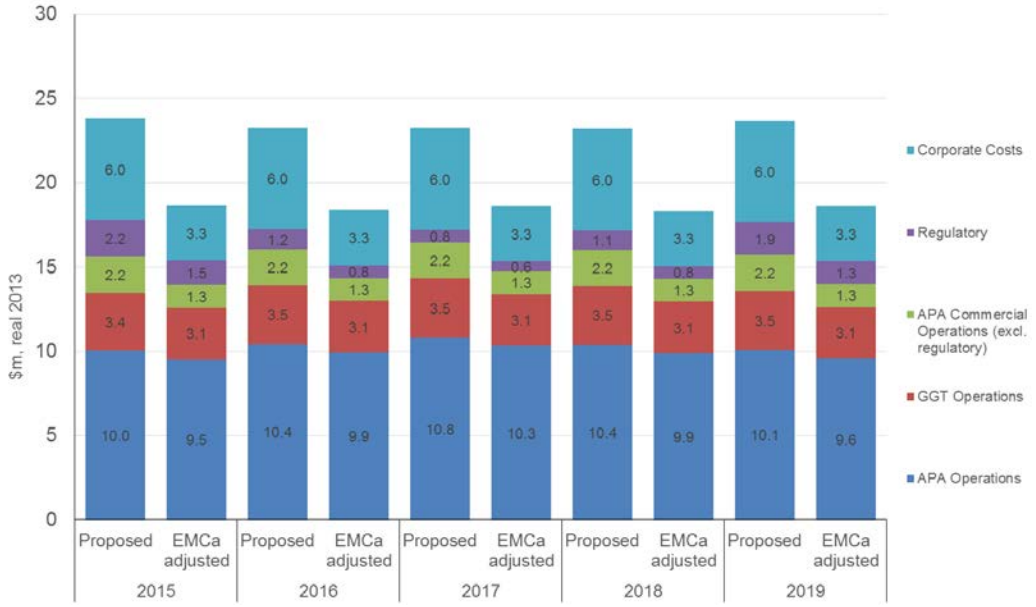
282. The following tables and graph show the adjusted opex, and the source of the adjustments made.

Table 18: *EMCa adjusted AA3 opex - $m, real Dec 2013*

	2015	2016	2017	2018	2019	Total EMCa adjusted	Total GGT proposed
APA Operations	9.524	9.926	10.319	9.888	9.579	**49.237**	**51.753**
GGT Operations	3.073	3.073	3.073	3.073	3.073	**15.367**	**17.378**
APA Commercial Opera ions (excl. regulatory)	1.343	1.343	1.343	1.343	1.343	**6.714**	**10.780**
Regulatory	1.450	0.778	0.602	0.759	1.341	**4.931**	**7.170**
Corporate Costs	3.269	3.269	3.269	3.269	3.269	**16.344**	**30.123**
Total	**18.659**	**18.389**	**18.606**	**18.332**	**18.605**	**92.592**	**117.204**

Sources: GGP Opex forecast 2015 – 2019 spreadsheet

Figure 18: GGT proposed and EMCa adjusted



Sources: EMCa analysis from AASI table 24 p164, table 26 p169 and GGP Opex forecast 2015 – 2019 spreadsheet

Table 19: *GGT proposed and EMCa adjusted*

	As proposed	Adjustment			EMCa Adjusted
		Labour	Component	covered / uncovered	
APA Operations	51.753			-2.516	49.237
GGT Operations	17.378		-0.475	-1.536	15.367
APA Commercial Operations (excl. regulatory)	10.780	-0.746		-3.320	6.714
Regulatory	7.170	-0.631	-0.444	-1.165	4.931
Corporate Costs	30.123		-6.284	-7.495	16.344
Total	**117.204**	**-1.377**	**-7.202**	**-16.033**	**92.592**

Sources: EMCa analysis derived from Table 26 AASI p170 and GGT Opex 2015 – 2019 spreadsheet emailed 16/09/2014

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 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

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.

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