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DBP Transmission: Dampier Bunbury Natural Gas Pipeline

REVIEW OF SELECTED ASPECTS OF REVISED FINAL PLAN FOR AA5 (2021 TO 2025)



Report prepared for:
**ECONOMIC REGULATION
AUTHORITY OF WESTERN
AUSTRALIA (ERA)**
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Preface

This report has been prepared to assist the Economic Regulation Authority (ERA) with its assessment of DBNGP Transmission Pty Ltd's (DBP) Revised Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline (DBNGP), for the period from 1st January 2021 to 31st December 2025 (AA5), which it is required to conduct in accordance with the National Gas Law and the National Gas Rules (NGR). This report covers a particular and limited scope as defined by the ERA and should not be read as a comprehensive assessment of proposed expenditure that has been conducted making use of all available assessment methods.

This report relies on information provided to EMCa by the ERA and by DBP up until 7th December 2020. 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 DBP's Revised Access Arrangement Information (RAAI) or other documents due to rounding.

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ABBREVIATIONS

Term	Definition
AA4	Access Arrangement 4
AA5	Access Arrangement 5
AAP	Access Arrangement Plan
ACS	Additional Compressor Station
AESCSF	Australian Energy Sector Cyber Security Framework
AGID	Formerly DDG, the business arm of DBP associated with non-covered assets
AGIG	Australian Gas Infrastructure Group comprising DBP, AGN and Multinet
AGN	Australian gas Networks
APA	Australian Pipeline Ltd, also referred to as APA Group
BST	Base Step Trend
DBP	Dampier Bunbury Pipeline
ERA	Economic Regulation Authority
ERP	Enterprise Resource Planning
IR	Information Request
MIL	Maturity Indicator Level
Multinet	Multinet Gas Networks
OEM	Original Equipment Manufacturer
SUG	System Use Gas

EXECUTIVE SUMMARY

Scope

1. In its Revised Plan, DBP has amended aspects of its Access Arrangement in response to the ERA's Draft Decision and has provided additional information in support of its revised positions and expenditure. The ERA has requested that EMCa review the following aspects of DBPs' Revised Plan:
 - Amendments to proposed AA4 and AA5 capex;
 - Amendments to proposed opex (excluding System Use Gas price and labour cost escalation);
 - Amendments to proposed asset lives; and
 - Any additional information provided on governance arrangements.
2. The ERA has asked us to (i) take account of the ERA's Draft Decision and relevant public submissions, (ii) base our conclusions on DBP's throughput forecast in its Revised Plan, and to note where any costs that we advise on could be subject to change if ERA determines a higher throughput than DBP has proposed, and (iii) not take into account Perth Basin developments, but to consider and advise on the nature of potential gas developments in the Perth Basin and indicatively where they may materially affect operating and capital expenditure that DBP has proposed.

Our findings

AA4 capex

DBP's revised AA4 capex conforms to the NGR criteria, except for a component of its Information and Communications Technology (ICT) capex

3. The ERA's Draft Decision concluded that almost all of DBP's AA4 capex forecast was conforming capex. The ERA amended the capex for one business case, 'DBP21 IT Sustaining Applications'. Aside from changes to real labour escalation, the ERA accepted the proposed capex for the remaining 26 AA4 business cases.
4. In its Revised Plan, DBP rejected the ERA's decision regarding DBP21 and made relatively minor adjustments to the other business cases to reflect up-to-date information for actual expenditure and revised forecasts.
5. DBP presented a revised business case in two parts for DBP21: work associated with its planned replacement of its financial management system and other IT sustaining applications initiatives.
6. We consider that the timing and cost of DBP's proposed revised capex on replacement of its financial management system as part of its proposed introduction of a new Enterprise Resource Planning System, is reasonable.
7. We consider that one of its other IT Sustaining applications initiatives is not justified, but that the remainder of the revised IT Sustaining Applications capex would reasonably have been undertaken by a prudent service provider acting efficiently and consistent with good industry practice.

AA5 capex

DBP's revised AA5 capex forecast includes some proposed expenditure that we consider is not prudent, or for which we consider the proposed timing or proposed options are not adequately justified

8. In its Draft Decision, the ERA did not accept over 20% of DBP's proposed AA5 capex. In its Revised Plan, DBP responded by accepting some aspects of the ERA's decision to amend (reduce) the proposed capex and by revising the capex for other aspects of its planned AA5 activities.
9. We have reviewed all the business cases for which DBP proposed amended capex. We have found that DBP has responded with new or updated information which in most cases addresses the concerns expressed by the ERA in its Draft Decision. In several cases DBP's revised capex for particular business cases is more than in the ERA's Draft Decision, but less than its original amount. A significant exception is DBP's revised capex for completion of business case DBP21 IT Sustaining Applications, which is three times more than in its original proposal.
10. Noting that we have not accounted for the possible impacts of developments in the Perth Basin and consequent effects on DBNGP throughput, we consider that DBP has demonstrated that the majority of its proposed AA5 capex would be incurred by a prudent service provider acting efficiently and in line with good industry practice. The exceptions involve two business cases – one is safety-related for which we do not believe DBP's capex is set at an efficient level; the other is a benefits-driven project where we consider the net benefit to be inadequate to justify the proposed capex.

AA5 opex

DBP's revised Base Year opex is reasonable

11. In response to the ERA's Draft Decision, DBP submitted a new base year value which is based on DBP's reported 2019 full year actual opex, replacing its original value, which was partly estimated, pending full year results. DBP made some base year adjustments, replacing 2019 actually incurred amounts with five- to six-year average amounts.
12. We compared DBP's Revised Plan, DBP's Original Plan and DBP's response to EMCa requests for information. Our review of the supporting documentation provided by DBP included reviewing each sub-category of opex, which makes up the DBP base year. We also asked DBP to explain the aspects of its revised base year which appeared to be anomalous.
13. We consider that DBP's supporting information adequately justifies its adjusted base year opex value and, accordingly, we consider that DBP's revised base year value is reasonable.

DBP's revised GEA and Turbines overhaul opex is overstated

14. In its Draft Decision, the ERA did not accept DBP's proposed opex on maintaining Generator Engine Alternators and Turbines. DBP rejected the ERA's Draft Decision, arguing that the level of savings implied by the ERA's Draft Decision, is not reasonably achievable. DBP's revised amount was very similar to its originally proposed amount.
15. We reviewed both the unit cost assumptions underpinning DBP's revised forecast and the proposed level of activity.
16. We consider that DBP has applied an overly pessimistic (low) exchange rate in its forecast maintenance of US dollar-denominated overhauls. Other costs assumptions appear to be reasonable.
17. We considered DBP's information on run hours for the units that it proposes to overhaul, together with information on the changing utilisation of the DBNGP. On balance, we

consider that it is a reasonable assumption that DBP will find the opportunity through a combination of changing utilisation of the DBNGP over the AA5 period and its active management to optimise overhauls, to defer one overhaul into the AA6 period.

DBP's amended productivity factor is reasonable

18. The ERA assumed 0.5% p.a. AA5 opex productivity improvement in its Draft Decision. DBP has not accepted the application of a productivity adjustment, arguing that a 0% Productivity Factor is appropriate, primarily because it is already committed to absorbing the equivalent of 1% p.a. forecast IT opex increase throughout the AA5 period.
19. Based on DBP's updated information, we consider that it is not appropriate to apply an explicit productivity improvement factor to the AA5 revised opex that DBP now proposes. We form this view largely based on DBP's revealed 2019 actual opex and the negative adjustment that DBP has made to this base value. We consider that DBP's 'adjusted base year' opex used for AA5 forecasting purposes reflects a reasonable level of productivity improvement from AA4 to AA5 and that further allowance for productivity improvement is not warranted.

Taking its throughput forecast as a given, DBP's proposed System Use Gas quantity forecast is reasonable

20. In its Final Plan, DBP forecast to spend \$106.5m for System Use Gas (SUG). DBP now forecasts \$82.9m for AA5 SUG costs. The decrease reflects its lower throughput forecast and a lower assumed price. DBP has provided the calculation of its SUG requirements, which shows a non-linear decrease in its forecast SUG quantity, with decreasing throughput and the proportion of SUG to throughput also decreasing.
21. For the purpose of our assessment, we have been asked by the ERA to assume the overall gas throughput that DBP has proposed in its Revised Plan, so our assessment of SUG quantity is effectively to advise on this as a percentage of throughput. We have not been asked to advise on the gas price that DBP has assumed for SUG.
22. DBP's explanations of its fuel gas use model and its application are in accordance with common industry practice and appear to be reasonable. As a result of DBP's lower throughput forecast in its Revised Plan, DBP's forecast SUG quantity is now considerably less than in its Original Plan and we consider that this reasonably reflects its reduced throughput forecast.

Economic lives

DBP has not made a reasonable case to foreshorten the economic life of the DBNGP assets to 2063

23. In its Original Plan, DBP proposed several changes to assumed asset lives, with consequent implications for regulatory depreciation. The ERA made its Draft Decision on the basis that DBP's proposal was not consistent with the NGR.
24. In its Revised Plan, DBP has again proposed to cap the economic life of the DBNGP assets, though has moved the year from 2059 to 2063. DBP considers that its adjustment is consistent with the ERA's interpretation of the NGR, namely, that this is the year when its modelling indicates that the asset would need to be retired. DBP has also provided information for the ERA's further consideration on options for applying different profiles to depreciation.
25. We consider that DBP has not provided a sufficiently compelling case to cap the economic lives of its existing and new assets to the year 2063, as proposed in its Revised Plan.
26. We reiterate our conclusions from our Initial Report regarding the potential for the conceptual framework for such an adjustment to be considered at some time. Further

information on economic principles that DBP has provided with its Revised Plan is consistent with our initial conclusions.

Governance

Additional information on DBP's governance arrangements has been taken into account

27. DBP challenged our assessment in our Initial Report about the apparent lack of improvement of some aspects of its asset management and expenditure forecasting methodologies over the last five years. Rather than address these claims directly in this report, we have taken into account the relevant information provided by DBP to demonstrate its claims at the business case level (i.e. from the bottom-up). In several cases, we needed to ask DBP for further evidence of its claimed approach to expenditure forecasting.

Implications

28. We estimate that the impact of our findings will result in the following adjustments to DBP's proposed expenditure:
- A reduction of \$0.6m (-0.5%) to DBP's proposed AA4 conforming capex;
 - A reduction of \$5.8m (-4%) to DBP's proposed AA5 capex allowance; and
 - A reduction of \$4.8m (-1%) to DBP's proposed opex allowance, and which represents a 1.4% reduction in the components of opex that we reviewed.¹

¹ This adjustment applies to opex components other than SUG, for which we do not provide an alternative expenditure forecast

1 INTRODUCTION

1.1 Background

29. The ERA previously engaged EMCa to advise on aspects of DBP's Access Arrangement proposal for the 5-year period from 1 January 2021 to 31 December 2025 (AA5), and which DBP submitted in January 2020. Our Initial Report on this proposal was completed and dated May 2020, and we provided the final version of our Initial Report to the ERA on 23rd July 2020 for publication². In its Draft Decision which it published on 14th August 2020, the ERA made reference to our findings contained in that report.
30. DBP has now provided DBP's revised Access Arrangement³ for AA5. The ERA has requested additional advice on aspects of this revised proposal.

1.2 Report referencing

31. For clarity within this document, and because DBP used the term 'final plan' to describe its original access arrangement proposal for the period, we provide in Table 1.1 below a reference to the sequence of documents and the terms that we adopt in referring to them.

Table 1.1: Terminology key to reference documents

Stage in propose/respond sequence	Key documents	DBP's reference terms	EMCa's reference terms used in this report
DBP's Access Arrangement proposal	<i>Five year plan for the Dampier to Bunbury Natural Gas Pipeline. 2021-2025 Final Plan (January 2020).</i>	(DBP) Final Plan	(DBP) Original Plan
EMCa review for ERA	<i>DBP Transmission: Dampier Bunbury Natural gas Pipeline (DBNGP): Review of Technical Aspects of Proposed Access Arrangement for 2021 to 2025 (AA5) (May 2020)</i>	(EMCa) Technical Review	(EMCa) Initial Report (We refer to our assessment as our Initial Review)
ERA's Draft Decision	<i>Draft Decision on proposed revisions to the Dampier Bunbury Pipeline access arrangement 2021 to 2025 (14 August 2020)</i>	(ERA) Draft Decision	(ERA) Draft Decision
DBP's revised Access Arrangement proposal	<i>Five year plan for the Dampier to Bunbury Natural Gas Pipeline. 2021-2025 Revised Final Plan (October 2020).</i>	(DBP) Revised Final Plan	(DBP) Revised Plan
EMCa's updated review for ERA	<i>DBP Transmission: Dampier Bunbury Natural gas Pipeline (DBNGP): Review of Selected Aspects of Revised Final Plan for AA5 (2021 to 2025 (December 2020)</i>	N/A	(EMCa) Updated Report or 'current report' (We refer to our assessment as our Updated Review)

² EMCa, Review of Technical Aspects of proposed Access Arrangement for 2021 to 2025 (AA5), May 2020

³ DBP has provided its revised Access Arrangement proposal in the form of a number of separate information documents. We will refer to these collectively as DBP's Revised Plan. Where we draw from specific documents, we will refer to these by name.

32. Our current report updates our assessment for those aspects that ERA asked us to review, based on the additional and modified information that DBP has proposed in its Revised Plan (as described in section 1.3 below). Our current report does not replace our Initial Report and our findings in our Initial Report remain, except to the extent that we have (a) been asked to review relevant aspects of DBP's Revised Plan and (b) our assessment has led us to a different conclusion, and which we state in the current report.

1.3 Scope of requested work

1.3.1 ERA's requested scope

33. In its Revised Plan, DBP has amended aspects of its Access Arrangement and has provided some additional information. The ERA has requested that EMCa review aspects of DBPs' Revised Plan. Specifically, our scope is to review:
- Any amendments to opex, but excluding System Use Gas (SUG) price and labour cost escalation;
 - Any amendments to AA4 capex;
 - Any amendments to AA5 capex;
 - Any amendments to asset lives; and
 - Any additional information provided on governance arrangements.
34. The ERA has asked EMCa to take account of the ERA's Draft Decision and relevant public submissions.
35. The ERA has asked EMCa to base our conclusions on DBP's throughput forecast in its Revised Plan, and to note where any costs that we advise on could be subject to change if ERA determines a higher throughput than DBP has proposed.
36. The primary assumption for our review does not take account of Perth Basin developments, and this appears to be consistent with DBP's original and revised submissions. However, ERA has asked us to consider and advise on the nature of potential gas developments in the Perth Basin⁴ and indicatively where they may materially affect operating and capital expenditure that DBP has proposed.

1.3.2 How we have addressed the scope

Capex

37. In its Revised Plan, DBP has identified the capex business cases for which it has accepted the ERA's Draft Decision, and those for which it has rejected or where it proposes a modification to the ERA's Draft Decision. In summary, these are as follows:
- For the AA4 period, DBP has made significant modifications to one business case in its Revised Plan, DBP21 IT Sustaining Applications, and it has made relatively small amendments to the majority of the other business cases. We have reviewed DBP's proposed amendments to all AA4 business cases; and
 - For the AA5 period, DBP has rejected the ERA's Draft Decision for six business cases, has proposed modifications to the ERA's Draft Decision for seven business cases, and has accepted the ERA's Draft Decision for a further six business cases. We review the 13 business cases which DBP has either rejected or proposes modification from the ERA's Draft Decision.

⁴ The developments that ERA has named are at Waitsia and West Erregulla

Opex

38. DBP has accepted 4 aspects of ERA's Draft Decision.⁵ For forecast opex, DBP has rejected ERA's Draft Decision in regard to application of a productivity factor and in regard to expenditure for turbine and GEA overhauls, and accordingly we have reviewed DBP's revised information on these aspects.
39. DBP has proposed a modification to the ERA's Draft Decision in regard to both the price and the volume of SUG. In accordance with our scope, we have reviewed only the SUG volume assumption, noting that we have also been asked to utilise DBP's overall gas throughput volume forecast for this purpose.
40. While DBP has accepted the use of 2019 as the base year in the ERA's Draft Decision, DBP has updated its information and adjustments for opex in this year. We have therefore reviewed DBP's revised base year expenditure assumption, since this forms the foundation for its Base Step Trend (BST) opex forecast.

Economic lives and depreciation

41. DBP has not accepted the ERA's Draft Decision to retain all assets in its 'Other' category with a life of 30 years, rather than 10 years as DBP had proposed. In its Revised Plan, DBP has proposed to recategorize around half these assets and move them to the 'compression' category, for which it applies a 30-year life, and to reduce the economic life to 10 years for those assets then remaining in its 'Other' category. In the current report, we assess this revised proposal.
42. DBP has not accepted the ERA's Draft Decision on DBP's proposed adjustment to cap asset economic lives to 2059 for depreciation purposes, to account for its forecast risk of stranded asset later this century. DBP now proposes to cap lives at 2063 and has provided further information on this matter, including a consultant's report. In accordance with our scope, we have reviewed this modified proposal and additional information.

Governance

43. In our Initial Report, we provided some observations on expenditure governance that we considered to be relevant to the aspects of expenditure that we were asked to review. In this current report, we have considered new information to the extent that it is relevant to our updated advice on those elements of expenditure that are within our current scope. We have covered this within our advice on the relevant expenditure items.

1.4 Structure of this report

44. Our current report is structured as follows:
- In Section 2, we have collated all expenditure amounts at an overview level. This includes tabulating:
 - For AA4 capex by business case and by asset class, as per:
 - ERA's Draft Decision
 - DBP's Revised Plan
 - Resulting EMCa-adjusted AA4 capex, applying our proposed updated adjustments, where relevant
 - For AA5 capex by business case and by asset class, as per:
 - ERA's Draft Decision
 - DBP's Revised Plan

⁵ Use of 2019 actual for base year, input cost escalation, output growth and change in capitalisation.

- Resulting EMCa-adjusted AA5 capex, applying our proposed updated adjustments, where relevant
 - For AA5 opex, as per:
 - ERA's Draft Decision
 - DBP's Revised Plan
 - Resulting overall opex, applying our proposed adjustments, where relevant.
 - In Section 3 we provide our assessment of the AA4 business case that DBP has re-proposed and of DBP's updated amounts for other business cases;
 - In Section 4 we provide our assessment of the 13 AA5 business cases that DBP has re-proposed;
 - In Section 5 we provide our assessment of those aspects of DBP's re-proposed opex that are within our scope for review; and
 - In Section 6 we provide our assessment of the DBP's updated information and updated proposal with regard to economic life assumptions.
45. In Appendix A, we provide a brief description of the current status of Perth Basin gas developments, and which we reference in Sections 4 and 5 where we indicate the potential impact that these developments could have on elements of proposed DBNGP expenditure in DBP's Revised Plan.

2 SUMMARY OF EXPENDITURE AND UPDATED ADJUSTMENTS

2.1 Introduction

46. In this section we summarise DBP's original and revised expenditure proposals, note expenditure allowances as per DBP's Draft Decision, and present updated advice on adjustments based on our assessment in subsequent sections. DBP Revised Plan and EMCa adjusted expenditure is converted to real Dec 2019 dollars using DBP's new real escalation indices, while DBP's Original Plan expenditure is presented using the escalation rates applied for expenditure presented in our Initial Report and in the ERA's Draft Decision.

2.2 AA4 capex

47. In its original proposal from 2016 to 2020 DBP has estimated to spend \$122.3m (real December 2019) based on actual 2016 – 2018 expenditures and estimated expenditures for 2019 and 2020.
48. In its Draft Decision, the ERA accepted almost all of DBP's AA4 capex except for business case DBP21 (IT Sustaining Applications) with an adjustment of -\$4.1m to \$2.5m. Therefore, based on the ERA's Draft Decision, DBP's conforming AA4 capex is \$118.2m.
49. DBP does not accept the ERA's Draft Decision regarding business case DBP21 and submitted revised AA4 capex which included (i) revised DBP21 capex of \$6.6m, which is the same amount as its original business case, and (ii) updating other expenditure by replacing forecast amounts with incurred amounts, as applicable. This results in an overall decrease of \$0.9m from DBP's AA4 capex in its Original Plan to its Revised Plan, as shown in Table 2.1, Table 2.2 and Table 2.3 below.
50. After reviewing DBP's revised business case DBP21 IT Sustaining Applications, we consider all but \$0.7m of the \$6.6m is likely to have been (or will be) incurred by a prudent service provider acting efficiently. We discuss the basis for our finding in section 3.2.
51. We have also reviewed DBP's proposed adjustments to the capex for the other AA4 business cases, due to updating the actual incurred and forecast amounts in 2019 and 2020, respectively. We consider the updates to be reasonable, as discussed in section 3.3.
52. In Table 2.1 we show the proposed and adjusted values by asset class, aggregated across AA4 and in Table 2.2 we show these amounts by business case.

Table 2.1: DBP AA4 Capex by Asset class - \$m, real Dec 2019

Asset Class	DBP Original Plan	ERA Draft Decision	DBP Revised Plan	EMCa adjusted
Pipeline	0.3	0.3	0.3	0.3
Compression	14.7	14.7	14.4	14.4
Computers & Motor Vehicles	17.6	13.5	17.1	16.4
Cathodic protection	19.2	19.2	18.8	18.8
Metering	27.0	27.0	27.4	27.4
Other	16.8	16.8	16.0	16.0
SCADA, ECI & Comms	26.8	26.8	27.5	27.5
Total	122.3	118.2	121.4	120.8

Source: DBP original AA4, ERA DD, DBP Revised AA4 capex.

Table 2.2: DBP AA4 capex by Business Cases - \$m, real Dec 2019

Business Case	DBP original AA4 capex	ERA Draft Decision	DBP Revised AA4 capex	EMCa adjusted AA4 capex
01. Compressor Station	25.8	25.8	25.2	25.2
02. Pipeline and MLV	6.2	6.2	6.1	6.1
03. SCADA	1.8	1.8	1.9	1.9
04. HSE	0.2	0.2	0.3	0.3
06. GEA Control System	0.5	0.5	0.5	0.5
07. Compressor Station accommodation	2.5	2.5	2.5	2.5
09. Compressor unit control	6.5	6.5	6.3	6.3
10. Jandakot	0.5	0.5	0.5	0.5
11. Maximo DMZ	1.4	1.4	1.3	1.3
12. Safety Case	0.4	0.4	0.4	0.4
13. Compressor Station inspection	2.6	2.6	2.8	2.8
14. Asset management	2.7	2.7	2.9	2.9
15. Meter station	26.2	26.2	26.7	26.7
16. Tools	1.2	1.2	1.2	1.2
17. Fleet civil	5.2	5.2	5.2	5.2
18. Turbine exhaust	0.0	0.0	0.2	0.2
19. Pipeline MLV inspection	13.0	13.0	12.4	12.4
20. CRS	0.8	0.8	0.6	0.6
21. IT Sustaining Applications	6.6	2.5	6.6	5.9
23. IT Security	1.4	1.4	1.1	1.1
24. Process safety	0.0	0.0	0.0	0.0
25. Decommission	0.2	0.2	0.2	0.2
26. Communications	2.3	2.3	2.4	2.4
27. Office relocation	4.2	4.2	4.2	4.2
28. Southern Communications System	6.9	6.9	6.8	6.8
29. CS1 re-wheel	1.3	1.3	1.3	1.3
30. IT Sustaining Infrastructure	1.8	1.8	1.8	1.8
Grand Total	122.3	118.2	121.4	120.8

Source: DBP original AA4, ERA DD, DBP Revised AA4 capex

53. In Table 2.3 we show the annual amounts that DBP has proposed, and the results of our proposed AA4 capex adjustment.

Table 2.3: DBP Revised AA4 capex and EMCa adjusted by asset class – \$m, real Dec 2019

Asset Class	2016	2017	2018	2019	2020	TOTAL
Pipeline	0.0	0.0	0.1	0.0	0.2	0.3
Compression	2.5	4.7	2.9	1.9	2.4	14.4
Computers & Motor Vehicles	3.5	3.6	6.8	5.3	8.2	27.4
Cathodic protection	2.4	4.9	1.8	2.6	4.3	16.0
Metering	3.4	3.2	2.9	2.5	5.0	17.1
Other	0.9	1.6	4.9	7.3	4.2	18.8
SCADA, ECI & Comms	5.5	6.4	2.9	6.4	6.3	27.5
Sub-total DBP Revised AA4	18.1	24.4	22.3	26.1	30.6	121.4
Adjustment to Computers & Motor Vehicles	0.0	-0.7	0.0	0.0	0.0	-0.7
TOTAL EMCa adjusted	18.1	23.7	22.3	26.1	30.6	120.8

Source: EMCa table derived from ERA32 AA4 Capex update

2.3 AA5 capex

54. In its Original Plan, DBP forecast spending \$158.6m capex for the AA5 regulatory period (i.e. from 2021 to 2025). In its Draft Decision, the ERA accepted 79.6% or \$126.2m of DBP’s proposed AA5 capex.
55. In response to the ERA’s Draft Decision, DBP proposed \$156.2m capex in its Revised Plan, which is \$2.4m lower than its Original Plan AA5 capex. Details of DBP’s Revised Plan are provided in Table 2.4 and Table 2.5, below. Of particular note is that DBP has changed its approach to replacing its current financial management system, MS Dynamics AX, which is included in business case DBP21 (IT Sustaining Applications). It now forecasts the capex to replace its financial management system with a new system rather than an ‘interim solution’ that was proposed and costed in its original business case. The interim solution is no longer a feature of its approach. This business case is discussed in section 4.12.

Table 2.4: EMCa’s updated adjusted AA5 capex - \$m, real Dec 2019

Asset class	DBP Original AA5	ERA Draft Decision	DBP Revised AA5	EMCa Adjusted
Pipeline	0.0	0.0	0.0	0.0
Compression	21.9	16.3	20.8	20.8
Metering	7.0	6.2	6.9	6.9
Other	14.9	9.5	14.9	14.7
Computers & Motor Vehicles	25.9	18.2	33.1	27.5
Cathodic protection	14.7	11.8	13.8	13.8
SCADA, ECI & Comms	74.1	64.2	66.7	66.7
Total	158.6	126.2	156.2	150.4

Source: DBP original AA5 capex, ERA DD, DBP Revised AA5 capex

56. After reviewing DBP’s revised AA5 capex and the relevant supporting documentation, we consider that \$150.4m is likely to be required by a prudent service provider acting efficiently. This represents a reduction of \$5.8m from the \$156.2m proposed by DBP and is \$24.2m higher than the AA5 capex in the ERA’s Draft Decision. DBP has provided sufficiently compelling information in response to the ERA’s Draft Decision to lead us to conclude that in all but the following two business cases the proposed expenditure is justified:

- DBP12 Safety Case; and
 - DBP22 IT Enabling.
57. In Table 2.5 we show the proposed and adjusted amounts by business case, with the two projects for which we propose adjustments highlighted.

Table 2.5: DBP AA5 capex by Business Cases - \$m, real Dec 2019

Business Case	DBP Original AA5	ERA Draft Decision	DBP Revised AA5	EMCa Adjusted
Compressor Stations	36.3	28.9	33.3	33.3
Pipeline and MLV	9.6	6.7	8.8	8.8
SCADA	1.9	1.9	1.9	1.9
GEA Control System Replacement	8.3	6.4	6.4	6.4
Compressor Station Accommodation	5.1	4.7	4.5	4.5
Replacement of Northern Communications	30.5	30.4	30.2	30.2
Compressor Package Control Systems Replacement	18.8	14.0	16.3	16.3
Jandakot Facility Redevelopment	8.5	4.6	8.6	8.6
Maximo and DMZ	2.3	2.3	2.3	2.3
Safety Case	0.5	0.3	0.5	0.3
Meter Stations	7.9	7.1	7.8	7.8
Tools	1.7	1.3	1.7	1.7
Fleet and Civil Equipment	4.8	4.3	4.7	4.7
Turbine exhaust replacement	4.9	3.1	4.8	4.8
CRS	2.9	2.3	2.8	2.8
IT Sustaining Applications	3.4	3.4	10.8	10.8
IT Enabling	5.2	0.0	5.6	0.0
IT Security	1.8	1.5	2.3	2.3
IT Sustaining Infrastructure	4.0	3.1	3.1	3.1
TOTAL	158.6	126.2	156.2	150.4

Source: DBP original AA5 capex, ERA DD, DBP Revised AA5 capex

58. The proposed and adjusted forecast for AA5 is shown year by year by asset class, in Table 2.6.

Table 2.6: DBP revised AA5 capex and EMCa adjusted by asset class - \$m, real Dec 2019

Asset Class	2021	2022	2023	2024	2025	Total
Pipeline	0.0	0.0	0.0	0.0	0.0	0.0
Compression	5.5	3.4	4.0	3.8	4.2	20.8
Metering	1.7	1.2	1.4	1.2	1.4	6.9
Other	3.0	1.6	1.0	6.6	2.8	14.9
Computers & Motor Vehicles	18.6	4.7	2.4	4.7	2.7	33.1
Cathodic protection	3.4	2.8	3.1	2.9	1.7	13.8
SCADA, ECI & Comms	18.9	21.4	8.5	11.3	6.5	66.7
Sub-total DBP Revised AA5	51.2	35.1	20.3	30.4	19.3	156.2
EMCa adjustments						
Other	-0.2	0.0	0.0	0.0	0.0	-0.2
Computers & Motor Vehicles	-3.8	-1.8	0.0	0.0	0.0	-5.6
Sub-total EMCa adjustment	-4.0	-1.8	0.0	0.0	0.0	-5.8
TOTAL EMCa adjusted	47.1	33.3	20.3	30.4	19.3	150.4

Source: EMCa table derived from DBP revised Final plan Att 8.6A

2.4 AA5 opex

59. In its original Access Arrangement proposal, DBP forecast opex of \$453.9m from 2021 to 2025. DBP used top-down Base Step Trend (BST) and bottom-up methods, as shown in Table 2.7 below.

Table 2.7: Opex - DBP's original Access Arrangement Proposal - \$m, real Dec 2019

Opex category	2021	2022	2023	2024	2025	TOTAL
Base Step trend (BST)						
Wages & Salaries	27.4	27.6	27.8	28.0	28.2	139.1
Field expenses	11.1	11.1	11.1	11.1	11.1	55.6
Non-field expenses	11.8	11.8	11.8	11.8	11.9	59.0
Government Charges	8.7	8.7	8.7	8.7	8.7	43.5
Reactive maintenance	1.9	1.9	1.9	1.9	1.9	9.4
Sub-total	60.9	61.1	61.3	61.5	61.8	306.6
Bottom-up						
System Use Gas	20.4	20.8	21.0	22.0	22.3	106.5
GEA & Turbine overhauls	8.8	7.6	7.6	4.3	2.1	30.4
Capex to Opex	2.3	1.9	2.2	2.2	1.9	10.4
Sub-total	31.5	30.2	30.8	28.5	26.3	147.2
TOTAL	92.4	91.3	92.1	90.0	88.0	453.9

Sources: DBNGP FP 7.1 Opex Forecast Model

60. On 28 May 2020, DBP provided ERA with new demand forecasts for reference services reflecting the completion of major contract renegotiations. As a result of the renegotiations, throughput declined further than DBP proposed in its original submission for AA5. As SUG

expenditure is dependent on forecast throughput, DBP reduced its SUG expenditure forecast for AA5⁶ from \$106.5m to \$92.3m as shown in Table 2.8 below.

Table 2.8: DBP's opex original proposal with revised of SUG value - \$m, real Dec 2019

Opex category	2021	2022	2023	2024	2025	TOTAL
Efficient Base Year	60.5	60.5	60.5	60.5	60.5	302.4
Labour cost escalation	0.4	0.6	0.9	1.1	1.3	4.3
Base year incl. labour escalation	60.9	61.1	61.3	61.5	61.8	306.6
System Use Gas	19.1	18.6	18.4	18.3	18.0	92.3
GEA & Turbine overhauls	8.8	7.6	7.6	4.3	2.1	30.4
Capex to Opex	2.3	1.9	2.2	2.2	1.9	10.4
TOTAL	91.1	89.2	89.5	86.3	83.7	439.8

Sources: EMCa table based on ERA Draft Decision Table 18

61. In its Draft Decision, the ERA accepted DBP's proposal for its 2019 base year but did not accept the proposed opex for GEA & Turbine overhauls, some component of capex-to-opex, and DBP's proposed labour escalation. Further, the ERA imposed a 0.5% productivity growth factor to DBP's proposed opex AA5.
62. We note that the ERA's Draft Decision on SUG is higher than DBP's original SUG forecast and higher than the update that it provided during the ERA's assessment of the original forecast, and prior to ERA's Draft Decision.
63. In its response to the ERA's Draft Decision, DBP has submitted a revised opex proposal of \$432.9m.
64. Table 2.9 below summarises DBP's original AA5 opex, the ERA's Draft Decision, DBP's Revised AA5 opex and EMCa's adjusted AA5 opex. Our assessment of DBP's Revised Plan for AA5 opex is presented in section 5 of this report.

Table 2.9: DBP AA5 opex summary - \$m, real Dec 2019

Category	DBP original	ERA Draft Decision	DBP Revised	EMCa Adjusted
Efficient Base Year	302.4	302.4	306.3	306.3
System Use Gas	92.3	122.1	82.9	82.9
GEA & Turbine overhauls	30.4	26.2	29.9	25.2
Capex to Opex	10.4	10.0	10.2	10.2
Labour cost escalation	4.3	1.9	3.6	3.6
Productivity Factor		-6.0	0	0.0
Total	439.8	456.4	432.9	428.1

Source: DBP original AA5 opex, ERA DD, DBP revised AA5 opex

65. In Table 2.10, we show the proposed and adjusted opex forecast, by year.

⁶ ERA Draft Decision paragraph 244, page 65

Table 2.10: DBP revised AA5 opex and EMCa adjusted year by year - \$m, real Dec 2019

EMCa Summary Table	2021	2022	2023	2024	2025	Total
Efficient Base Year (incl. Labour escalation)	61.6	61.8	62.0	62.2	62.3	309.9
System Use Gas	18.7	18.4	18.3	13.9	13.6	82.9
Capex to Opex	2.2	1.9	2.1	2.1	1.8	10.2
GEA & Turbine overhauls	8.7	7.4	7.5	4.2	2.0	29.9
Sub-total DBP Revised AA5	91.3	89.5	89.9	82.4	79.8	432.9
<i>EMCa adjustment to GEA & Turbine overhauls</i>	<i>-0.3</i>	<i>-0.6</i>	<i>-0.6</i>	<i>-3.3</i>	<i>-0.1</i>	<i>-4.7</i>
TOTAL EMCa Adjusted	91.0	89.0	89.3	79.1	79.7	428.1

Source: EMCa table derived from DBP Revised Final Plan Att 7.1A

3 AA4 CAPEX

3.1 Background

Business case DBP21 IT Sustaining Applications

66. The ERA's Draft Decision included an adjustment to one DBP business case seeking approval for incurred and forecast AA4 capex: DBP21 IT Sustaining Applications.
67. DBP has responded in its Revised Plan via a revised DBP21 business case in two parts:
- Addendum 1 – One ERP (Enterprise Resource Planning); and
 - Addendum 2 – Applications renewal and upgrades.
68. The ERA has asked us to review the prudence and efficiency of the proposed revised AA4 capex under DBP21. We report on our assessment in this section, drawing on the information in both addenda.
69. We present a summary of DBP's original business case and of the ERA's Draft Decision, however the summaries are intended for general context only and not as a substitute for familiarity with these documents. Our focus is on DBP's response to the ERA's Draft Decision.

Other AA4 business cases

70. We have also reviewed the adjustments made by DBP to the other 26 AA4 capex business cases.

3.2 Assessment of DBP21 IT Sustaining Applications

71. The only business case for which the ERA amended DBP's proposed AA4 expenditure was for business case DBP21. In this section we assess the revised business case provided by DBP in response to the ERA's Draft Decision.

3.2.1 Background

DBP's original business case

72. DBP's original business case proposed \$6.6m capex in the AA4 period. Of this \$3.0m was forecast to be incurred in 2020 to commence an 'interim solution' towards replacement of its underperforming financial management system, Microsoft Dynamics AX ('MS Dynamics'). The interim solution was scheduled to be completed in 2021 in advance of cessation of vendor support in that year. The balance of \$3.5m was incurred in the AA4 period or is forecast to be incurred in 2020 as follows:
- \$0.5m on 'critical enhancements' of MS Dynamics between 2016 to 2018; and
 - \$3.0m on upgrades and rollouts of eight other applications over the period 2016 – 2020.
73. This compares to the allowance of \$2.9m that the ERA approved in its Final Decision for the AA4 period.

ERA's Draft Decision

74. The ERA approved \$2.5m as conforming capex for the AA4 period in its Draft Decision, noting that:⁷

⁷ ERA AA5 Draft Decision, para 534

'DBP has not demonstrated that the capital expenditure incurred for the work covered by these nine projects in excess of the AA4 final Decision forecast for projects other than the Microsoft Dynamics annual enhancement and maintenance would be incurred by a prudent service provider acting efficiently and in line with good industry practice.'

75. As discussed in section 4.12, in its Draft Decision, the ERA did not allow for the \$3.0m expenditure on DBP's proposed replacement of MS Dynamics in the AA4 period.

3.2.2 DBP's Revised Final Plan

76. In its revised business case, DBP now forecasts that it will incur \$6.6m on IT sustaining applications in the AA4 period, with:
- An adjusted forecast of \$3.2m to be spent in the December quarter of 2020 to begin the MS Dynamics replacement project; and
 - The balance of \$3.4m on other IT sustaining applications, and which includes the \$0.5m already incurred on MS Dynamics between 2016-2018.

77. We discuss these two aspects of AA4 capex below.

Replacement of MS Dynamics is now a larger project totalling \$12.7m, with expenditure to be incurred in AA4 and AA5

78. DBP has modified its approach to replacing MS Dynamics, which is no longer based on an 'interim solution', but on an AGIG-wide program to introduce SAP S/4HANA⁸ as the new Enterprise Resource Planning (ERP) application in each of the three AGIG businesses.⁹ This is in line with AGIG's 'One ERP' project, a project that was to commence in 2023, but was (i) not costed in the original AA5 business case, and (ii) has now been brought forward to commence in 2020 (at DBP).

79. DBP now proposes spending \$3.2m capex in the December quarter of 2020 as part of the two-year project to implement SAP S/4HANA, a project that is scheduled to be completed in 2021 at a further cost of \$9.5m to DBP and which we discuss in section 4.12, bringing the total expenditure to be incurred by DBP for this project to \$12.7m.¹⁰

DBP seeks approval for \$3.4m for other work on IT sustaining applications during AA4

80. DBP has updated its actual incurred expenditure with the latest data for the balance of the capex to be incurred in AA4. DBP has also provided additional information in support of the \$3.4m capex, and which we discuss in our assessment, below.

3.2.3 EMCa assessment

Replacement of MS Dynamics with SAP S/4HANA appears to be the prudent path

81. As discussed further in our assessment of AA5 capex in section 4.12, we consider that AGIG's proposed One ERP replacement of MS Dynamics with SAP S/4HANA is a reasonable strategy. Commencing the work in 2020 aligns with DBP's need to replace MS Dynamics as soon as practicable, however we were concerned the amount of \$3.2m was overstated because of the short amount of time remaining in the AA4 period.
82. We asked DBP to provide evidence that it is capable of efficiently expending the proposed \$3.2m capex in the December quarter of 2020 on the proposed SAP implementation - noting that typically the expenditure profile for such projects follow an 'S-curve', with lower expenditure rates in the first 20%-25% of the project duration.

⁸ An ERP that manages all day-to-day processes of an enterprise (such as: order-to-cash, procure-to-pay, plan-to-product, and request-to-service) and core capabilities

⁹ Combining Australian Gas Networks (AGN), DBP, and Multinet Gas (Multinet)

¹⁰ The total cost is \$19.1m of which \$12.7m is allocated to DBP and \$6.4m is allocated to AGN; this is referred to as Phase 1 where Phase 2 involves completing implementing SAP S/4 HANA at AGN and at Multinet gas at no cost to DBP

83. DBP responded with a reasonably detailed timeline of the activities to be completed by the end of 2020 and a breakdown of the project costs incurred and to be incurred up to and including 31 December 2020.¹¹ We are satisfied that the activities and expenditure are reasonable and achievable.

Cost allocation between regulated and unregulated assets

84. We asked DBP to confirm its approach to ensure equitable apportionment of the ERP cost between the regulated and unregulated parts of DBP's business, given that both will benefit from the SAP S/4Hana functionality. In its response, DBP stated that:¹²

'Consistent with our allocation approach, if a system is for the primary benefit of the regulated business then costs are charged to the unregulated business in the form of the charge out rates (that include an IT Overhead Component). The amount charged out to the unregulated business is deducted from the operating expenditure of the regulated business.'

85. On the basis that the charge-out approach as described above has been followed in the AA4 period, we do not consider that an apportionment of IT capex is required.

DBP's remaining AA4 IT Sustaining Capex is overstated

86. DBP proposes AA4 IT Sustaining Applications capex of \$3.0m on applications other than MS Dynamics. This includes \$0.7m on what we assume is DBP's share of an AGIG-wide common email and intranet project as a result of DBP's corporate relationship within AGIG.¹³ This was unbudgeted for in its AA4 forecast because the forecast was developed well before DBP was integrated into AGIG. We consider that this additional capex should be funded by AGIG as it is an internal matter with no material benefit to DBP customers.
87. With the additional information provided in the revised business case about the \$2.3m spent on the other eight non-MS Dynamics applications, we are satisfied that the expenditure was likely to be prudent and efficient.
88. Based on the additional information provided by DBP on the reasons for the 'critical enhancements' of MS Dynamics in the period 2016 to 2018, we are satisfied that the \$0.5m expenditure was appropriate.

3.2.4 Conclusion

89. DBP has changed its approach to replacing its underperforming financial management system before vendor support ceases in 2021 by leveraging off AGIG's advancement of its One ERP project. This will replace MS Dynamics (among other things¹⁴) with SAP S/4Hana at a total cost of \$12.7m to DBP, with \$3.2m to be incurred in the AA4 period. We consider this expenditure to be prudent and the amount to be a reasonable estimate of an efficient amount.
90. DBP also has spent \$0.5m on critical enhancement of MS Dynamics in the period 2016 to 2018, which we consider to be reasonably incurred.
91. DBP has incurred or proposes to incur a further \$3.0m on other IT sustaining applications in the AA4 period. We consider that \$2.2m of this amount would be incurred by prudent service provider acting efficiently and in line with good industry practice.
92. We consider that the \$0.7m incurred on the AGIG common email and intranet project to align with the AGIG requirements, is not justified. This is \$0.7m higher than DBP forecast for its needs as a standalone business and does not appear to add any additional value to its customers.

¹¹ DBP response to information request EMCa62

¹² DBP response to information request EMCa61

¹³ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, Table 2, page 131

¹⁴ Described in section 4.12

93. We therefore consider that \$5.9m capex for IT Sustaining Applications in the AA4 period represents a prudent and efficient amount.

3.3 Assessment of other changes to AA4 capex

94. In its response to an ERA information request, DBP provided explanations of the material variances between its Initial Plan and its Revised Plan for the other 26 AA4 capex business cases.¹⁵ Our assessment of the variances is summarised in the table below.

95. Of the 26 business cases:

- Nine business cases have a negative variance;
- One business case has zero variance;
- One business case has \$225k of unforeseen capex in 2020 against a \$0m AA4 forecast due to asset failure; and
- 15 business cases have minor variances that are within the threshold of expected variations against previous estimates.

96. We consider that:

- All the positive variances can reasonably be considered to result from prudent asset, safety, or cyber security management (as applicable).
- The overall revised AA4 conforming capex of \$114.8m, a reduction of \$0.8m to the ERA's Draft Decision, is reasonable and we propose no adjustment.

Table 3.1: Summary of EMCa's assessment of DBP's Revised Plan – AA4 business cases other than IT Sustaining Applications - \$m, real Dec 2019

Business Case	ERA Draft Decision	DBP Revised Plan	EMCa adjustment	Rationale for EMCa acceptance ¹⁶
01. Compressor station	25.8	25.2	Nil	Variance is negative: accept DBP's variance
02. Pipeline and MLV	6.2	6.1	Nil	Variance is negative: accept DBP's variance
03. SCADA	1.8	1.9	Nil	\$100k increase due mainly to support extra cyber security requirements. Accept DBP's variance as it is likely to be prudent cyber security management practice
04. HSE	0.2	0.3	Nil	\$140k increase due to extra spend in 2019 + 2020 on Zero Harm program & training. Accept DBP's variance as it is likely to be prudent safety management practice
06. GEA control system	0.5	0.5	Nil	\$40k increase due to payment of missing invoice and adjustments for work done in 2017. Accept DBP's minor variance
07. Compressor station accommodation	2.5	2.5	Nil	\$36k variance is minor. Accept DBP's variance
09. Compressor unit control	6.5	6.3	Nil	Variance is negative: accept DBP's variance

¹⁵ DBP response to ERA32: AA4 Capex Update_Confidential.xls

¹⁶ Source of DBP's explanations of variances: ERA32 AA4 Capex Update_Confidential.xls

Business Case	ERA Draft Decision	DBP Revised Plan	EMCa adjustment	Rationale for EMCa acceptance ¹⁶
10. Jandakot	0.5	0.5	Nil	\$2k variance is minor. Accept DBP's variance
11. Maximo DMZ	1.4	1.3	Nil	Variance is negative. Accept DBP's variance
12. Safety Case	0.4	0.4	Nil	\$2k variance is minor. Accept DBP's variance
13. Compressor Station inspection	2.6	2.8	Nil	\$221k variance due mainly to a larger than expected volume of pressure safety valve testing required in 2020. Accept DBP's safety-driven variance as it is likely to be prudent asset management
14. Asset management	2.7	2.9	Nil	\$241k variance due mainly to reactive works to replace corroded flanges and telephone server (hardware fault). Accept DBP's variance as it is likely to be prudent asset management
15. Meter station	26.2	26.7	Nil	\$722k variance due mainly to insulation replacement on water bath heaters after failure of the insulation was found. Accept DBP's variance as it is likely to be prudent asset management
16. Tools	1.2	1.2	Nil	\$19k variance is negative. Accept DBP's variance
17. Fleet civil	5.2	5.2	Nil	\$39k variance is minor. Accept DBP's variance
18. Turbine exhaust	0.0	0.2	Nil	+\$225k variance is due to replacement of failed exhaust stack on CS4/2. Accept DBP's variance as it is likely to be prudent asset management
19. Pipeline MLV inspection	13.0	12.4	Nil	Variance is negative: accept DBP's variance
20. CRS	0.8	0.6	Nil	Variance is negative: accept DBP's variance
23. IT Security	1.4	1.1	Nil	Variance is negative: accept DBP's variance
24. Process safety	0.0	0.0	Nil	No variance (\$40k capex).
25. Decommission	0.2	0.2	Nil	\$10k. Accept DBP's minor variance
26. Communications	2.3	2.4	Nil	\$40k. Accept DBP's minor variance
27. Office relocation	4.2	4.2	Nil	\$11k. Accept DBP's minor variance
28. Southern Communications System	6.9	6.8	Nil	-\$5k variance. Accept DBP's minor variance
29. CS1 re-wheel	1.3	1.3	Nil	\$4k variance. Accept DBP's minor variance
30. IT Sustaining Infrastructure	1.8	1.8	Nil	\$26k variance. Accept DBP's minor variance

Business Case	ERA Draft Decision	DBP Revised Plan	EMCa adjustment	Rationale for EMCa acceptance ¹⁶
Grand Total – other business cases	115.7	114.8	Nil	

Sources: ERA Draft Decision, DBP Revised Plan

4 AA5 CAPEX

4.1 Introduction

4.1.1 Background context

97. The ERA's Draft Decision included acceptance of the forecast capex in four of DBP's 19 business cases which DBP provided in support of its Original Plan. The ERA reduced the proposed capex in the remaining 15 business cases. The ERA also applied a different real labour escalation for the AA5 period than proposed by DBP.¹⁷
98. In its Revised Plan:
- DBP accepted the ERA's Draft Decision with respect to the AA5 capex forecast associated with six business cases, including the four for which the ERA made no adjustment (other than as a result of its adjustment to real labour escalation); and
 - DBP has provided revised business cases for the other 13 cases.
99. We were asked by the ERA to assume DBP's revised gas throughput forecast for the purpose of our assessment. It does not take into account any potential changes to gas throughput as a result of recent announcements regarding development of the Perth Basin, which we discuss in Appendix A. As requested by the ERA, at the end of our assessment of the revised forecast capex in each revised business case for which we consider there may be an impact from developments in the Perth Basin, we have included a brief commentary to this effect. We stress that this commentary is not intended to represent a comprehensive assessment of such implications, and which in any case are contingent on the various Perth Basin developments that are under consideration proceeding.

4.1.2 Structure of this section

100. The ERA has asked us to review the prudence and efficiency of the 13 revised AA5 business cases. We report on our assessment in this section, drawing primarily on the information provided in Attachment 8.5A to DBP's Revised Plan.
101. We discuss each business case separately in sections 4.2 to 4.14. In each, we present a brief summary of DBP's original business case and of the ERA's Draft Decision regarding the business case, however the summaries are intended as broad context and not as a substitute for familiarity with the two documents. Our focus is on DBP's response to the ERA's Draft Decision.

4.1.3 Reference to key documents

102. In sections 4.2 to 4.14:
- References to DBP's 'original business case' are to the business cases presented in *DBNGP FP 8.5 Capex Business Cases Confidential Rev1*, which is an attachment to the AGIG DBNGP Final Plan 2021-2025 (amended 15 January 2020); and
 - References to DBP's 'revised business case' are to the business cases presented in *DBP revised Final Plan Attachment 8.5A - Addendum to Capex Business Cases (Confidential)*, which is an attachment to the DBP Revised Final Plan 2021-25 for the Dampier to Bunbury Natural Gas Pipeline, October 2020.

¹⁷ ERA Draft Decision, paragraph 608

4.2 Assessment of DBP01 Compressor Stations

4.2.1 Background context

DBP's original Business Case

103. DBP's original business case outlined the basis for its forecast of \$36.3m AA5 capex to complete work deferred from AA4 and to undertake other work identified at compressor stations. DBP identified 34 projects involving either end-of-life asset replacement, proactive works, or upgrades.

ERA's Draft Decision

104. The ERA approved \$28.9m AA5 capex in its Draft Decision, noting that:¹⁸

'...DBP can prudently defer some of its planned AA5 'Compressor stations' work at no material risk to the DBNGP's performance reliability or attainment of its asset management objectives and a 20 per cent reduction is reasonable.'

4.2.2 DBP's Revised Plan

105. DBP has revised its forecast to \$33.3m, a reduction of \$2.7m (-7%) from its original forecast, by deferring three projects to the AA6 period and by reducing the cost of one project. The changes are summarised in the table below.

Table 4.1: AA5 Compressor Stations projects - DBP-identified cost reductions, \$m, Jun 2019

Project	Original capex	Revised capex	Capex variance	Rationale
Upgrade of station and unit F&G monitoring system at Compressor stations	0.4	0	-0.4	Originally scheduled for 2025; risk of deferral can be tolerated for 12 months because it was upgraded in AA3 period
CS unit F&G control system replacement (stage 2)	0.3	0	-0.3	Originally scheduled for 2025; risk of deferral can be tolerated for a further 12 months because CS9 was upgraded late in AA3 and CS6/2 was upgraded early in AA4
CS unit F&G control system replacement (Stage 4)	2.4	1.2	-1.2	Scheduled for 2024-2025; risk of deferring one system of two can be tolerated for a further 12 months
Refurbishment of below-ground pipework	6.5	5.8	-0.7	-11% reduction derived from a detailed design review – lower cost at CS10 due to less below ground pipework than in the original budget
Total	9.6	7.0	-2.6	

Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, Table 1, page 7

106. DBP states that:¹⁹

'The AA5 forecast is based on more mature asset information and our forecasting approach has been subject to greater rigour than that put forward during the AA4 period. We therefore consider there is less opportunity to outperform the forecasts than there has been historically.'

¹⁸ ERA Draft Decision, para 620

¹⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 6

'... the revised forecast of \$33.0 million is the minimum amount necessary to undertake the outstanding works from the AA4 period and ensure the integrity of services provided by our compressor stations over the AA5 period without materially impacting risk or inhibiting achievement of our asset management objectives.'

'Following our review, we submit that a 20% reduction is not achievable within the AA5 period.'

4.2.3 EMCa assessment

DBP has undertaken a bottom-up review of all 34 projects included in its business case

107. DBP has reviewed its compressor stations capex forecast at the project level by:
- Applying more up-to-date information to, among other things, determine if a change of scope/design is prudent;
 - Seeking opportunities to defer costs where prudent to do so; and
 - Seeking further opportunities to integrate proposed projects with related projects at a lower combined cost, as suggested by the ERA in its Draft Decision.
108. We have reviewed the commentary provided by DBP in Appendix A of its revised business case. On the basis of the information provided, there appears to be limited opportunity for prudent cost reduction given the deteriorated state of the assets. We tested the asset condition information and the application of DBP's cost estimation methodologies, as discussed below.

Evidence of deteriorated assets is compelling

109. We asked DBP to provide evidence of the deteriorated asset condition referred to in the bottom-up summary of the other 30 projects in its revised business case. DBP responded with information pertaining to eight projects about the asset condition and why it had to be addressed during AA5, including the following:²⁰
- Advice from external advisers;
 - Investigation reports;
 - Test reports with condition assessment reports and performance history;
 - Photographs of deteriorated assets; and
 - Copies of work orders.
110. We consider that the information provided by DBP is sufficient to demonstrate that the proposed refurbishment work for this sample is required to address failure risk and/or inefficient maintenance costs within the AA5 period for those projects for which asset condition is the primary driver.

The proposed work under the other projects appears to be prudent

111. The table below summarises our assessment of DBP's positions with respect to the 34 projects, including the 12 already discussed above (i.e. the four projects in Table 4.1 and the eight projects for which asset condition information has been provided).

²⁰ DBP, response to IR EMCa51

Table 4.2: EMCa summary of assessment of prudence of DBP’s proposed AA5 Compressor Stations projects

Project driver	Discipline	No. of projects	Comment about prudence of proposed works [2]
End-of-life asset replacement	ECI [1]	9	<ul style="list-style-type: none"> DBP’s review resulted in cost reduction to 3 projects Description of need for remaining projects indicates need to act within the AA5 period
	Rotating	2	<ul style="list-style-type: none"> Condition assessment information provided for both projects – work appears to be justified based on condition
	Mechanical	7	<ul style="list-style-type: none"> DBP’s review resulted in no cost reductions Condition assessment information provided for 3 projects – work appears to be justified based on condition on these three and a 4th, similar project Description of need for remaining 3 projects indicates need to act within the AA5 period
Proactive works	Corrosion Protection	2	<ul style="list-style-type: none"> Cost reduced following review by DBP on 1 project Evidence of corrosion provided for other project - work appears to be justified based on condition
	ECI	2	<ul style="list-style-type: none"> DBP’s review resulted in no cost reductions Description of need for the 2 projects indicates a need to act within the AA5 period
	Mechanical	2	<ul style="list-style-type: none"> DBP’s review resulted in no cost reductions Description of need for the 2 projects indicates a need to act within the AA5 period
Upgrades	Corrosion protection	2	<ul style="list-style-type: none"> DBP’s review resulted in no cost reductions Description of need for the 2 projects indicates a need to act within the AA5 period
	ECI	5	<ul style="list-style-type: none"> DBP’s review resulted in no cost reductions Condition assessment information provided for 1 project – work appears to be justified based on condition Description of need for the other 4 projects indicates a need to act within the AA5 period
	Mechanical	1	<ul style="list-style-type: none"> DBP’s review resulted in no cost reductions Replacement of fuel gas heater will lower the operating cost; the description indicates a need to act within the AA5 period
	Rotating	2	<ul style="list-style-type: none"> DBP’s review resulted in no cost reductions Description of need for the 2 projects indicates a need to act within the AA5 period
Total		34	

Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, Appendix A
 [1] ECI = Electrical Control and Instrumentation as the primary reference
 [2] References to the ‘description of need’ also takes into the account the description provided in the original business case

DBP’s cost forecasting method is appropriate and the application of it is reasonable

112. In our Initial Report we accepted that DBP’s cost forecasting method for its AA5 capex in this business case is an appropriate approach. It comprises of:²¹

²¹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 10

- A three-year average of actual costs incurred in AA4, where practicable; and/or
- Historical cost of same or similar program; and/or
- For unique work – internal estimates derived from subject matter experts and/or from advice provided by external specialists.

113. We asked DBP to provide evidence of the application of these principles to the larger projects (> \$1m). In response, DBP provided the calculations for 13 sample projects. Of the 13 projects, 12 were based on the three-year average actual cost.²² We consider that DBP has taken the appropriate steps to provide a reasonable cost estimate in each case. The cost estimate for the 13th project (Installation of Fires Suppression on Stage 3A) was derived from internal subject matter judgement. Again, the resultant cost estimate appears to be reasonable.

4.2.4 Conclusion

114. DBP's bottom-up analysis has resulted in a risk-based deferral of capex associated with three projects and a design-based revision to a fourth for a combined reduction of \$2.7m (7%) of the original cost estimate of \$36.0m. We consider that DBP has demonstrated that the revised forecast of \$33.3m is a reasonable estimate of the cost of undertaking the prudent level of compressor station end-of-life asset replacement, proactive works, or upgrades work in the AA5 period.

4.2.5 Possible impact of Perth Basin-driven changes to pipeline throughput

115. As discussed in Appendix A – Perth Basin Developments, a change in gas throughput as a result of changes to gas flows from the new and modified gas supply arrangements from gas fields in the Perth Basin (including as a result of the recently announced Northern Goldfields Interconnector project) may impact the operating time of one or more compressor stations. If units are mothballed as a result, it is possible some of the Compressor Stations capital works projects may be able to be prudently deferred.

4.3 Assessment of DB02 Pipeline and Main Line Valves

4.3.1 Background context

DBP's original business case

116. DBP's original Pipeline and Main Line Valve (MLV) business case proposed 14 projects at a total cost of \$9.6m, a 50% increase from the equivalent AA4 business case. DBP explains the increase as being²³

'...due to a greater number of assets that are at or will reach the end of their technical design life during AA5, as well the need to enhance corrosion protection on the asset due to the pipeline's age and deteriorating condition.'

ERA's Draft Decision

117. The ERA approved \$6.7m (-30%) based on:

- Assuming that ■■■ of the planned ■■■ pig barrel isolation valve replacements could be commenced two years later than proposed by DBP, deferring the work into the AA6 period, to coincide with the planned in-line inspection (ILI) work; and
- Applying a 20% reduction to the remainder of the program on the assumption that DBP can achieve savings commensurate with those achieved during the AA4 period.

²² DBP, response to IR EMCa51

²³ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 20

4.3.2 DBP’s Revised Plan

118. DBP has revised its forecast to \$8.8m, a reduction of \$0.8m (-8%) from its original forecast. The projects which DBP has modified as a result of its review of the prudence and cost efficiency of the 14 projects is summarised in the table below.

Table 4.3: AA5 Pipeline and Main Line Valves – DBP identified cost reductions, \$m, June 2019

	Original capex	Revised capex	Capex variance	Rationale
Pig barrel isolation valve replacement	1.5	1.2	-0.3	█ unit of █ can be deferred but are leaking and DBP expects a █ to leak in AA5; efficient works program requires a minimum of █ replacements
Lister GEA control system replacement (10kW)	0.6	0.2	-0.4	Some work has been advanced to AA4 because performance has deteriorated, the control system is obsolete, and it cannot be repaired
Total	2.1	1.4	-0.7	

Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, pages 24-25

119. DBP states it has re-assessed the prudence of all 14 projects:²⁴

‘...we submit that a 30% reduction is not practicable, and based on current asset condition and risk, would not reflect a prudent level of replacement/refurbishment of these critical assets. Moreover, we note that the assumed 20% reduction the ERA has applied to the broader program (excluding the pig barrel isolation project) is greater than the actual underspend achieved during the AA4 period, which was 15%. The ERA’s assumption is also twice that of its technical experts EMCa, who advise that a 10% reduction reflects a reasonable level of saving that could be achieved.

We do not consider that the underspend compared with the AA4 forecast is a reasonable basis on which to assume similar savings can be achieved during AA5. Our forecast for the AA5 period is based on more mature asset information and we have worked extensively on projects included as part of the AA5 submission to provide more accurate estimates and information.’

4.3.3 EMCa assessment

DBP has undertaken a bottom-up review of all 14 projects included in the business case

120. DBP has reviewed its pipeline and MLV capex forecast, by:²⁵
- Applying more up-to-date information to, among other things, determine if a change of scope/design is prudent;
 - Seeking opportunities to defer costs where prudent to do so; and
 - Seeking further opportunities to integrate proposed projects with related projects at a lower combined cost.
121. As discussed below we have reviewed the prudence and the cost efficiency of the 14 projects, including by seeking evidence of deterioration for a sample of the projects.

²⁴ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 23

²⁵ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 30

Evidence of deteriorated assets is compelling

122. We asked DBP to provide evidence of the deteriorated asset condition of a sample of three of the fourteen projects described in Appendix A and why the condition needs to be addressed:
- Impressed current ground beds replacement;
 - Pig barrel isolation valve replacement; and
 - Piping Interface Wrap Removal.
123. DBP responded with a combination of the following information:²⁶
- Investigation reports;
 - Survey/test reports with condition assessment reports and performance history; and
 - Photographs of deteriorated assets.
124. We consider that the information provided by DBP for the three sample projects provides adequate evidence of the prudence of the proposed work.

The work proposed under the other 11 projects appears to be prudent

125. We have reviewed the commentary provided by DBP in Appendix A of its revised business case and to the project descriptions and justifications presented in the original business case. On the basis of the information provided, there appears to be limited opportunity for prudent cost reduction given (i) the described condition of the assets, and (ii) the requirement to maintain the integrity of other assets through inspections (which is consistent with good industry practice).

DBP's cost forecasting method is appropriate and the application of it is reasonable

126. In our Initial Report we accepted that DBP's cost forecasting methodology for its AA5 capex in this business case, is an appropriate approach. It comprises of:²⁷
- A three-year average actual cost incurred in AA4, where practicable; and/or
 - Historical cost of same or similar program; and/or
 - Unique work – internal estimates derived from subject matter experts and/or based on advice from external specialists.
127. For the assessment of DBP's revised business case, we asked DBP to provide evidence of the application of these principles to a sample of projects (with expenditure greater than \$0.85m). In response, DBP provided the calculations for five projects.²⁸ After reviewing them, we consider that DBP has taken the appropriate steps to provide a reasonable cost estimate in each case. On this basis we are satisfied that DBP's application of its cost forecasting method to the other projects is also likely to be reasonable.

4.3.4 Conclusion

128. DBP's bottom-up analysis has resulted in a reduction of \$0.8m (8%) of the original cost estimate. We consider that DBP has demonstrated that the revised proposed AA5 capex of \$8.8m is likely to be a reasonable estimate of the cost of undertaking the prudent pipeline and main line valve activity over the AA5 period.

4.3.5 Possible impact of Perth Basin-driven changes to pipeline throughput

129. As discussed in Appendix A – Perth Basin Developments, a change in gas throughput as a result of changes to gas flows from the new and modified gas supply arrangements from gas fields in the Perth Basin (including as a result of the recently-announced Northern

²⁶ DBP, response to IR EMCa52

²⁷ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 10

²⁸ DBP, response to IR EMCa52

Goldfields Interconnector project) may impact the operating time of one or more compressor stations. Even if one or more units are mothballed as a result, it is unlikely that this will affect the need for the projects described in this business case because the work pertaining to the projects in business case DBP02 are required regardless of whether one or more units are mothballed.

4.4 Assessment of DBP09 Compressor Package Control System

4.4.1 Background context

DBP's original business case

130. DBP's original business case proposed the replacement of [REDACTED] of the 20 turbine compressor package control systems ('turbine control systems') in AA5 at a total cost of \$18.8m. The units were assessed by DBP as reaching the end of their technical design life:²⁹

'Each turbine control system has a technical design life of 18 years, after which the manufacturer's recommendations are to replace these systems. The manufacturer has also advised us to plan for system replacement following the recommended upgrade path as technical support for the assets has ceased, and spare parts can no longer be sourced.'

ERA's Draft Decision

131. The ERA approved \$14.0m, a -25% adjustment to DBP's forecast. The ERA considered that DBP should be able to defer replacement of [REDACTED] of the [REDACTED] turbine control systems to the AA6 period. This would increase the average replacement age to 18.5 years from the 17.5 years proposed by DBP at what ERA reasoned would be an acceptable increase in risk.

4.4.2 DBP's Revised Plan

132. DBP has revised its forecast to \$16.3m, a reduction of \$2.4m (-13%), by deferring [REDACTED] turbine control system replacement to the AA6 period. DBP does not consider it prudent to operate the turbine control systems beyond the manufacturer's recommended asset life for longer than is absolutely necessary:³⁰

'Deferring [REDACTED] replacements into AA6 would result in [REDACTED] control systems being operated at least [REDACTED] years beyond their design life. We submit this is not a prudent course of action. However, we have identified an opportunity to extend the asset life of [REDACTED] unit within tolerable risk levels, deferring replacement until early in the AA6 period. While the unit will be 20 years old when replaced, we can use 'cannibalised' spare parts to safely operate [REDACTED] compressor station with a greater degree of confidence than [REDACTED].'

4.4.3 EMCa assessment

DBP has provided more information about the operational risk of deferring [REDACTED] turbine control system replacements to AA6

133. As part of our Initial Report, we developed an alternative turbine control system replacement schedule with an average age at replacement of 18.5 years by deferring [REDACTED] replacement by one

²⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 35

³⁰ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 36

year.³¹ Our position was that the increased risk could be mitigated by judicious use of spares from the units replaced in the AA5 period.

134. DBP's revised business case includes deferring [REDACTED] until 2026. DBP states that:³²

'Having reviewed current asset condition, more detailed operational information, availability of spares, opportunities to optimise the work program, and our risk tolerances, we submit we can prudently defer replacement of [REDACTED] turbine control unit to 2026.'

135. In the table below we compare the turbine control system age at replacement provided in DBP's original and revised Plans.

Table 4.4: DBP's original and revised turbine control systems replacement schedules

Facility	DBP Original Plan		DBP Revised Plan	
	Year replaced	Age at replacement	Year replaced	Age at replacement
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Average age		17.5		17.6

Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 37

136. We accept DBP's assertion that the average age at replacement of the cohort of [REDACTED] turbine control systems is not necessarily the most prudent way to assess asset replacement requirements.

137. DBP's presentation of its additional analysis of current asset condition and operational information, and of its consideration of spares availability and opportunities to optimise the work program, has provided sufficient justification that a prudent level of activity is forecast.

DBP has provided more information about cost efficiency, including delivery risk

138. In our Initial Report we accepted that DBP's cost forecasting method for its AA5 capex in this business case, is an appropriate approach. Based on the satisfactory evidence provided by DBP about its application of its cost estimation method to derive cost estimates for projects in business cases DBP01 and DBP02, we are satisfied that the cost estimates are likely to be set at an efficient level given DBP's statement that costs have been:³³

'...further tested against a recent formal quote from [REDACTED] for a unit replacement cost, their contractual yearly increase and the cost for local resources.'

139. As shown in the table below, the ERA's Draft Decision resulted in up to [REDACTED] units being replaced in the AA6 period which DBP states will:³⁴

³¹ In our schedule, we also deferred some other units to balance the workload in AA5, but the replacement year remained within AA5

³² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 38

³³ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 40

³⁴ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 39

'...likely increase the delivery risk and potential for scheduling conflicts, as well as necessitate greater resource/contractor deployment. It may also impact our ability to bundle works into efficient work packages.'

Table 4.5: DBP's assessment of turbine control unit replacements over AA5 and AA6

Project	Original DBP business case	ERA Draft Decision	DBP response to Draft Decision
Delivery profile	Optimum	Inefficient	Acceptable
AA5 - units	█	█	█
AA6 - units	█	█	█
Total units replaced	17	17	17

Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 39

140. We acknowledged in our Initial Report that scheduling the replacement of compressor packages in blocks gives DBP economies of scale in the purchase of equipment and project delivery.³⁵ However we accept that the economies of scale may be diminished and possibly exceeded by the dis-benefit arising from the delivery risk (including potential scheduling conflicts) in managing replacement of █ units in the AA6 period, should that be required.

4.4.4 Conclusion

141. DBP has reviewed current asset condition, and considered more detailed operational information, the availability of spares, opportunities to optimise the work program, and delivery risk to determine a revised schedule of turbine control system replacements. We consider that DBP's revised schedule of unit replacement for business case DBP09 is prudent and the forecast of \$16.3m is likely to represent an efficient level. This represents a \$2.4m reduction from DBP's original proposal.

4.4.5 Possible impact of Perth Basin-driven changes to pipeline throughput

142. As discussed in Appendix A – Perth Basin Developments, a change in gas throughput as a result of changes to gas flows from the new and modified gas supply arrangements from gas fields in the Perth Basin (including as a result of the recently-announced Northern Goldfields Interconnector project) may impact the operating time of one or more compressor stations. If units are mothballed as a result, it is possible that some of the scheduled work in the latter years of the AA5 period (█) may be able to be prudently deferred.

4.5 Assessment of DB10 Jandakot Site Redevelopment

4.5.1 Background context

DBP's original business case

143. DBP's original business case proposed capex of \$8.5m in the AA5 period to redevelop the Jandakot site to provide improved office and training facilities, accommodation for the Transmission Operations division, a backup SCADA control room, server and communications facilities, and warehousing. DBP proposed to replace: ³⁶

³⁵ EMCa, Review of Technical Aspects of proposed Access Arrangement for 2021 to 2025 (AA5), page 124

³⁶ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 44

'30-year old facilities which no longer meet business requirements, operational or safety needs'

144. The project is scheduled to commence in 2023 and with construction in 2024 and 2025.

ERA's Draft Decision

145. The ERA accepted that the proposed redevelopment of the Jandakot site was a prudent undertaking. However, it did not consider that the redevelopment was likely to be completed by 2025 due to the likelihood that land development approval from statutory authorities would take longer to achieve than allowed for in DBP's project timeline. In our Initial Report we noted:³⁷

'The current development is on a class A water mound with imposed limits on development which may constrain DBP's proposed redevelopment, particularly given the proposed establishment of what is effectively a hotel on the site to provide overnight accommodation. DBP has allowed only 6 months for the approvals process involving environmental, heritage and Class A water mound [sic] approvals to be secured. In our view DBP has not demonstrated that it has adequately considered the likelihood of a more protracted approvals process which are typical with projects of this nature.'

146. On the assumption that it was likely the project would be delayed by a year, the ERA reduced the allowed AA4 capex to \$4.6m.

4.5.2 DBP's Revised Plan

147. DBP has modified its program to commence the approvals process in 2021 to provide what it considers should be sufficient lead time for development approvals to be secured and for construction to be completed by 2025. DBP has increased its proposed revised capex to \$8.6m. DBP also advises that:³⁸

'... we can defer the capex solution for the Industrial Automated Control Systems (IACS) office, workshop and test laboratory, which was scheduled in 2021, to 2024, so it will be delivered once with the redevelopment of the Jandakot Facility.'

This deferment comes at an additional annual operating cost of around \$10,000 for increased travel to site of the specialist IACS technicians as there is currently insufficient workshop and storage space at Jandakot to complete all works there. This deferment also comes at a higher risk to health and safety.'

148. The IACS-related capex deferment has been included in DBP's revised business case capex forecast.

4.5.3 EMCa assessment

DBP's modified option reduces cost and risk associated with delay

149. DBP's revised timing addresses our major concern with its original approach by allowing more time for achieving approvals. It is likely that commencing the approvals process with the City of Cockburn in 2021 will allow sufficient time to secure approvals and complete the project by the end of 2025. This releases the benefits of DBP's approach in the AA5 period by:

- Addressing the identified risks related to inadequate warehousing;
- Addressing site ingress and egress safety issues;
- Providing enhanced visitor management; and

³⁷ EMCa, Review of Technical Aspects of proposed Access Arrangement for 2021 to 2025 (AA5), page125

³⁸ EMCa, Review of Technical Aspects of proposed Access Arrangement for 2021 to 2025 (AA5), page 46

- Reducing annual opex costs (compared to 2026 completion).³⁹
150. DBP's NPV analysis indicates that the capital deferral benefits from the delayed completion associated with the ERA's Draft Decision are more than offset by the lower opex for DBP's revised approach.⁴⁰

DBP's cost estimate has been refined

151. DBP's original cost estimate for the redevelopment was based on a high level cost estimate, which was implicitly accepted by the ERA in its Draft Decision as a reasonable estimate. We note that since submitting its Final Plan in January 2020, DBP has (i) refined its plans, (ii) allocated some costs to AGID,⁴¹ and (iii) updated its cost estimate. This has resulted in a 2% increase from the original capex forecast.

4.5.4 Conclusion

152. DBP has addressed our major concern with its original proposal by advancing the project to allow what should be sufficient time for securing the necessary approvals to complete the Jandakot site redevelopment by 2025. DBP has updated its cost estimate through a competitive tender, which has strengthened the likelihood that the proposed capex of \$8.6m is reflective of an efficient amount.

4.6 Assessment of DBP12 Safety Case Revisions

4.6.1 Background context

DBP's original business case

153. DBP's original proposal included capex of \$0.5 million in AA5 to undertake a:⁴²
- 'comprehensive review and revision of the DBNGP Safety Case, which is required to be revised every 5 years in accordance with the Petroleum Pipelines Act 1969 (WA).'*

ERA's Draft Decision

154. The ERA's Draft Decision allowed \$0.3m (i.e. a reduction of \$0.2m), which referred to the following advice from EMCa:⁴³

'Based on the incremental nature of the work (as identified by DBP), we consider that approximately 50% of the \$0.6m expenditure to produce the 2016 version is likely to be required to develop the 2021 version. Any cost involved with incorporating the non-covered pipeline assets introduced since the 2016 version of the safety case was approved should be charged to the un-covered assets.'

4.6.2 DBP's Revised Plan

155. In its Revised Plan, DBP reiterates that the efficient amount required is \$0.5m to enable:⁴⁴

'a detailed review by subject matter experts and a number of workshops with all key stakeholders. Sufficient participation in the review is necessary to ensure:

³⁹ Lower stock losses, accommodation costs, and other site operating costs

⁴⁰ DBP revised Final Plan Supporting Information to Attachment 8.5A_DBP10 Updated NPV analysis (Confidential)

⁴¹ \$39k - costs allocated include part of the warehousing, logistics, and hardstand facilities

⁴² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 59

⁴³ EMCa, Review of Technical Aspects of proposed Access Arrangement for 2021 to 2025 (AA5), page 126

⁴⁴ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 62

- Validity of the assessment;
- Capture of corporate knowledge;
- Maintaining our internal capability and required skill set; and
- Compliance with the Regulations which require “effective consultation with, and participation of, members of the workforce” in the revision of the Safety Case.’

4.6.3 EMCa assessment

DBP has provided more information on its approach and cost

156. The table below explains both DBP’s resourcing plan and the basis of its cost estimate. The hourly rate for DBP personnel is approximately [REDACTED] which we assume includes overheads and on-costs. The Audit and training activity includes [REDACTED] for external facilitation. The Formal Safety Assessment review is the most labour-intensive activity identified, with over a [REDACTED]-hours for each of the [REDACTED] personnel involved in this activity..

Table 4.6: DBP’s summary of Safety Case revision costs, \$ June 2019

Activity	Cost (\$,000)	Number of personnel	Hours	Hours per person
Introduction	4.4	4	[REDACTED]	[REDACTED]
Facility description	31.6	16	[REDACTED]	[REDACTED]
Formal Safety Assessment	240.3	28	[REDACTED]	[REDACTED]
Safety Management System	47.9	10	[REDACTED]	[REDACTED]
Audit and Training	157.7	6	[REDACTED]	[REDACTED]
Other (e.g. project management, travel)	19.2	3	[REDACTED]	[REDACTED]
Total	501.0		[REDACTED]	[REDACTED]

Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 62

157. We acknowledge that input is required from across the disciplines in DBP, including internal workshops to allow cross-disciplinary interaction. However, based on our experience, our view remains that:
- There has been relatively little change in the last five years to the covered assets;
 - Those changes should be well known and recorded as part of a prudent operator’s business-as-usual activities (i.e. they should not need to be ‘discovered’); and
 - DBP has a comprehensive asset management plan, sound knowledge of the safety risks posed by its assets, and a comprehensive set of controls, including its proactive investment program.

158. On this basis, we consider that the allowed time and cost for the review, as an addition to BAU operational costs, is excessive.

DBP has provided its perspective of the risks of a reduced allowance

159. DBP has advised that:⁴⁵

‘Any reduction to the proposed expenditure for the Safety Case revision will significantly reduce the number of key participants involved in the revision process...and could lead to:

⁴⁵ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 62

- *Crucial information being missed in the assessment; and*
- *Misalignment in the identification and control of hazards across asset facilities and engineering disciplines.’*

160. DBP also points out that any rework required because of failure to achieve approval from the Department of Mines, Industry Regulation and Safety will increase costs.
161. In our view, for the reasons outlined above, a reduction in the number of participants is not necessarily required under a \$0.3m budget allocation, but that less time per person and less external facilitation is likely to be sufficient without detracting from the outcome.

4.6.4 Conclusion

162. Having considered the new information provided by DBP, we remain of the view that the ERA’s Draft Decision of \$0.3m is sufficient for the apportionment to the covered assets of the internal labour required with some support from external facilitation, to refresh DBP’s Safety Case in the AA5 period.

4.7 Assessment of DBP15 Meter Stations

4.7.1 Background context

DBP’s original business case

163. DBP’s original business case proposed AA5 capex of \$7.9m to: ⁴⁶

‘...continue with the capital program of works necessary to maintain the performance of our meter stations... [m]eter station accuracy is critical to ensure all billing data is accurate and reliable, thereby being consistent with good industry practice and customer expectations, and complying with various standards and obligations.’

ERA’s Draft Decision

164. The ERA determined that the planned work represented prudent metering activity, but that a prudent service provider acting efficiently could undertake the work for 10% (\$0.8m) less than proposed, and revised the capex forecast to \$7.1m. The ERA’s Draft Decision referred to advice from EMCa, which included the following statement:⁴⁷

‘Of the ten projects, we consider that based on its ‘track record’ DBP is likely to be able to prudently reduce its expenditure on five of them. These projects either have one or more of the following characteristics: consistent annual expenditure, high annual capital cost and what appear to be rounded-up estimates.’

165. The five projects referred to were: (i) Earthing replacement and AC mitigation of facilities, (ii) Meter station valves and control valves overhauls, (iii) Heater fuel gas train replacement at meter stations, (iv) MLV and meter station hazardous area inspection and rectification works, and (v) Meter station piping repair.

4.7.2 DBP’s Revised Plan

166. DBP’s revised business case includes unchanged scope, timing, and cost for the AA5 metering work at \$7.8m. DBP states that:⁴⁸

‘... a 10% reduction is not practicable, and submit that our original forecast has been arrived at on a reasonable basis and represents the best estimate available in the

⁴⁶ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 67

⁴⁷ EMCa, Review of Technical Aspects of proposed Access Arrangement for 2021 to 2025 (AA5), page 127

⁴⁸ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 66

circumstances. The proposed scope of work is prudent (as noted by the ERA and EMCa), and we have found no further obvious opportunities to optimise the program beyond the project bundling/optimisation already built into the forecast.'

4.7.3 EMCa assessment

DBP has undertaken a bottom-up review of the 10 projects included in the business case

167. DBP has reviewed its metering capex forecast at the project level by:⁴⁹
- Applying more up-to-date information to, among other things, determine if a change of scope/design is prudent;
 - Seeking opportunities to defer costs where prudent to do so; and
 - Seeking further opportunities to integrate proposed projects with related projects at a lower combined cost, as suggested by the ERA in its Draft Decision.
168. DBP focussed on the five projects that we identified as candidates for capex reduction in our Initial Report. It also considered our feedback regarding the annualised profiling of expenditure and rounding, and economies of scale and scope. However, DBP has identified no opportunities for cost reduction in the AA5 period.⁵⁰
169. We have reviewed the commentary provided by DBP in the revised business case. On the basis of the information provided, there appears to be limited opportunity for prudent cost reduction given the deteriorated state of the assets. We sought evidence from DBP regarding the deteriorated state of the assets and more detail about the application of its cost forecasting methodology, as discussed below.

Evidence of deteriorated assets is compelling

170. We asked DBP to provide evidence of the deteriorated asset condition referred to in Appendix A of the revised business case. DBP responded with reports which variously include condition assessment, age profile, performance history, photographic evidence undertaken by DBP or external advisors:⁵¹
- Technical reports;
 - Investigation reports;
 - Maintenance reports;
 - Close-out reports.
171. We consider that the information provided by DBP is sufficient to demonstrate that the proposed work is prudently required to address failure risk and/or inefficient maintenance costs.

DBP's cost forecasting methodology is appropriate and the application of it is reasonable

172. In our Initial Report we accepted that DBP's cost forecasting methodology is an appropriate approach. It comprises of the use of:⁵²
- Historical costs of same or similar programs;
 - Contractual rates from vendors (as relevant); and
 - Original equipment manufacturer contractual rates for spares and labour as part of service agreements.

⁴⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 78

⁵⁰ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, pages 69-73

⁵¹ DBP, response to IR EMCa53

⁵² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 75

173. We asked DBP to provide evidence of the application of these principles. In response, DBP provided the basis for 10 projects.⁵³ We consider that DBP has taken the appropriate steps to provide a reasonable cost estimate in each case.

4.7.4 Conclusion

DBP's bottom-up analysis has resulted in no change to its originally-proposed \$7.8m. We consider that DBP has demonstrated that this is a reasonable estimate of the efficient cost of undertaking a prudent level of meter station work over the AA5 period.

4.8 Assessment of DBP16 Tools

4.8.1 Background context

DBP's original business case

174. DBP's original business case proposed AA5 capex of \$1.7m to:⁵⁴

'...continue with the regular replacement and upgrade of tools required to manage, operate and maintain the DBNGP to ensure the tools are in proper, safe working order and any tools deemed unsuitable or unsafe for use are promptly removed from service and replaced or repaired as soon as practicable.'

ERA's Draft Decision

175. The ERA accepted that DBP's periodic replacement of tools and equipment used to perform work on the DBNGP is prudent, however, the ERA was not satisfied that the forecast capital expenditure for the business case is consistent with an efficient amount. It approved capex of \$1.3m (-\$0.3m), referring to EMCa's advice that:⁵⁵
- the increase in expenditure for Transmission Operations Management (TOM) and Transmission Asset Management (TAM) tools appears to relate at least in part to the addition of un-regulated assets; and
 - the cost for the borescope appeared to be overstated.

4.8.2 DBP's Revised Plan

176. DBP reviewed its bottom-up analysis of the proposed capex for tools in AA5 and has not changed its forecast of \$1.7m. It also clarified that the borescope cost included provision for vibration testing equipment, which is why the line item cost appeared high.

4.8.3 EMCa assessment

DBP has provided additional information on the tool replacement volume and timing

177. In its revised business case DBP has provided the details of the tools it proposes to replace in AA5. DBP has identified eight types of TAM tools, 40 types of TOM tools (including borescope tooling - two types), and four types of emergency tooling. As summarised in the figure below, DBP has identified the number of tools required to be replaced in each year of the AA5 period for each of the 52 types of tools.

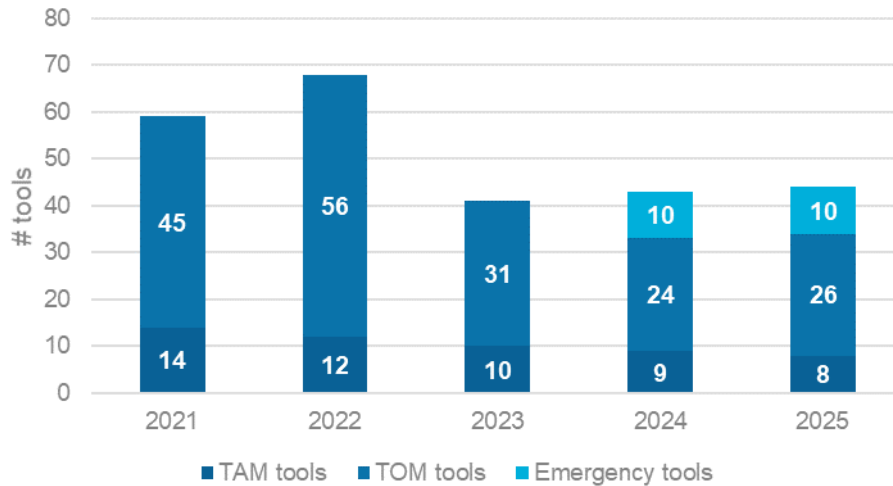
⁵³ DBP, response to IR EMCa53

⁵⁴ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 82

⁵⁵ EMCa, Review of Technical Aspects of proposed Access Arrangement for 2021 to 2025 (AA5), page128

- 178. DBP has also confirmed that the tools are all directly related to the management, operation, and maintenance of the regulated DBNGP asset,⁵⁶ addressing another of the concerns raised in our Initial Report.
- 179. From the information provided, we are satisfied that the volume and type of replacement activity forecast is at a prudent level for the covered pipeline.

Figure 4.1: DBP's tool replacement activity profile



Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 84-86

The tool unit costs are based on historical costs

- 180. DBP has provided the unit cost for each tool and has reconfirmed that forecast unit costs are based on historical costs and procured in accordance with DBP's procurement policy. The procurement policy:⁵⁷

'...includes a competitive tender process, where appropriate, such as for large value or volume items. In limited circumstances where specific tools are produced by a limited amount of competitors, single source supplier/OEM may be selected due to performance or quality of the tool, with approval having to be granted with clear reasons for this sole supplier approach to procurement.'

- 181. We are satisfied with DBP's tools cost forecasting method and given that the expenditure is largely recurrent and of reasonably high volume, historical costs should be a good guide to future costs.

4.8.4 Conclusion

- 182. The additional information in DBP's revised business case is sufficient to demonstrate that its originally-proposed \$1.7m AA5 capex is based on prudent volumes of activity and is likely to represent an efficient cost. In our view, DBP has addressed the major concerns that the ERA identified in its Draft Decision.

⁵⁶ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 84

⁵⁷ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 88

4.9 Assessment of DBP17 Fleet and civil equipment replacement

4.9.1 Background context

DBP's original business case

183. DBP's original proposal was for \$4.8m capex in AA5 to replace [REDACTED] DBNGP fleet vehicles per year at a forecast cost of \$4.1m and to replace and/or service civil equipment at a forecast cost of \$0.7m.

ERA's Draft Decision

184. The ERA's Draft Decision was to allow expenditure of \$4.3m (i.e. a reduction of \$0.5m, - 8.5%), for fleet vehicle replacement. The ERA referred to EMCa's advice which concluded that there was insufficient justification for increasing the average annual replacement rate of [REDACTED] vehicles over the AA4 period to an average of [REDACTED] vehicles p.a. over the AA5 period. No adjustment was applied for the proposed capex for civil equipment related activity.

4.9.2 DBP's Revised Plan

185. DBP has not made any changes to its original business case for fleet and civil equipment, with the forecast capex remaining at \$4.8m. It has provided additional information to support the need to replace [REDACTED] fleet vehicles in each year of the AA5 period at the same unit costs it forecast in its original business case.

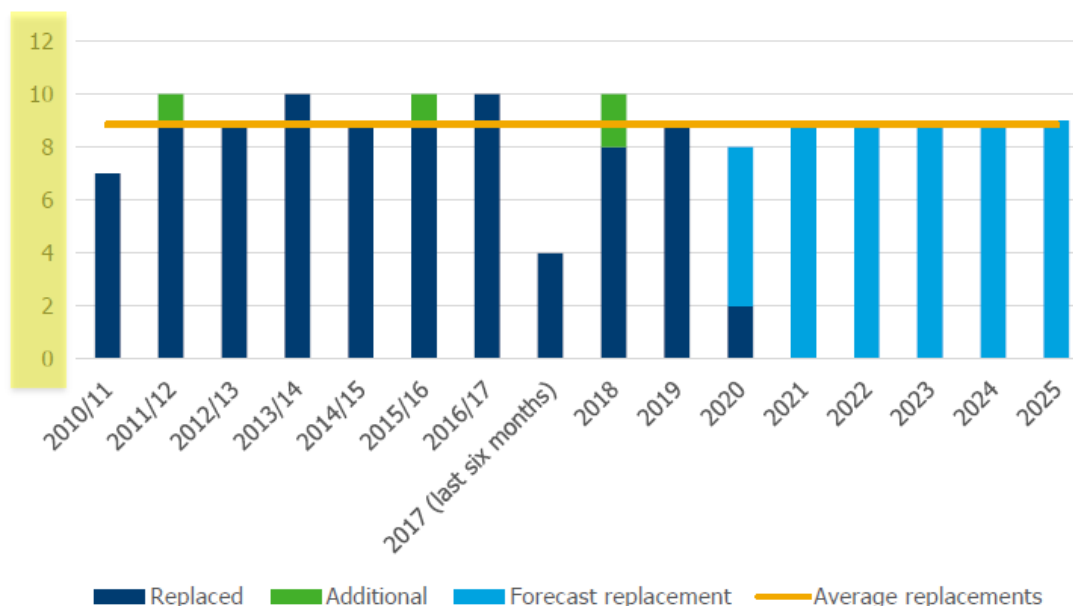
4.9.3 EMCa assessment

186. In our Initial Report we found that DBP's vehicle replacement criteria and competitive procurement methodology were both satisfactory aspects of its fleet vehicle forecasting method. We had other concerns, which DBP has now addressed, as discussed below.

DBP has provided clarifying information about its vehicle replacement forecast

187. The figure below shows DBP's annual fleet vehicle replacement volume over the last 9.5 years, which indicates an average replacement rate of [REDACTED] vehicles p.a. The average over the 2017 to 2019 period was [REDACTED] vehicles p.a. and the average for the five years from 2015 to 2019 was [REDACTED] vehicles p.a. DBP expects the annual replacement volume to be consistent with the long run average. DBP's forecast of [REDACTED] vehicles across the AA5 period is based on [REDACTED] vehicles p.a. being replaced.
188. To support the forecast being based on the long-term trend, DBP has provided a bottom-up analysis of the replacement timing of the 88 vehicles in its fleet, applying the replacement criteria that we acknowledged as being satisfactory in our Initial Report.
189. We are satisfied with the analysis to support DBP's assertion that the long run average replacement rate is [REDACTED] vehicles p.a.

Figure 4.2: DBP's historical and forecast annual number of DBNGP fleet vehicle replacement



Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 92, Figure 1
 Note: DBP moved from financial year to annual year reporting in 2017

DBP identifies increased operating risk if only fleet vehicles are replaced in AA5

190. DBP's analysis shows the average fleet vehicle age at replacement increases from 9.8 years under DBP's AA5 scenario to 10.1 years under the Draft Decision. It states that:⁵⁸

'While an increase of 0.2 years may appear small, we are not comfortable with increasing the average age our fleet vehicles are replaced at to over 10 years as this significantly increases the safety risk to our employees and also the likelihood we incur costly repairs.'

191. DBP seeks to support this claim with statistical analysis summarised in the table below.

Table 4.7: Increase in vehicle metrics: Draft Decision versus DBP planned volumes

Metric	Increase with ERA's Draft Decision AA5 volume	Percentage increase
Average age when replaced	0.2	2%
Average forecast km travelled when replaced	5,616	2.3%
Average age at December 2025	0.3	7.7%
Average forecast km at December 2025	8,978	7.0%
Number of fleet 6-10 years as at 2025	4	9.5%
Number of fleet >200,000km at December 2025	4	18.1%

Source: EMCa analysis based on DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 94-95, Table 3

192. The increases in the table above are modest, however it is reasonable to assume that there would be a small increase in vehicle failure risk with the deferred replacement of vehicles over the five year period. This is likely to manifest in a small increase in operating cost, as discussed below.

⁵⁸ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 94

DBP identifies increased operating cost if [REDACTED] fleet vehicles are replaced in AA5

193. DBP has presented additional information in its revised business case showing the correlation between average servicing and repair cost with vehicle age and with mileage.⁵⁹ The information does not present sufficient evidence that there will be anything more than a small increase in running costs.
194. We accept that it is reasonable to assume some increase in operating cost from a deferral, but in our view DBP has not demonstrated that there is a net increase in cost when ‘savings’ from deferred capex are taken into account. However, we expect that the difference will be small.

4.9.4 Conclusion

195. DBP has demonstrated that the long run average of vehicle replacements is [REDACTED] vehicles p.a. which is commensurate with its AA5 forecast. It has provided the data demonstrating the application of its criteria to its fleet of 88 vehicles and the impact of deferring [REDACTED] replacements in AA5.
196. We consider that the forecast of [REDACTED] replacements is likely to be a prudent amount, reflecting its long-run average, and that the net capital and operating cost difference between [REDACTED] and [REDACTED] replacements in AA5 is likely to be marginal either way. On this basis we consider that DBP’s revised forecast of \$4.7m for replacement of vehicle fleet and civil equipment is likely to represent a prudent volume of activity and an efficient cost.

4.9.5 Possible impact of Perth Basin-driven changes to pipeline throughput

197. As discussed in Appendix A – Perth Basin Developments, a change in throughput may impact the operating time of compressor stations. If units are mothballed as a result, it is possible that some of the vehicles scheduled for replacement may not reach the mileage thresholds forecast.

4.10 Assessment of DBP18 Turbine Exhaust Replacement

4.10.1 Background context

DBP’s original business case

198. DBP’s original business case forecast \$4.9m AA5 capex to replace [REDACTED] turbine exhausts:

‘Each of the exhausts are now overdue for replacement, with utilisation of each asset maximised with an increasing risk of failure systems based on their age and condition.’

ERA’s Draft Decision

199. In its Draft Decision, the ERA considered \$3.1m to be the efficient level of capex, with the \$1.8m reduction derived primarily from deferring [REDACTED] turbine exhaust replacements until the AA6 period. Its Decision was informed by EMCa’s advice that:⁶⁰

‘DBP has not provided sufficiently compelling information in its response to explain why it is replacing the [REDACTED] ACS units at less than 35 years old and why patching would not be effective (i.e. for at least 2 years life extension). In the absence of compelling information to the contrary, we consider that [REDACTED] ACS units planned for 2024 and 2025 are likely to be prudently able to be deferred until AA6 (a combined roll-out of \$1.7m).’

⁵⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 95-96

⁶⁰ EMCa Technical Review, pages 129-130

'DBP has allowed for \$85k for further inspection of the CS6/2 exhaust – we consider this is likely to be uneconomic given that the exhaust will be 7 years past its typical useful life by then.'

4.10.2 DBP's Revised Plan

200. DBP proposes to continue with its planned replacement of [REDACTED] turbine exhausts in the AA5 period at a revised cost of \$4.8m. It has changed components of its plan as follows:
- Deferred the CS5/1 turbine exhaust replacement to 2026;
 - Advanced replacement of the CS3/2 turbine exhaust replacement into AA5; and
 - Decided not to inspect the CS6/2 exhaust (originally scheduled for 2021).

4.10.3 EMCa assessment

DBP has provided additional information about the limited capacity to repair ACS unit turbine exhausts

201. DBP has provided additional information about the age, condition, and repair history of six ACS (Additional Compressor Station) exhausts, [REDACTED] of which are scheduled to be replaced in the AA5 period.⁶¹ Each of the exhausts has cracking to the external exhaust (and in the case of CS5/2, also to the exhaust bellows), with evidence provided by photographs of a representative sample.
202. DBP advises that the turbine exhaust on CS3/1 was repaired in 2018 and recent inspections showed that the repair had failed, and the cracking had recurred. For this reason, DBP plans to repair the turbine exhaust in the AA5 period at an estimated cost of [REDACTED].
203. Nonetheless, DBP has determined that [REDACTED] turbine exhaust replacement can be deferred until 2026.

Proactive replacement is prudent once repair is no longer effective

204. In response to our suggestion to repair the cracked exhausts to extend the life by another one-two years, DBP states:⁶²

'In rectifying these issues, we have made repairs to the cracking by grounding out the cracking and applying a weld repair. This technique has been applied on multiple occasions, but we have found that the cracking consistently recurs within 12 months of repairs.'

'The cracking compromises the structural integrity of the exhaust and therefore cannot be effectively mitigated by repairs in the medium to long term. This form of cracking can escalate rapidly from moderate to severe cracking, at which point the exhaust is no longer fit for service and results in failure of the exhaust system.'

205. In relation to the impact of exhaust failure, DBP notes the following:⁶³
- Failure of a deteriorated unit exhaust is likely to remove the turbine units from service for six to nine months;
 - Unavailability of one turbine unit does not have significant consequences for the pipeline, but it reduces the critical redundancy and operational flexibility – *'[e]xtended periods of unit unavailability severely impacts our ability to reliably and efficiently manage gas flows on the pipeline and maintain the strong levels of reliability'*;

⁶¹ The ACS exhausts have been in operation since 1991; four of the six ACS exhausts are scheduled for replacement in the AA5 period; DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, Table 2, p109

⁶² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 110

⁶³ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 110

- Failure can expose the compressor station and pipeline to excessive heat or pressure which affects the turbine unit; and
 - Failure presents a high asset damage risk to other assets at the site.
206. DBP also reinforces that proactive reinforcement is more cost effective (if done after other prudent life extension actions, such as repair, have been applied) than run-to-failure,⁶⁴ and reduces the window of risk.
207. We accept these explanations.

DBP's cost forecasting method is appropriate and application of it is reasonable

208. In our Initial Report we concluded that DBP's cost forecasting method (based on recent replacement projects) and the application of it to the [REDACTED] turbine exhaust unit replacements were both reasonable.

4.10.4 Conclusion

209. The additional information in DBP's revised business case is sufficient to demonstrate that the revised \$4.8m capex for replacing [REDACTED] turbine exhausts in the AA5 period is likely to represent a prudent strategy and that the proposed cost is an efficient estimate. In our view, DBP has addressed the major concerns that the ERA identified in its Draft Decision.

4.10.5 Possible impact of Perth Basin-driven changes to pipeline throughput

210. As discussed in Appendix A – Perth Basin Developments, a change in throughput may impact the operating time of compressor stations. If units are mothballed as a result, it is possible that replacement of some turbine exhausts may be able to be prudently deferred.

4.11 Assessment of DBP20 Customer Reporting System

4.11.1 Background context

DBP's original business case

211. DBP's original proposal for its Customer Reporting System (CRS) proposed \$2.9m AA5 capex to:⁶⁵
- *'modernise the platform to allow employees and customers to access CRS on mobile devices;*
 - *control the source code in the event the vendor is unable to support; and*
 - *provide greater flexibility and response time to changing business and customer needs.'*
212. This was referred to as Option 2 which was selected by DBP from four options that it considered. Option 2 involves continuing with CRS as the system, but upgraded to an enhanced technology platform, and to procure enhanced support from its incumbent vendor.⁶⁶

ERA's Draft Decision

213. In its Draft Decision, the ERA concluded that enhancement of the existing CRS is necessary to provide appropriate integrity of services, and to enable compliance with its regulatory

⁶⁴ Noting that EMCa did not recommend this strategy

⁶⁵ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, Table 2, page 118

⁶⁶ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 118

reporting obligations. However, it decided that Option 3 at an estimated cost of \$2.3m was likely to be the superior option because:⁶⁷

- *“Option 3’ has a lower net present cost than the option DBP selected, and*
- *Because of technical advice that ‘Option 3’ is likely to achieve the same or better outcomes as the option selected.’*

214. Option 3 is based on retaining the CRS solution with an enhanced technology platform and moving to a new vendor with enhanced support. We advised the ERA that based on the information provided by DBP, we considered this option to be technically viable and commercially more attractive. We noted that the cost estimate for Option 3 incorporated \$120k allowance for transition to the new vendor and product, which we considered to be a prudent risk mitigation measure.

215. Our issues with DBP’s preferred Option 2 were: (i) it is \$0.6m (20%) more expensive than Option 3, and (ii) it would tie DBP to its incumbent vendor that was providing a poor support service, as discussed in our Initial Report.

4.11.2 DBP’s Revised Plan

216. DBP has not changed its position that Option 2 is the prudent choice and that the efficient cost of undertaking the platform upgrade and securing enhanced support is \$2.9m capex in the AA5 period.

217. In its revised business case, DBP has provided additional information in support of Option 2, which we consider below.

4.11.3 EMCa assessment

DBP has provided clarifying information which positions Option 3 as high risk

218. In its original business case, DBP outlined the risks of moving to a different vendor, however it also proposed a \$120k provision for extra transitional support costs to mitigate the risk. We accepted that this was a prudent provision.

219. DBP now implicitly advises that this provision is insufficient to satisfactorily mitigate the risks it identified in the original business case, which in summary are as follows:⁶⁸

- The lack of access to the CRS source code could cause implementation delays;
- The new vendor does not have experience with AEMO’s requirements, which may lead to regulatory non-compliance; and
- Any glitches or delays in transition may cause supply impacts and/or interruptions to the billing cycle.

220. In its revised business case, DBP identifies two other risks from adopting Option 3:⁶⁹

- Planned retirement of several billing team members at a time of transitioning to a new vendor poses a high risk of disruption to the billing process; and
- Transitioning to a new financial management system/ERP (discussed in section 4.12) - there is a high a risk of disruption to the business if DBP were to combine this with transitioning to a new vendor or a new system for gas accounting. The billing team would be compromised, or the billing process may be compromised with a change in vendor.

221. We consider that this new and clarified information is sufficient to confirm that the \$120k provision is not likely to be sufficient to mitigate the identified risks.

⁶⁷ ERA Draft Decision, paragraph 722

⁶⁸ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, pages 120-121

⁶⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, pages 121 - 122

The cost of Option 3 and the time to implement have been revised upwards

222. In its original business case, DBP identified that the quote from the alternative vendor was derived from a proof of concept, and that:⁷⁰

‘...the potential for variation in actual delivery costs is much higher under this option compared to Option 2... and ...this cost assessment does not include any costs associated with maintaining two systems and support vendors in parallel for a short time during transitions.’

223. In assessing this information for our Initial Report, we considered that a combination of enhanced vendor support, the risk allowance of \$120k, and the detailed basis for the quotation, indicated to us that Option 3 appeared to have merit. On this basis, we considered at that time that a competitive tender process would likely keep downward pressure on prices and would be required to select the best offer.

224. In its revised business case, DBP states that it expects the cost estimate accuracy of Option 3 to be ±30%,⁷¹ which could lead to a cost commensurate with, if not higher than, Option 2. DBP claims that the Option 2 forecast is likely to be more accurate than its Option 3 forecast for the following reason:

‘Given the vendors experience with the system and our requirements, we expect the actual timeframe and cost estimates for the enhancements in AA5 are likely to be within +/- 5-10% of the estimate.’

225. This new and clarified information is sufficient to reasonably conclude that the 20% cost advantage of Option 3 over Option 2 in the business case, is not likely to be realised in practice.

The current vendor has improved its service delivery

226. DBP has addressed one of our major concerns with Option 2 (i.e. locked-in unresponsive vendor) by confirming that [REDACTED] has improved its responsiveness by ‘...taking on additional staff and integrating other existing staff to assist in support of the product’ and enhancing the functionality of CRS to improve performance, reporting, scheduling.⁷²

4.11.4 Conclusion

227. DBP has addressed our major concern with the incumbent CRS vendor and has provided additional information to confirm that the additional risk posed by Option 3 is likely to outweigh any apparent Option 2 cost advantage. Furthermore, DBP has argued that the cost advantage of Option 3 over Option 2 may be eroded as firm prices are received. On this basis we are persuaded that Option 2 at an estimated \$2.8m is likely to reflect the prudent approach at an efficient cost.

4.12 Assessment of DBP21 IT Sustaining Applications

4.12.1 Background context

DBP’s original business case

228. For AA5, DBP forecast \$3.4m capex in its IT sustaining applications business case, comprising five initiatives and a Program and Change Management provision.

⁷⁰ DBNGP FP 8.5 Capex Business Cases CONFIDENTIAL Rev1, page 308

⁷¹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 120

⁷² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, pages 121-122

229. DBP allocated \$2.0m of the \$3.3m to completion in 2021 of the ‘interim solution’ for replacement of its finance management system, Microsoft Dynamics AX (‘MS Dynamics’) to be initiated in 2020. The remaining AA5 IT sustaining application initiatives were forecast to cost \$1.3m
230. We discuss the finance management system replacement initiative separately from the remaining initiatives below because of the significant change of scope DBP proposes in its revised business case.

Proposed interim solution for its underperforming MS Dynamics

231. DBP’s original business case was developed in the second half of 2019 and proposed \$3.0m capex in 2020 (i.e. within AA4) on commencement of the MS Dynamics interim replacement project. According to DBP, MS Dynamics needed to be replaced because it is ‘unreliable, underperforming, and comes out of technical support in 2021’.⁷³
232. The \$5.0m project (comprising \$3.0m in AA4 and \$2.0m in AA5) was positioned as a short-term ‘tactical’ or ‘interim’ solution which included work in preparation for a transition to AGIG’s ‘One ERP’ project covering all three networks,⁷⁴ sometime after 2023. The capital cost attributable to DBP for its share of the One ERP project was not included in the original business case because the One ERP project was still being scoped and costed at that time.
233. In response to an EMCa Information Request,⁷⁵ (i) DBP revised the \$2.0m AA5 estimate to \$4.2m (i.e. to a total interim solution project cost of \$7.2m, after taking account of the proposed expenditure of \$3.0m in AA4) to reflect more recent development of the AGIG IT Strategy Roadmap, (ii) advised that it intended implementing SAP S/4HANA as its new AGIG-wide ERP, and (iii) advised that it intended providing an updated forecast in its response to the ERA’s Draft Decision.

Other IT Sustaining Applications

234. The original business case for IT Sustaining Applications included a further \$1.3m in the AA5 period to complete upgrade works to several other software applications to: ⁷⁶
- ‘ensure the integrity, security and reliability of our IT environment, manage technology risks and ensure applications remain fit-for-purpose.’*

ERA’s Draft Decision

ERA allowed a total of \$2.0m for the proposed replacement of MS Dynamics

235. The ERA was not satisfied that the \$5.0m interim solution, to be implemented in 2020 and 2021 and to be followed by an unspecified capex allocation for DBP’s share of the One ERP sometime beyond 2023, was likely to be prudent and efficient expenditure.
236. The Draft Decision referenced our Initial Report, in which we expressed our view that DBP should (i) defer replacement of MS Dynamics until the AA5 period, (ii) not invest in an ‘interim solution’ but instead integrate replacement with AGIG’s One ERP project, and (iii) if necessary, advance the One ERP project. Our view was that this would reduce the overall cost of replacement.
237. Based on the information available in DBP’s Original Plan, the ERA approved a total of \$2.0m in AA5 for DBP’s share of the one ERP project.

ERA allowed a total of \$1.3m for other IT Sustaining application activity

238. The \$1.3 million forecast by DBP for other sustaining application upgrades in the AA5 period was approved in principle in the ERA’s Draft Decision.

⁷³ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 132

⁷⁴ AGIG comprises DBP, AGN, and Multinet Gas

⁷⁵ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 132

⁷⁶ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 155

4.12.2 DBP's Revised Plan

239. DBP's Revised Plan includes two addenda pertaining to business case DBP21 – one addressing the replacement of MS Dynamics, and the other covering the remainder of the proposed IT sustaining applications capex in AA5.

DBP proposes a total of \$12.7m capex to implement SAP S/4HANA, replacing MS Dynamics

240. DBP advises that it has considered the ERA's Draft Decision and now proposes to start the One ERP project in 2020 with a 'Phase 1' roll-out at DBP. It has not proceeded with the option of an 'interim solution'.⁷⁷
241. Phase 1 involves implementing SAP S/4HANA at DBP and partially completing a transition to it at Australian Gas Networks (AGN) at a total cost of \$19.1m. Phase 2 involves completing implementation of SAP S/4HANA at AGN and transitioning to it at Multinet, at a cost of \$41.3m. The AGIG total cost of the One ERP project is therefore estimated to be \$60.4m.
242. DBP proposes that its share of the One ERP project is \$12.7m. This is based on a 66.5% allocation of the Phase 1 cost to DBP, using the relative ERP User numbers at DBP and AGN. The balance of the Phase 1 cost is to be allocated to AGN. There is no allocation to DBP of the Phase 2 costs, since this involves only AGN and Multinet.
243. DBP propose splitting the project cost across the final year of AA4 (\$3.2m in 2020) and the first year of AA5 (\$9.5m in 2021).
244. DBP advises that the cost of it proceeding to replace MS Dynamics alone with SAP would be \$17.7m.

DBP proposes \$1.3m capex on the remainder of its IT sustaining applications initiatives

245. DBP has not changed its capex forecast for other sustaining applications in the AA5 period.

4.12.3 EMCa assessment

Replacing MS Dynamics is a prudent approach

246. In our initial assessment, we were satisfied that MS Dynamic's poor record of performance and impending end of system support from Microsoft in 2021 were sufficient grounds for upgrading or replacing the system. DBP advises that *'[c]ontinuing with Microsoft Dynamics AX to 2023 and beyond is unsustainable and has been highlighted as a significant risk by DBP's statutory auditors Deloitte.'*⁷⁸
247. On this basis, we consider that deferring replacement of MS Dynamics until 2023 to coincide with the original timing of the One ERP project would not be prudent. Therefore, we consider that replacement of MS Dynamics is reasonably required by 2021, or as soon as practicable thereafter.

The One ERP project is aligned with a relatively common industry IT strategy

248. AGIG has provided its 'One IT Strategy' roadmap which is *'designed to deliver stable and aligned IT management processes, architectures, procurement, cyber security and core technology platforms across the Group.'*⁷⁹ Consolidation of IT systems in multi-business Groups such as AGIG follows the pattern of consolidation in the energy industry we have observed. AGIG's One IT strategy and One ERP project are consistent with this industry trend.

⁷⁷ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL page 134

⁷⁸ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 134

⁷⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL page 135

Selection of SAP S/4HANA as the new ERP appears to be reasonable

- 249. DBP/AGIG considered three options for replacing MS Dynamics: SAP S/4HANA, MS Dynamics 365, and Oracle Cloud. The options analysis took into account the quality of integration with DBP’s IBM Maximo for Enterprise Asset Management tool (‘Maximo’). The selection criteria included cost, future fit and alignment, experience, and good industry practice.⁸⁰ The competitive tender and selection process was concluded in August 2020 with SAP S/4HANA selected as the superior solution based on both cost and non-cost criteria.
- 250. SAP S4/HANA is a cloud-based solution with the functionality to be applied at DBP denoted in the figure below. As with the consolidation strategy prevalent in the energy industry, migration to cloud-based solutions is the typical strategy to reduce long term capex requirements and to increase scalability. The ERP will replace DBP’s MS Dynamics finance system, nine manual financial/administrative operations,⁸¹ and its ProMaster expenses system.⁸² The functionality to be provided for DBP is consistent with other applications of SAP and usefully replaces the manual and other separated functions with an integrated ERP.
- 251. DBP’s revised business case outlines that its share of the forecast annual opex for the One ERP project is \$1.5m of \$2.2m (i.e. 66%). It states that ‘[o]ur intent is to absorb these higher IT operating costs (for example this \$1.0 million p.a. increase in ERP system costs) in lieu of a productivity adjustment being applied to our opex forecast.’⁸³

Figure 4.3: SAP S/4HANA functionality



Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 149

- 252. We consider that the evaluation process was satisfactory and that the selection of SAP S/4HANA was the appropriate Decision for the AGIG-wide ERP system, based on the information provided.

The Phase 1 cost estimate methodology and estimated cost are reasonable

- 253. We are satisfied that DBP’s tender process is likely to have resulted in a competitive outcome for a scope of work that is commensurate with its needs and is based on an acceptable set of commercial and legal terms and conditions.⁸⁴

⁸⁰ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 136

⁸¹ E.g. labour time sheeting, project accounting, tax, reporting

⁸² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 149

⁸³ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 143

⁸⁴ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, pages 139-140, 150-154

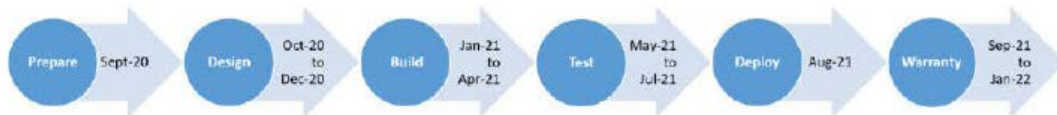
Allocation of DBP’s share of the Phase 1 cost appropriate

254. DBP proposes allocation of 66.5% of the Phase 1 ERP One cost of \$19.1m to DBP based on the proportion of ERP users: 125 for DBP and 63 for AGN. DBP considered number of customers, and total gas volumes as alternative allocation methodologies, rejecting them because of the disparity between the distribution and transmission gas businesses. It did not consider revenue as an option even though this is a basis for allocation it uses in other circumstances.⁸⁵ However given the distinct split between phases 1 and 2 of the One ERP project (i.e. where DBP does not benefit from Phase 2), we consider that revenue is not a reasonable allocation methodology in this case and that the number of ERP Users is the most appropriate.
255. Provided that DBP correctly charges its unregulated business for services and those charges include an appropriate IT overhead component, as indicated in DBP’s response to our information request EMCa61, we are satisfied that the \$12.7m Phase 1 cost is apportioned appropriately to DBP. \$9.5m of this is to be incurred in the AA5 period.

Project timing appears to be ambitious

256. According to DBP’s revised Final Plan, Phase 1 of the One ERP project commenced in September 2020 and is scheduled to be completed in Q3 2021, as shown in the diagram below.

Figure 4.4: DBP’s proposed project timeline – Phase 1 of One ERP



Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 140

257. Whilst this timeline looks ambitious to us, we were not convinced that DBP would efficiently expend the proposed \$3.2m in three months in 2020. We have addressed this issue in section 3.2.

DBP’s proposed remaining IT sustaining applications capex of \$1.3m is unchanged

258. DBP has not changed its forecast and the ERA approved the proposed amount of \$1.3m subject to an adjustment for real labour escalation.

4.12.4 Conclusion

259. We consider that DBP’s proposed AA5 capex of \$9.5m on implementing SAP S/4Hana to replace MS Dynamics (and other systems) plus the proposed \$1.3m on other IT Sustaining Applications during the AA5 period is for prudent activity and the cost estimate is likely to represent an efficient level.

4.13 Assessment of DBP22 IT Enabling

4.13.1 Background context

DBP’s Original Business Case

260. DBP’s original business case described three streams of work to improve its technological landscape: business reporting, information management, and decision-making systems.

⁸⁵ Business Case DBP22 IT Enabling, per DBP’s response to IR EMCa54

DBP's estimated cost was \$5.2m for an estimated NPV of +\$0.5m. The project was positioned as a standalone suite of initiatives (i.e. separate from the rest of AGIG).

ERA's Draft Decision

261. The ERA's Draft Decision did not provide for any expenditure for IT enabling initiatives. Its decision was informed by our advice in which we outlined three issues:⁸⁶
- The scope, benefits and costs for each initiative were preliminary - the approach to costing them, and to deriving the benefits, were based on a combination of 'rules of thumb' and AGN's distribution experience, neither of which (in our view) translated to management of a linear transmission line;
 - 60% of the calculated NPV was derived from a small subset of the proposed initiatives; and
 - The NPV was marginally positive and no sensitivity studies were undertaken by DBP – we considered it likely that sensitivity studies would show that the cluster of initiatives would not be viable.

4.13.2 DBP's Revised Plan

262. DBP's revised business case proposes \$5.6m capex (i.e. an increase of \$0.4m), with a positive NPV of \$6.1m (+13.8% IRR). Rather than a standalone program, DBP plans to leverage off a AGIG-wide IT enabling program⁸⁷ totalling \$17.4m. The DBP program comprises:
- \$1.1m direct allocation to DBP; and
 - \$4.5m which equals a 35% share of costs based on total revenue at each business.

4.13.3 EMCa assessment

The scope is wider, and the benefits and costs have been refined

263. DBP advises that:⁸⁸
- 'The scope of the proposed AGIG work program has since materially advanced. We have conducted detailed design and established a broader understanding at what IT Enabling initiatives are required at DBP and the other AGIG businesses, as well as identifying opportunities to share costs and optimise delivery.'*
264. DBP positions its revised approach as allowing DBP to benefit *'from a significantly better solution for only a relatively small increase in investment.'*⁸⁹ The table below presents DBP's identified additional beneficial outcomes which DBP has sought to quantify and has included in its revised cost-benefit analysis.

⁸⁶ ERA Draft Decision, paragraph 736

⁸⁷ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 170

⁸⁸ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 174-175

⁸⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 175

Table 4.8: DBP's IT enabling program – summary of outcomes from original and additional benefits

Original outcomes from IT Enabling initiatives	Additional Outcomes from revised IT Enabling initiatives
<ul style="list-style-type: none"> Centralised information repository Organisational data model enabling structured copying into the centralised repository Fit-for-purpose data governance and management processes Enterprise data, reporting and dashboard tools that support integration of operational data with commercial data to improve decision-making intelligence, dashboards, and reporting systems Transformed reporting and dashboards Predictive data analytics capabilities Fit-for-purpose document management systems Office365 configured for collaboration, accessibility to documents, and document workflows. 	<ul style="list-style-type: none"> Greater integration with SAP S/4HANA, maximising the features and benefits Shared licensing costs with other AGIG businesses Centralised reporting intelligence capabilities Improved metadata management Shared IT support and upgrade/patch costs

Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 175

265. DBP commissioned KPMG to undertake a detailed analysis of AGIG-wide requirements and an assessment of how each of the three businesses would benefit from the integrated IT environment. This, among other things, has provided more detailed estimates of the benefits than were previously provided by simple rules-of-thumb. The advice was that common applications being delivered across the AGIG businesses combine to extract more benefits from a larger suite of applications at a reduced cost to each business due to cost-sharing.
266. In our experience, AGIG's approach is increasingly prevalent in utility industries. Owners of multiple utility businesses in the energy sector are tending to (i) retain or transition to a select group of applications, (ii) consolidate multiple instances of applications into one application (i.e. shared between each business), (iii) standardise IT/data governance, architecture, and systems, (iv) introduce or expand application integration platforms, and (v) move to cloud-based applications. AGIG's approach is consistent with this sectoral trend and offers the potential for economies of scale and scope.

The cost is shared across the AGIG businesses based on direct allocation and total revenue

267. We asked DBP to explain the rationale for, and the calculation of, the \$1.1m direct allocated cost. In its response,⁹⁰ DBP advised that some initiatives such as the specific migration/integration of applications and data to the shared platform will be directly incurred by each of the AGIG businesses. The costs of each of these activities have been calculated for AGN (\$0.6m), DBP (\$1.1m) and Multinet (\$2.8m). Of the \$1.1m, DBP is forecast to incur \$0.8m to connect DBP applications to the integration platform and \$0.3m to implement the Data Archive Store for DBP. DBP has provided the cost breakdown to support these amounts, which appear to be reasonable.
268. The total of \$4.5m directly allocated cost has been deducted from the total AGIG IT Enabling project capex and the balance of \$12.8m has been shared amongst the three AGIG businesses according to the respective shares of total revenue. In response to our information request, DBP has provided the revenues for the 12 months to June 2020 for the three businesses.⁹¹ We consider the approach to be reasonable, noting that according to DBP's response to our information request EMCa61, DBP charge for services to its unregulated business includes a component for IT overhead.

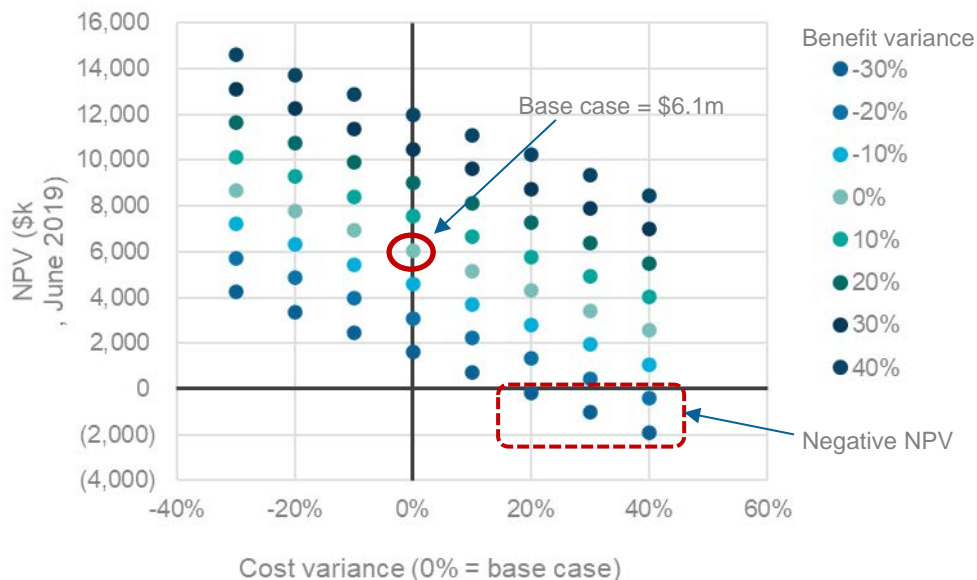
⁹⁰ DBP response to EMCa54 – IT Enabling

⁹¹ DBP response to EMCa54 – IT Enabling

The revised NPV analysis has not led to a compelling business case

269. In our opinion, DBP’s original NPV analysis was not compelling. The net benefit was marginal at \$0.5m and was not well supported by the input assumptions. DBP has responded by revising the NPV analysis, including by:⁹²
- Improving the scope and updating the cost estimates with more up-to-date information and explanation
 - in our Initial Report we queried why ongoing opex was not recognised in the original NPV analysis; it has been included in the revised NPV analysis
 - Re-estimating the benefits based on DBP’s transmission pipeline business and by assuming that benefits are not separable - we consider that:
 - deriving the benefits by applying the productivity improvements to DBP-specific metrics is appropriate;
 - assuming benefits are not separable is acceptable based on the description of the interdependencies with the AGIG-wide program and between initiatives;
 - the claimed resource saving from process improvement initiatives of 15-20% is a reasonable assumption based on our experience regarding IT-driven process improvement and is likely to be realisable;
 - the procurement benefit of 3% from group level volume discounts is a reasonable assumption based on our experience and is likely to be realisable
 - Undertaking a sensitivity analysis to test the robustness of the results to variations in cost and benefit - as shown in the diagram below, with DBP’s assumptions, the NPV is positive for all but four of the combinations of cost and benefit.
270. DBP’s model exhibits a reasonably robust outcome. However, as discussed below, we have issues with DBP’s model.

Figure 4.5: IT Enabling – NPV sensitivity analysis – DBP model, \$k, June 2019



Source: EMCa analysis of DBP revised Final Plan Supporting Information to Attachment 8.5A_DBP22 Updated NPV analysis (Confidential)

271. DBP’s NPV model includes benefits from the investment in 2033 and 2034, whereas the annual opex ceases after 2032. This has the effect of distorting the net benefit. Furthermore, DBP’s NPV analysis does not include any additional capex investment in the ten years after the initial capex in 2021 and 2022 for refreshes or replacements. We consider this to be an

⁹² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 184-186

aggressively low cost assumption. We asked DBP to explain both of these assumptions. With respect to its opex and benefit timing assumptions, DBP responded as follows:⁹³

'The modelling includes a full 10 years of costs and benefits, however the timing of those costs and benefits differ slightly. The ongoing annual opex once the projects have been delivered is \$409k, with only a portion of these costs incurred in the first two years based on project timing. Therefore the costs continue until the equivalent of 10 years of \$409k has been captured, with the final year being 2032.

The ongoing annual benefits once the projects have been delivered is \$1,933k, with the benefits expected to ramp up to this level over the four years following implementation. Therefore the benefits continue until the equivalent of 10 years of \$1,933k has been captured, with the final year being 2034.'

272. We consider that not recognising the operational expenses associated with realising the benefits from the IT systems is invalid. Costs and benefits should be assessed for the same years, which may not necessarily be the same period of cost and benefit flows for each.

273. With respect to its decision not to include any IT capex for refreshes or replacements of its systems in its model, DBP responded as follows:⁹⁴

'The key systems in the IT Enabling Business Case are the integration layer and data warehouse. Given how fast the technology landscape moves, it is expected refresh/replacement of these systems will not be undertaken "like-for-like" but will see incremental improvements/transformation that will be able to deliver further business benefits. For this reason, we did not include any further capex in the 2023-2032 period for refreshes or replacement of the systems in our cost benefit analysis of the initial investment.'

274. DBP has not provided sufficiently compelling information to demonstrate that refreshes or replacement of IT systems that are likely to be required within 5-7 years of the initial investment will provide additional benefits rather than maintain its assumed benefits. In our opinion, DBP should have modelled these costs.

275. We have developed an 'EMCa adjusted' version of the IT enabling NPV model which we consider to be a more reasonable basis for assessing the proposed IT enabling initiatives by:

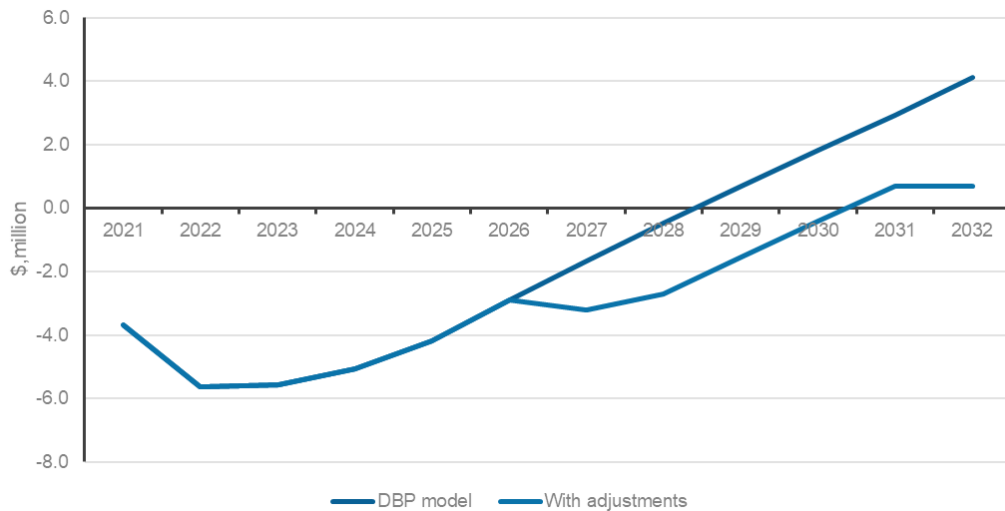
- Adding 50% of the initial capex investment in 2028 and 2029 (i.e. 5 years after the initial capex) as an estimate of a likely upgrade or mid-period refresh cost;
- Stopping the opex and benefits in 2031, to limit the study period to 10 years; and
- No change to the quantum of opex or benefits as a result of the systems refresh/upgrade.

276. These changes reduce the \$6.1m NPV derived from DBP's model to \$0.7m. The impact on cumulative cash flow is shown in Figure 4.6 below. The breakeven year is delayed from DBP's 2029 to 2031 with the adjusted assumptions, and the IRR is reduced to 4.9% from DBP's modelling result of 13.8%. We consider these two key indicators indicate that the investment is unlikely to be prudent.

⁹³ DBP response to Information Request EMCa63

⁹⁴ DBP response to Information Request EMCa63

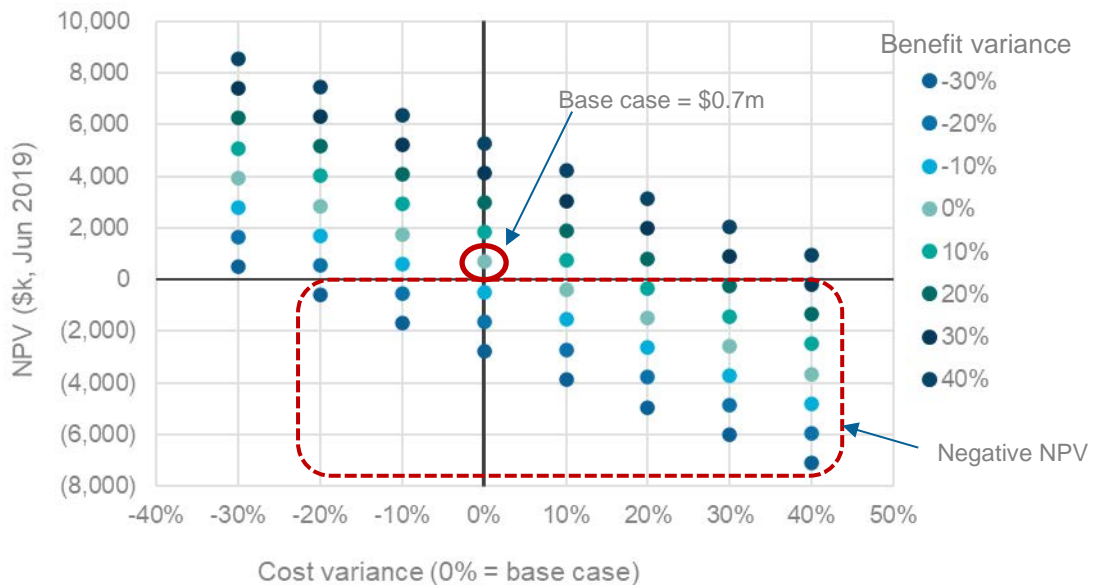
Figure 4.6: IT Enabling – cumulative cashflow for DBP model and with adjusted assumptions



Source: EMCa analysis based on DBP revised Final Plan Supporting Information to Attachment 8.5A_DBP22 Updated NPV analysis (Confidential)

277. As a further test of the robustness of the positive NPV, we assessed the sensitivity of the EMCa-adjusted matched-period assumptions to variances in cost (capex and opex) and benefit. The figure below shows the NPV sensitivity study results using the EMCa-adjusted assumptions. Even a 10% increase in cost, with no change in assumed benefits, results in a negative NPV. Compared to the results from DBP’s model, the NPV would be negative for a large number of unfavourable cost and/or benefit variances.

Figure 4.7: IT Enabling - NPV sensitivity analysis – with adjustments, \$k, Jun 2019



Source: EMCa analysis based on DBP revised Final Plan Supporting Information to Attachment 8.5A_DBP22 Updated NPV analysis (Confidential)

4.13.4 Conclusion

278. DBP has refined its Enabling IT initiatives by refining its approach, including by moving from a set of standalone initiatives to participating in an AGIG-wide initiative and improving the input assumptions. The initiative is of a strategic / discretionary nature, with the business case as presented relying on assessed productivity benefits to justify the proposed investment.

279. However, we consider that DBP has not properly modelled capex, opex, and benefits over consistent periods or with realistic capex and opex assumptions. With more realistic assumptions, the NPV is much lower than DBP has proposed and very sensitive to unfavourable cost and benefit variances.
280. For these reasons, we do not consider that DBP has made a satisfactory case to include the proposed capex as part of its regulatory allowance. Nonetheless, the regulatory framework allows for businesses to incur capex and to benefit from consequent reductions in opex and AGIG may choose to proceed with the project based on its own overall business case.

4.14 Assessment of DBP23 IT Security

4.14.1 Background context

DBP's Original Business Case

281. DBP's original business case proposed capex of \$1.8m for the AA5 period to upgrade its IT security to be '*consistent with industry standards, regulatory requirements in relation to critical infrastructure security, and risk appetite.*'⁹⁵ DBP's program comprised of three initiatives: cyber resilience, technology governance automation, and data protection and privacy. DBP proposed achieving cyber security Maturity Indicator Level (MIL) 3, as measured by the Australian Energy Sector Cyber Security Framework (AESCSF), by 2025.

ERA's Draft Decision

282. In its Draft Decision the ERA approved \$1.5m to achieve MIL 3 by 2026, rather than by 2025 as proposed by DBP because:⁹⁶
- DBP had provided insufficient support for its assumed 'High' cyber security risk rating for the DBNGP; and
 - DBP is also proposing capex on IT software and hardware projects under multiple business cases in AA5 which will contribute to improving DBP's cyber security.
283. The ERA accepted the use of the AESCSF MIL definitions as an appropriate measure and benchmark for cyber security maturity.

4.14.2 DBP's Revised Final Plan

284. DBP's revised business case includes \$2.3m capex to achieve MIL3 by 2025, an increase of \$0.6m. DBP outlines a change of strategy which is to move from standalone delivery of its cybersecurity improvement program to participation in an AGIG-wide project, with costs apportioned to DBP based on revenue. DBP has provided:
- Its updated understanding of its security of critical infrastructure obligations;
 - Updated information on its cyber security risk, including its updated assessment against the AESCSF;
 - An explanation of the rationale for the AGIG-wide project referred to as the 'Uplift Cyber Security Technology and Capabilities program';
 - An explanation of how the impact of upgrading/replacing IT systems and applications proposed during the AA5 period on cyber security has been accounted for; and
 - An explanation for the increased cost to achieve the same MIL as proposed in its original business case.
285. We assess each of these aspects of the revised business case below.

⁹⁵ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 192

⁹⁶ ERA Draft Decision, paragraphs 742, 743

4.14.3 EMCa assessment

Updated information on the Security of Critical Infrastructure Act

286. DBP advises that proposed amendments to the Security of Critical Infrastructure Act 2018 were released for comment via a consultation paper on 6 August 2020.⁹⁷ DBP interprets the amendments to place more stringent obligations on critical infrastructure owners than currently exist, comparable to the AESCSF MIL 3 requirements. It also considers it reasonable to assume the amendments will be enacted within the AA5 period.⁹⁸
287. DBP also states that its original standalone cyber security program would not have been able to meet likely obligations related to the amendments, including:⁹⁹
- *'Reporting obligations to provide Government with greater visibility and understanding of who owns, controls and has access to our most critical assets...'*
 - *'A positive security obligation – to build consistent security and risk management uplift across all critical infrastructure sectors...'*
 - *'Enhanced cyber security obligations to strengthen the resilience of designated systems of national significance...'*
288. We consider that DBP's assessment is a reasonable interpretation of the proposed amendments. Given the recent history of cyber attacks on critical infrastructure in Australia, it is also reasonable to conclude that the threat environment is worsening and in response, the Department of Home Affairs on behalf of the federal government is likely to introduce strengthened obligations within the next five years.

Updated information supports cyber security risk assessment as 'high'

289. DBP received an updated AESCSF maturity level assessment in July 2020 as part of an AGIG-wide assessment. DBP was assessed as MIL 1 with some activities at or near MIL 2. Three critical risks were identified:¹⁰⁰
1. *'a lack of IT and cybersecurity resources to support the cybersecurity uplift and business-as-usual activities;*
 2. *businesses are performing cyber security activities in an ad-hoc fashion without an organisation-wide security framework to document and formalise those activities; and*
 3. *over reliance on third parties and lack of third party risk management framework.'*
290. Both in response to the ERA's feedback in its Draft Decision and in light of the new information regarding the Security of Critical Infrastructure Act and its AESCSF assessment, DBP revisited its risk assessment. It concludes that the risk remains 'high' and states that:¹⁰¹
- 'The primary risk event associated with not investing in the proposed cyber security capability uplift initiatives as defined in the Uplift Cyber Security Technology and Capabilities program is the compromise of critical infrastructure assets owned and operated by DBP. A successful cyber attack perpetrated by malicious actors could result in the unavailability of our pipeline. This would result in significant reputational, operational and financial risks.'*
291. The figure below shows DBP's translation of its assessment of its current risk position across five dimensions into its corporate risk matrix.

⁹⁷ The Protecting Critical Infrastructure and Systems of National Significance Consultation Paper, August 2020 is available here: <https://www.homeaffairs.gov.au/reports-and-pubs/files/protecting-critical-infrastructure-systems-consultation-paper.pdf>

⁹⁸ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 197

⁹⁹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 197-198

¹⁰⁰ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 196

¹⁰¹ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 198

Figure 4.8: DBP’s revised risk matrix – untreated risk

	Trivial	Minor	Severe	Major	Catastrophic
Frequent					
Occasional			Reputation / Asset Damage (Loss)	DBP / Supply	
Unlikely		Environment	People		
Remote					
Hypothetical					

Negligible	Low	Intermediate	High	Extreme
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Source: DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, Figure 6, page 200

292. Given the increased threat environment and DBP’s position as a critical infrastructure owner, we remain of the view expressed in our Initial Report, that DBP’s cyber security risk is currently ‘high’.

Updated cyber security strategy involving whole-of-AGIG response

293. AGIG has, since the development of DBP’s Final Plan, developed its Uplift Cyber Security Technology and Capabilities program which is designed to achieve MIL 3 across AGIG’s three businesses. AGIG engaged a consultant to identify gaps in its IT architecture which informed the development of the security roadmap and the planned expenditure priorities. DBP states that:¹⁰²

‘The program will establish cyber security with mature processes to enable risk-based Decision making, reporting for applicable regulatory obligations, and continuous monitoring of conformance with defined frameworks. It will also ensure that independent assurance over the design and operating effectiveness of security controls is sought through periodic audits and reviews.’

294. In order to justify the additional expenditure compared to its standalone project, DBP argues that:¹⁰³

- Additional IT architectural improvements will be delivered which are necessary to achieve MIL 3 at a relatively low incremental cost;
- Being part of the Group approach is *‘the only way of minimising the risk for continued safe, reliable and secure operation of the DBNGP...’*; and
- *‘DBP will benefit from ongoing efficiencies due to being part of a larger IT shared services platform.’*

295. In our opinion, DBP’s alignment with AGIG’s One IT project referred to elsewhere in this current report brings with it increasing inter-dependence and inter-operationality of its three businesses and therefore the inevitability of a need for a coordinated approach to managing cyber security risk. As we also say in section 4.12, such business aggregation, and consolidation is evident in the energy sector. There should be medium to long-term advantages from the combined Uplift Cyber Security Technology and Capabilities program, including ongoing efficiencies.

¹⁰² DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 201

¹⁰³ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL page 204-205

Cyber security contribution from other projects

296. In its revised business case DBP acknowledges comments regarding the contribution from the delivery of AA5 application upgrades/replacements to cyber security improvements in the ERA's Draft Decision. However, DBP points out that both the technology enhancements and the IT framework (or infrastructure) enhancements are required:¹⁰⁴

'The IT sustaining, enabling and infrastructure investments are required to deliver the technology uplift in line with the IT framework. It is only when both the infrastructure uplift and technology uplift are aligned that an overall uplift in security will be achieved.'

297. We accept that the investment proposed in this business case is required in addition to the cyber security benefits from other AA5 projects.

Revised cost estimate and allocation to DBP

298. DBP has provided a revised cost breakdown for the Uplift Cyber Security Technology and Capabilities program, with a total estimated \$6.7m capex and \$8.0m opex over the AA5 period for the whole of AGIG. Key aspects of the estimate include:¹⁰⁵

- It was developed for AGIG by a consultant in conjunction with AGIG subject matter experts;
- Where synergies exist, costs have been shared across projects;
- Estimates are based on the latest market conditions and rates, and expert knowledge;
- Internal and external resources will be used; and

299. We consider that this cost forecasting method is a reasonable basis for establishing an estimate of an efficient cost, given the sources of information. We note that DBP confirms that Delivery of the program will be subject to a competitive market tender process.

300. Allocation of the capex to DBP is based on total revenue, resulting in a 35% allocation to DBP. Provided that DBP correctly charges its unregulated business for services and those charges include an appropriate IT overhead component, as indicated in DBP's response to our information request EMCa61, we are satisfied that the \$2.3m capex is apportioned appropriately to DBP.

4.14.4 Conclusion

301. We consider that DBP's revised proposed IT Security capex of \$2.3m is likely to represent a prudent level of activity for a critical infrastructure business and that the cost is a reasonable estimate of an efficient amount.

¹⁰⁴ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 205

¹⁰⁵ DBP revised Final Plan Attachment 8.5A Addendum to Capex Business Case CONFIDENTIAL, page 207

5 AA5 OPEX

5.1 Introduction

302. In this section, we review and assess the components of opex where DBP either fully or partially rejected ERA's Draft Decision.
303. Although DBP accepted ERA's principles for setting the base year, DBP updated its base year costs and which we have therefore assessed.
304. The other three aspects of DBP's Revised Plan which we assess are:
- DBP's rejection of the adjustment that ERA made to its proposed GEA and turbine overhauls expenditure;
 - DBP's rejection of ERA's Draft Decision to apply a 0.5% per year productivity improvement adjustment;
 - The System Use Gas (SUG) quantity that DBP has proposed in its Revised Plan, noting that, along with its throughput forecast, its proposed SUG requirement is less than in its Original Plan.

5.2 Assessment of base year

5.2.1 Background context

305. DBP's base year opex comprises the components to which it applies a 'Base Step Trend' forecasting approach. This excludes System Use Gas, GEA and Turbine Overhauls and 'capex to opex' expenditure, each of which is forecast on a bottom-up basis.
306. In its original AA5 opex proposal, DBP used actual opex incurred from January to September 2019 and used forecasted opex from October to December 2019 totalling \$61.0m before DBP made some adjustments of \$1.3m to opex sub-categories (consulting, insurance and reactive maintenance). This resulted in DBP's original proposed AA5 opex of \$59.8m.
307. In its Draft Decision, the ERA accepted DBP's base year value in its original AA5 opex proposal.

5.2.2 DBP's Revised Plan

308. In response to the ERA Draft Decision, DBP submitted a new base year value which is based on DBP's reported 2019 full year actual opex, after some base year adjustments¹⁰⁶ to replace the following '2019 actuals' line items:
- Replacing actual consulting costs with a five-year average of consulting costs due to some volatility that can be experienced in these cost categories year to year;
 - Replacing actual insurance costs with a six-year average of insurance costs due to the cyclical nature of insurance markets; and
 - Replacing actual reactive maintenance costs with a five-year average of reactive maintenance costs due to some volatility that can be experienced in these cost categories year to year, and with removal of one-off gas storage costs related to fuel gas incurred in reactive opex in 2019.

¹⁰⁶ DBP also made adjustments to the same opex categories (consulting, insurance and reactive maintenance) in its original proposal.

309. This results in an adjusted base year value of \$61.3, which is equivalent to a reduction of \$1.1m from DBP's actual 2019 of \$62.4m without the adjustments.
310. Compared with DBP's original opex proposal, this is an increase of \$1.5m (2.3%) to the adjusted base year value which, when applied annually in the BST forecast, increases opex by almost \$7m over the 5 years for AA5 period. The increases are mainly contributed by salaries, contractor and Government charges as shown in Table 5.1 below.

Table 5.1: DBP original and revised opex base year - \$real Dec 2019

Sub-Category	Revised Base Year unadjusted	Revised Base Year	Original Base Year	Variance	Key driver for variance
Salaries	25.7	25.7	24.9	0.8	reduced labour to COGS and higher leave payments than forecast
Salaries - Contractors	2.1	2.1	1.8	0.3	increase in temporary contractors and director fees than forecast
Employee Expenses	0.5	0.5	0.6	-0.1	lower FBT paid than forecast
Advertising	0.0	0.0	0.0	0.0	
Consulting	4.3	3.4	3.3	0.1	increase in five year average consulting costs
Entertainment	0.2	0.2	0.2	0.0	
IT	4.4	4.4	4.1	0.3	Increase in IT managed services, support and maintenance costs
Insurance	2.9	2.9	2.9	0.0	
Motor Vehicle	1.1	1.1	1.0	0.0	
Office & Admin	0.2	0.2	0.3	-0.1	Accrued credit card expenses expensed to appropriate GL codes
OHS	0.2	0.2	0.2	0.0	
R&M	6.5	6.5	6.4	0.1	increase in general maintenance, surveys, cleaning and waste removal
Training & Development	1.3	1.3	1.3	0.1	
Travel & Accommodation	2.2	2.2	2.3	-0.1	Lower Pipeline Accommodation costs
Utilities Rates & Taxes	4.1	4.1	4.4	-0.3	Lower office accommodation costs than forecast
Reactive Opex	2.0	1.7	1.9	-0.1	reduction in five year average (excluded gas storage costs in 2019 which are once off)
Permits, Licence Fees, Rates & Taxes	4.7	4.7	4.2	0.4	Increase in permits & licence fees compared to forecast
Total	62.4	61.3	59.8	1.5	

Sources: EMCa table based on DBNGP FP 7.1A Revised Opex (converted to real Dec 2019) and ERA Draft Decision Table 19

5.2.3 EMCa assessment

311. We reviewed the supporting documentation provided by DBP including reviewing each sub-category of opex, which makes up the DBP base year.
312. Further, we asked DBP to explain the substantial increase in salaries and contractors by \$0.8 and \$0.3 respectively compared to its original base year as shown in the Table 5.1 above.
313. In its response to our information request (EMCa57), DBP explained that
- “The largest driver for the increase in salaries between the Revised AA and Initial AA for the 2019 base year is the decrease in the settlement of labour to cost of goods sold (where labour costs are allocated to project work on the DBNGP and on other DBP assets through the employee time-sheeting process). Between forecast and actual results this value dropped from \$17.1 million to \$15.4 million, which increased total Salaries by \$1.7 million. Despite this change, the actual results for 2019 are in line with 2018 actuals. Project work in 2019 was ahead of budget over the first nine months of the year, which flowed through to the forecast in our Initial AA. It then slowed in the last three months of the year, with the end of year result being back in line with the budgeted expectation of \$15.2 million and prior year actuals of \$15.7 million. However, the \$1.7 million uplift is partially offset by reductions relative to the Initial AA of \$0.3 million to salaries ordinary time and \$0.6 million from reduced leave payments. The net impact of these updates resulted in a net \$0.8 million increase between the Initial and the Revised AA.”*
314. We consider this a reasonable explanation of the difference between DBP’s original and revised salaries cost for 2019.
315. While the increase of \$0.3m for contractors relates to an increase in agency temporary staff and director remuneration, DBP shows evidence that the increase will continue for the next five years.
316. DBP has explained that there was also an increase of \$0.4m in its revised base year compared to its initial forecast, due to an increase in the cost of permits, licence fees, rates and taxes. As external costs, these are assumed to be outside of DBP’s control.
317. We also compared between DBP’s Revised Plan, DBP’s Original Plan and DBP’s response to EMCa requests for information (EMCa02) during initial assessment to ensure the expenditures in the base year are stable and therefore eliminate any potential one-off expenditures including the consistency and overall declining trend of the subtotal of salaries, contractors and employees cost over times. Details of the expenditure trends are shown in Table 5.2.

Table 5.2: DBP historical opex subcategory compared with DBP revised AA - \$real Dec 2019

Opex sub-category	DBP response to EMCa02			Revised AA unadjusted
	2016	2017	2018	2019
Salaries	30.6	31.7	27.0	25.7
Salaries - Contractors	0.6	0.5	1.0	2.1
Employee Expenses	0.2	0.2	0.2	0.5
Sub-total	31.4	32.4	28.2	28.4
Advertising	0.0	0.1	0.0	0.0
Consulting	3.2	3.5	3.1	4.3
Entertainment	0.6	0.5	0.5	0.2
IT	3.8	4.5	4.8	4.4
Insurance	2.8	3.2	2.8	2.9
Motor Vehicle	1.1	1.1	1.2	1.1
Office & Admin	0.9	1.0	1.0	0.2
OHS (PPE Only)	0.2	0.3	0.2	0.2
Repairs & Maintenance	4.6	5.3	7.3	6.5
Training & Development	1.0	1.3	1.2	1.3
Travel & Accommodation	2.0	2.4	2.2	2.2
Reactive Opex	2.0	1.3	1.6	2.0
Utilities, rates, taxes and regulatory ¹⁰⁷	8.8	6.8	8.5	8.7
Total	62.4	63.6	62.5	62.4

Sources: EMCa table based on DBP response to EMCa02 from original assessment (2016-2018) and DBP Revised AA for 2019.

318. As can be seen from the table, the ‘base year’ components of DBP’s opex have been stable in real terms and DBP’s expenditure of \$62.4m in 2019 is just slightly below the average of \$62.8m in the previous 3 years.

5.2.4 Conclusion

319. After reviewing the evidence provided by DBP, we consider that DBP’s revised base year adjusted value of \$61.3m, as shown in Table 5.1, is reasonable.

5.3 Assessment of GEA and turbine overhauls

5.3.1 Background context

320. In its original proposal, DBP proposed to spend \$30.4m (real December 2019) on GEA & Turbines overhauls in AA5.
321. ERA did not accept DBP’s proposed expenditures and reduced it by 13.2% or \$4.2m which was equivalent to 50% of the savings DBP made on the GEA & Turbine Overhauls in AA4. This resulted in the total expenditure allowance of \$26.2m in the ERA’s Draft Decision.

¹⁰⁷ Includes permits and licence fees

5.3.2 DBP's Revised Final Plan

322. DBP rejected the ERA's Draft Decision and in its response DBP argues that the level of savings in ERA's Draft Decision is not achievable for ongoing maintenance costs. DBP submitted its Revised AA proposal of \$29.9m, which is almost the same as its original AA proposal.¹⁰⁸
323. DBP states that \$29.9m remains the best estimate of the costs of GEA and gas turbine overhauls because:
- *"the forecast is based on more mature asset management information than was available during the AA4 determination, therefore we have greater confidence that the AA5 forecast more accurately represents the costs we will incur and there is less opportunity to underspend;*
 - *the opex forecast already includes consideration of using overhauled swap machines, and is based on an optimised expenditure profile;*
 - *the method used to develop our forecast is prudent and reasonable, as acknowledged by the ERA and EMCa;*
 - *the unit rate assumptions are reasonable and efficient, as acknowledged by the ERA and EMCa; and*
 - *our forecast has been arrived at on a reasonable basis, represents the best estimate possible in the circumstances, and therefore meets the requirements of NGR 74."*
324. DBP used a bottom-up method to develop AA5 forecast opex for GEA and gas turbine overhauls.
325. DBP states that the forecast is based on a proactive maintenance approach, manufacturer recommendations, the condition of each of its gas turbines and GEAs, and the expected run time of each based on DBP's expectation of demand and pipeline utilisation. The expenditure is required to cover:
- [REDACTED] planned gas turbine overhauls, comprising [REDACTED] overhaul at each CS1, C2 and C3, and [REDACTED] overhauls at each CS6 and CS8;
 - [REDACTED] early gas turbine failure (within the manufacturer's warranty period); and
 - [REDACTED] GEA overhauls.
326. DBP further explains that each of the planned gas turbine overhauls are on turbines with current run hours between ~13,000 and ~30,000. The manufacturer's recommended threshold before performance degradation occurs and a major overhaul is required is 30,000 to 35,000 (depending on the unit) and DBP expects these turbines to reach their overhaul thresholds during the AA5 period. The fleet is managed so that no more than three units can reach their overhaul threshold in any given year.
327. GEAs need to be serviced at regular intervals and to undergo minor overhauls at 12,000 and 24,000 hours, and major overhauls at 48,000 and 52,000 hours. Of the [REDACTED] required overhauls, [REDACTED] require major overhauls, and [REDACTED] are only minor.

5.3.3 EMCa assessment

Unit costs of turbine overhauls

DBP provide a breakdown of the historical cost information that it had claimed as the basis for its forecast

328. In its response to our information request (EMCa58), DBP has provided actual costs for each overhaul carried during the AA4 period, broken down into OEM costs, transport,

¹⁰⁸ \$29.9m is in Dec \$2019 terms. This is derived from DBP's proposal of \$29.7m in June \$2019, and which is comprised of \$24.7m for turbines and \$5m for GEA overhauls

consumables and installation of the unit. The OEM costs have been provided in AUD and in USD with the applicable exchange rate for each overhaul.

The unit cost of the OEM component of turbine overhauls is overstated

- 329. The USD OEM costs are consistent across the [redacted] units overhauled during the period, with cost increases (approximately 5%, 0%, 1% and 3%) likely related to escalation provisions in the [redacted] rather than significant changes in costs imposed by [redacted] or material differences in the condition of machines at the time of overhaul. The variances in the AUD costs are driven primarily by the fluctuating exchange rate.
- 330. DBP has presented the USD cost of USD [redacted] for the OEM component of the most recent overhaul – CS5/1¹⁰⁹ – as the appropriate number to use for forecasting costs during the AA5 period as it reflects the most current pricing under the [redacted]. DBP states that its estimate of USD OEM costs for AA5 for [redacted] units is taken directly from the rates in the [redacted].
- 331. We consider that DBP’s USD-denominated cost assumptions is reasonable. However, we observe that DBP has assumed a forecast USD exchange rate of 0.68, which it states was the exchange rate at the time of that overhaul in 2019.
- 332. The current USD exchange rate (as at 22 December 2020) is 0.75. We sought exchange rate forecasts from the major banks and also the current costs of purchasing forward USD. This data is shown in Table 5.3.

Table 5.3: Forward exchange rate assumptions

Source	Exchange rate (USD)
NAB (to Dec 2022)	0.80
Westpac (to Jun 2022)	0.82
ANZ (to Dec 2021)	0.75
CBA (to Dec 2021)	0.78
Average of banks (medium term)	0.79
Forward exchange rate (5 years)	0.75

Source: Bank websites as at 23/12/2020, except for CBA which is from Australian Financial Review. Forward exchange rate as at 23/12/2020 from www.fxempire.com/currencies/aud-usd/forward-rates

- 333. In the basis of this current information, we consider that assuming an exchange rate of 0.68 overstates the forecast requirement and is not a reasonable forecast. We propose a substitute forecast which would apply a USD exchange rate of 0.75 for the [redacted] units.
- 334. DBP’s assumed [redacted] overhaul costs are based on the most recent overhaul of a [redacted] machine in 2015/2016, with no increase since that overhaul. It should be noted that historically, the overhauls of [redacted] units have been significantly more expensive than for [redacted] units due to the different technologies used in the machines. DBP has based its forecast cost on its cost in EUR in 2015/16, and has applied an exchange rate of 0.60 for forecasting purposes. We consider both elements result in a reasonable forecast for the single unit that it plans to overhaul in AA5.

Assumed costs for transport, consumables and installation are reasonable

- 335. DBP has forecast [redacted] per unit for transport costs. This is close to its average actual cost of [redacted] for the past three years¹¹⁰ and is a reasonable estimate.

¹⁰⁹ DBP response to EMCa058, table 1 and table 2

¹¹⁰ DBP response to EMCa058, table 1

336. DBP information indicates wide variances in the costs for consumables – from [REDACTED] for the first overhaul in 2015/2016 to [REDACTED] for the most recent in 2019. The differences are not explained. For its forecast, DBP has assumed a unit cost of [REDACTED]. Its average of such costs across the last [REDACTED] units is [REDACTED] and its average for the last [REDACTED] units is [REDACTED]. We consider that its forecast unit cost of [REDACTED] is reasonable.
337. DBP information on installation costs also demonstrates material variances, but these can be explained by the associated works where units have been moved between stations. Its forecast unit cost of [REDACTED] for installation is essentially a rounded average of its costs for the last [REDACTED] units, and the last [REDACTED] units and is slightly below the average of [REDACTED] for the most recent [REDACTED] units. We consider that its forecast of [REDACTED] per unit is reasonable.

Unit costs of GEA overhauls

Assumed unit costs for GEA overhauls are overstated

338. For GEA overhauls, DBP has applied its average of actual recent costs incurred. DBP states that its unit costs of [REDACTED] per overhaul (in \$June 2019) involve a combination of AUD, USD and EUR-denominated costs, with the foreign-denominated costs forecasts based on 'recent exchange rates'.¹¹¹
339. From our assessment of exchange rate assumptions applied to DBP's turbine overhauls, we consider that DBP's assumed USD exchange rate is not reasonable and leads to an overstated forecast cost in AUD. Noting that its forecast costs are denominated in three currencies, we consider it a reasonable proxy to determine a substitute forecast by applying a USD exchange rate of 0.75, rather than the assumed 0.68, to one-third of the proposed costs.

Turbine overhaul program

340. We have considered DBP's information on run hours for the units that it proposes to overhaul, together with information on the changing utilisation of the DBNGP.
341. DBP's response to Information Request EMCa60, shows that each of the units proposed for overhaul during AA5 is highly likely to reach its OEM recommended maximum run-hours during the period, with the possible exception of CS8/2 which currently has only 14,232 run hours (at 1 November 2020). The forecast for when it is likely to reach 30,000 run-hours is very dependent how the forecast demand and load cycle on the DBNGP develops during the AA5 period.
342. For this unit to reach 30,000 run-hours during the period would require it to run on average 8 hours per day every day for the 5 year period. While this sort of duty cycle was not uncommon when the DBNGP was operating at full capacity before and during the most recent expansion projects, it is less likely at current throughput levels, particularly when the operator is actively managing unit run-hours to optimise utilisation across the fleet. DBP has also indicated that, with permission from the OEM, it has run units over 30,000 hours without penalty.¹¹²
343. A further uncertainty in regard to Perth Basin developments is the recent announcement by APA Group of the proposed Northern Goldfields Interconnector pipeline which is designed to deliver Perth Basin gas direct to markets in the Goldfields region, by-passing potential backhaul between CS7 and CS1 on the DBNGP. Given the timing of this announcement, it is unlikely that the impact of this project on DBNGP throughput could have been considered in DBP's development of its demand and, consequently overhaul, forecasts and we note that DBP has not made reference to assumptions involving this development in material provided.
344. On balance, we consider that it is a reasonable assumption that DBP will find the opportunity through a combination of changing utilisation of the DBNGP over AA5 and its

¹¹¹ DBP Attachment 7.1A, pages 9 and 10

¹¹² DBP response to EMCa40

active management to optimise overhauls, to defer [REDACTED] overhaul (most likely for CS8/2) into AA6.

GEA overhaul program

- 345. The cost of GEA overhauls is a relatively small component of overall operating cost. The overhaul program for GEAs is typically time-based rather than throughput-based and therefore is not expected to vary significantly with the possible changes to throughput described above. The only significant electrical load at a compressor station which varies with throughput is the operation of aftercoolers. As the remaining electrical load at each compressor station is relatively steady, load fluctuations caused by aftercooler operation are generally managed by switching on load banks to keep GEA operation stable. Therefore, the total electrical load on site does not vary significantly.
- 346. Therefore we do not consider the cost of GEA overhauls will vary significantly with reduced throughput.

5.3.4 Conclusion

- 347. From the new information that DBP has provided, we consider that there is a reasonable basis for adjusting its forecast requirement for GEA and turbine overhauls by:
 - Allowing for OEM components at current exchange rates, rather than those that applied at the time of last overhauls; and
 - Deferring [REDACTED] of the proposed turbine overhauls to AA6.
- 348. On this basis, the adjusted expenditure on turbine overhauls is as shown in Table 5.4. This represents a reduction of \$4.66 million (or 15.5%) from DBP’s forecast of \$29.7m (in June \$2019 terms).¹¹³

Table 5.4: EMCa Adjusted forecast for GEA and turbine overhauls (\$ June 2019)

Units	2021	2022	2023	2024	2025	TOTAL
Turbine Overhauls:						
[REDACTED] number	█	█	█	█		
Unit cost	█	█	█	█	█	
Sub-total for [REDACTED] (\$m)	█	█	█	█	█	
[REDACTED] number	█					
Unit cost	█	█	█	█	█	
Sub-total for [REDACTED] (\$m)	█	-	-	-	-	
Warranty (\$m)						
					█	
Sub-total for Turbine overhauls (\$m)	7.5	5.9	5.9	0.0	1.0	20.3
GEA Overhauls:						
GEA number	█	█	█	█	█	
Unit cost	█	█	█	█	█	
Sub-total for GEA overhauls (\$m)	1.0	1.0	1.0	1.0	1.0	4.8
TOTAL GEA & Turbine Overhauls	8.4	6.9	6.9	1.0	2.0	25.1

EMCa analysis, based on data provided in DBP attachment 7.2A (tables 1 and 2)

¹¹³ As stated earlier, DBP’s forecast is equivalent to \$29.9m in December 2019 terms

349. In section 2, we present the adjustment relative to DBP's forecast, converted to December \$2019 terms, consistent with our presentation of other elements of its forecast in the current report.

5.4 Assessment of productivity assumption

5.4.1 Background context

350. In our Initial Report, we stated that we considered that '*...it would be reasonable to incorporate a forecast productivity growth factor of 0.5% per year, in determining a prudent and efficient forecast opex allowance.*'¹¹⁴ We formed this view based on our assessment of opex productivity improvements that DBP had achieved over AA4, consistency with AER's long-term assessment of productivity improvements in the regulated gas sector, and AER's adoption of this rate for future BST-based opex forecasts.
351. The ERA adopted an assumed 0.5% p.a. AA5 opex productivity improvement in its Draft Decision.
352. We also noted a concern that in the course of that initial review, DBP provided an updated opex figure for 2019. While it did not use this figure in its original proposal, we noted a concern that if DBP was to re-propose a BST opex forecast using that figure as a base, it would imply a deterioration in productivity that would then be embedded in its opex forecast.

5.4.2 DBP's Revised Final Plan

DBP's revised plan

353. DBP has not accepted the application of a productivity adjustment. DBP's stated reasons for this are reproduced in Figure 5.1.

Figure 5.1: DBP's response to the ERA's Draft Decision on productivity adjustment¹¹⁵

DBP response on reasons for not accepting ERA's productivity adjustment

[DBP does not accept] reducing the productivity factor from 0.5% to zero (+\$6 million) as:

- the ERA has already in its Draft Decision accepted our proposal to absorb \$9 million in increased IT opex forecast for AA5 resulting from the increased IT investment we are proposing, which equates to a 1.0% per annum productivity adjustment;¹
- the ERA's reasoning is inconsistent with its reasoning in both the ATCO and Goldfields Gas Pipeline access arrangement Decisions made in late 2019;
- EMCa's econometric modelling and analysis does not provide a measure of productivity;
- the ERA has overstated potential opex savings related to capex;
- productivity analysis for gas distribution businesses is not necessarily reflective of productivity for gas pipelines, plus more recent data from the gas sector (which was not available for the AER's 2019 review relied on by the ERA) suggests that productivity cycles have turned, and 0.5% productivity per annum is no longer accurate.

5.4.3 EMCa assessment

Our consideration of relevant additional information

With latest data, DBP has achieved 0.18% p.a productivity improvement over AA4, which is less than indicated from its original plan

354. In its Revised Plan, DBP reports actual 2019 opex of \$62.4m. This compares with a value of \$61.8m that it used for its original plan, and which was a combination of nine months actual / three months estimate. It is however somewhat lower than the updated estimate of \$66.2m that DBP provided in response to an information request in the course of our initial assessment.¹¹⁶
355. With the final opex costs for 2019 now provided, we have re-estimated DBP's achieved opex 'partial factor productivity' using the same method that we used for our Initial Report. While results from this analysis need to take into account that it reflects only four years of data it nevertheless indicates a slight productivity improvement over this period, averaging 0.18% per year, but which is less than 0.5% per year that we derived from the previous data.
356. While historical achievement of productivity improvements does not necessarily define an appropriate forecast expectation, in DBP's case it is relevant to at least consider revealed productivity improvement because DBP is a stable business that is neither growing nor proposing significant strategic initiatives in AA5, relative to AA4 (and prior periods).

¹¹⁵ DBP Attachment 7.5, Response to Draft Decision on opex (page 1)

¹¹⁶ DBP response to information request EMCa002. Note that the figures quoted in this paragraph are before DBP applies any 'base year adjustment'.

DBP's AA4 productivity improvement appears to be close to an assessment of a long term industry average

357. In an attached report that DBP provided¹¹⁷, ACIL Allen has estimated an average 0.17% p.a. productivity improvement from its analysis of nine gas distribution businesses, using data from 2004/05 to 2018/19. We observe that our updated assessment of DBP's AA4 opex partial factor productivity arrives at an almost identical value.
358. We have not sought to reconcile ACIL's analysis with the AER's finding of a 0.5% industry average annual improvement, which we referred to in our Initial Report.¹¹⁸ For the same reasons described in the previous subsection, historical productivity improvements also do not necessarily determine appropriate forecast values, though they do reveal empirically what is, or has been, achievable. Nevertheless, we consider that the additional analysis from ACIL, together with the recency of AER's stated intention to apply such assumption, combines to weaken the case for applying an overarching 0.5% p.a. productivity improvement assumption for DBP.

Through adjustments to its base year, DBP has incorporated a 2.4% period to period opex reduction relative to AA4

359. With DBP's final data for four of the years of AA4 now available, it is relevant to consider the productivity improvement that is inherent in its adjusted base year value.
360. When compared with its average AA4 opex value of \$62.7m¹¹⁹, DBP's proposed adjusted base year value of \$61.25m is 2.5% less and implicitly embeds what could be considered 2.4% period-on-period improved productivity into its AA5 forecast. This could be considered broadly equivalent to a 0.5% p.a. productivity improvement and therefore it could be considered that, through its adjusted base year value, DBP's updated forecast effectively embeds a productivity improvement of around this level, in its proposed AA5 opex allowance.¹²⁰

Response on other matters raised

361. DBP has raised some further matters in its response. Though these matters have not in themselves influenced our finding above, we consider that they warrant comment as follows.

Measurement of opex partial factor productivity

362. DBP has claimed that EMCa's analysis does not provide a measure of productivity, noting that it was a regression of only opex and was conducted with only four data points.
363. While both points are correct on the facts, a partial factor productivity analysis involving only opex inputs is nevertheless a useful metric, particularly where (as is the case for DBP) capex is largely 'sustaining' and not 'growth' related and the productivity growth metric is being applied specifically in forecasting opex.

Combined effects

364. DBP has claimed that the application of the 0.5% p.a. productivity factor created a greater 'combined effect' because the Draft Decision also applied savings to DBP's proposed Turbine and GEA overhauls expenditure, implicitly accepted absorption of additional IT costs and did not allow for an industry premium on labour cost escalation.
365. We note that:

¹¹⁷ Revised Final Plan, Attachment 7.6

¹¹⁸ EMCa initial Technical Review, paragraph 405

¹¹⁹ 2016 to 2019 inclusive, adjusted to \$2019 real terms

¹²⁰ While an opex reduction does not generally equate to a productivity improvement, in DBP's case there has been relatively little change in 'outputs' that could be considered cost drivers.

- The savings applied to Turbine and GEA overhauls were applied to this item directly, since DBP forecast them bottom up. The assumed productivity improvements on the other hand were applied only to ‘top-down’ BST components;
 - Excluding an industry premium in the forecast for labour cost escalation was a labour price effect that is not directly related to productivity.
366. DBP has also claimed that it is absorbing additional IT costs of \$8.6m, though this is partly offset by declared opex savings of \$3.5m.¹²¹ On DBP’s figures, there would be an additional \$5.1m of opex that could be considered to be effectively absorbed within DBP’s BST opex forecast. While absorbing what would otherwise be an increase in opex from its capex initiatives is not evidence of a productivity improvement, we take note that DBP has not sought ‘opex step changes’ within AA5 for these purposes.

5.4.4 Conclusion

It is not appropriate to apply an assumed annual productivity improvement to DBP’s revised opex forecast

367. Based on DBP’s updated information, we consider that it is not appropriate to apply an explicit productivity improvement factor to the AA5 revised opex that DBP now proposes. We form this view largely based on DBP’s revealed 2019 actual opex and the negative adjustment that DBP has made to this base value. We consider that DBP’s ‘adjusted base year’ opex used for AA5 forecasting purposes reflects a reasonable level of productivity improvement from AA4 to AA5.
368. Other information that DBP has provided and which we consider to some extent relevant in forming this view is as follows:
- DBP’s information on long-term multifactor productivity growth in the EGWWS, which could be taken to indicate a cyclical sector-wide decline in productivity since 2016/17;
 - Lack of economies of scale growth opportunities for DBP, which removes or at least weakens what could have been a potential contributor to improving productivity. This is more evident now than it was for DBP’s original plan, with a forecast of continuing decline in throughput over AA5 and the likelihood of Perth basin developments leading to further decline beyond that; and
 - DBP’s claim to be absorbing what would otherwise be a net increase in opex within AA5, after taking into account additional IT opex.

5.5 Assessment of System Use Gas quantity (SUG)

5.5.1 Background context and scope

369. In its Original Plan, DBP forecast to spend \$106.5m, or an average of \$21.3m per year, for System Use Gas.¹²² This was based on a forecast gas use of █████ TJ/day from 2020 to 2025, which represented █████ of its throughput. On 28 May 2020, DBP resubmitted its proposal with revised SUG of \$92.3 for AA5 which is a reduction of \$14.1m from its original.
370. From its Revised Plan, we have been asked to advise on DBP’s proposed SUG gas quantity. For the purpose of our assessment, we have been asked to assume the overall gas throughput that DBP has proposed in its Revised Plan, so our assessment of SUG quantity is effectively to advise on this as a percentage of throughput.
371. We have not been asked to advise on the gas price that DBP has assumed for SUG.

¹²¹ DBP Revised Final Plan, Attachment 7.5, tables 1.3 and 1.4

¹²² We have converted these costs to \$2019, as described in our Initial Report (paragraph 204)

5.5.2 DBP’s Revised Plan

372. DBP is now forecasting \$82.9m for AA5 SUG costs. The decrease reflects its lower throughput forecast and a lower price.¹²³
373. DBP has provided the calculation of its SUG requirement, from which we have extracted and built up the components as shown in Table 5.5. Its calculation shows a non-linear decrease in its forecast SUG quantity, with decreasing throughput and the proportion of SUG to throughput also decreasing. DBP’s average forecast SUG requirement over AA5 is now [REDACTED] TJ/day, and DBP’s average AA5 ratio of SUG to throughput is now [REDACTED].

Table 5.5: DBP propose SUG quantity calculation

	2021	2022	2023	2024	2025
Full-haul throughput (TJ/day)	536.3	526.8	520.2	464.4	458.2
SUG quantity (TJ/day)					
Variable					
Flow related	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Adjust for transient behaviour	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
TOTAL VARIABLE	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Fixed					
DBNGP CS10 fuel	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Other System Use Gas	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
PIA Offset Gas	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
TOTAL FIXED	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
TOTAL SUG	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<i>Proportion of throughput</i>	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

EMCa, derived from DBP Attachment 13.1A Revised Final Plan Tariff Model (confidential); Excel sheet ‘Inputs’

5.5.3 EMCa assessment

DBP’s calculations are consistent with its Original Plan explanations

374. The SUG forecast calculations that DBP has provided are consistent with its explanations for its forecast SUG in its original Plan. Specifically, we observe:
- A ‘fixed’ quantity for operational use. DBP previously described this as being of the order of [REDACTED] TJ/day, however with effect of PIA offset gas, we now observe a net figure declining from [REDACTED] to [REDACTED] TJ/day
 - A variable quantity that is derived from a cubic polynomial function of throughput, with an adjustment of 10% for transient behaviour.

DBP’s SUG forecast reflects its declining throughput forecast

375. DBP’s SUG forecast is directly derived from its throughput forecast, which for the purposes of our assessment, we have been asked to treat as a ‘given’. DBP’s formulae also reflect a non-linear reduction in SUG quantity, with SUG as a percentage of throughput declining as

¹²³ DBP Revised Final Plan, Attachment 7.5, page 7

we would expect. The forecast decline to █████ of throughput by 2025 compares with a ratio of █████ in AA4.¹²⁴

5.5.4 Conclusion

376. As with our Initial Report, we have assessed DBP's updated SUG quantity forecast. DBP's explanations of its fuel gas use model and its application are in accordance with common industry practice and appear to be reasonable.
377. As a result of DBP's lower throughput forecast in its Revised Plan, DBP's forecast SUG quantity is now considerably less than in its original Plan and we consider that this reasonably reflects its reduced throughput forecast.

¹²⁴ As reported in our Initial Report, paragraph 214

6 ECONOMIC LIVES

6.1 Background

6.1.1 DBP's original Plan

378. In its original Plan, DBP proposed several changes to assumed asset lives, with consequent implications for regulatory depreciation. In summary these were:

- Reducing the depreciation life for metering assets (from 50 years to 30) and for 'Other depreciable assets' (from 30 years to 10);
- Introducing new asset categories for Cathodic Protection (15 years), SCADA, ECI and Communications (10 years) and for Computers and Motor Vehicles (5 years), and shifting assets into these categories from existing categories; and
- Capping depreciation lives for all assets, such that their remaining lives are capped at 39 years; that is, to be fully written off by 2059.¹²⁵

6.1.2 EMCa's assessment of DBP's original Plan and ERA's Draft Decision

EMCa's assessment of DBP's original Plan

379. In our Initial Report, we concluded that it was reasonable to reduce the economic life of metering assets; also to establish the proposed new asset categories.

380. We observed that the 'Other depreciable assets' category currently included large generators, inlet scrubbers and some administrative buildings. We concluded that it was not reasonable to reduce the economic lives of these assets to 10 years.

381. We considered that DBP had not yet provided a sufficiently compelling case to cap the economic lives of its existing and new assets, to the year 2059 as it had proposed. We did however acknowledge the potential merit of the conceptual framework underpinning DBP's proposal and that further information may at some point warrant reconsideration of such a proposal.¹²⁶

ERA's Draft Decision

382. The ERA:

- Accepted DBP's proposal to reduce the depreciation lives of metering assets to 30 years;
- Accepted DBP's proposed introduction of new asset categories, and associated depreciation lives for those categories. However, the ERA did not accept DBP's proposed process for recategorizing existing assets and proposed a different method for this;
- Did not accept DBP's proposal to change the economic life for the 'Other' asset category from 30 years to 10 years, noting the inclusion in this category of large generators, inlet scrubbers and administrative buildings. The ERA therefore rejected overall DBP's proposal to reduce the depreciation lives for the 'Other' asset category;¹²⁷

¹²⁵ Summarised from EMCa initial Review, paragraph 463

¹²⁶ Summarised from EMCa initial Review, paragraph 516

¹²⁷ DBP has inferred from this that the ERA chose to '...give all assets in the Other category a life of 30 years'. We take a different view of the ERA's Draft Decision, namely that it rejected DBP's proposal to give all such assets a 10 year life but without determining on the appropriateness or otherwise of depreciating certain of these 'Other' assets on a different basis.

- Did not accept DBP's proposal to cap economic lives to the year 2059.¹²⁸
383. In relation to changing the economic lives of 'Other' assets to 10 years, DBP has inferred from its Draft Decision that the ERA chose to '*...give all assets in the Other category a life of 30 years*'.¹²⁹ We take a different view of the ERA's Draft Decision, namely that it rejected DBP's proposal to give all such assets a 10 year life but without determining on the appropriateness or otherwise of depreciating certain of these 'Other' assets using different lives.

6.2 DBP's Revised Plan

6.2.1 Aspects of the ERA's Draft Decision accepted

384. ERA accepted DBP's proposal to reclassify certain asset classes and to reduce the depreciation lives of metering assets. Accordingly, DBP has not proposed any further changes on these matters.

6.2.2 Aspects of the ERA's Draft Decision that DBP has not accepted

Reducing depreciation of 'Other' assets from 30 years to 10 years

385. Noting EMCa's main concerns from our initial advice were with the inclusion of some compression assets in this category, DBP has removed these assets to the compression category (which remains with a 30-year life). It has proposed reducing the depreciation life of what now remains in the 'Other' category, to 10 years.
386. We assess this revised proposal below.

Cap on economic life to 2059

387. DBP has now proposed capping economic lives to 2063, and which it claims is consistent with ERA's Draft Decision.
388. We assess this revised proposal below.

Process for depreciating existing assets to be included in new asset classes

389. DBP has not accepted the method that ERA has determined for depreciating existing assets to be included in the proposed new categories and has proposed a modification to this. This process is not within the scope of our advice on economic lives.

6.3 Assessment of proposed depreciation lives for Other Assets

DBP's proposal to depreciate compression assets within the compression asset category, is reasonable

390. In its Revised Plan, DBP has shifted compression assets with a value of \$51.27m from 'Other' to 'compression', which therefore retains a depreciation life of 30 years for these assets.¹³⁰ DBP's change is consistent with our conclusions in our Initial Review.

¹²⁸ Summarised from ERA Draft Decision, paragraphs 834 to 948

¹²⁹ DBP Revised Plan, attachment 9.7, page 7

¹³⁰ DBP Revised Plan, attachment 9.7, Table 5.

DBP’s proposal to reduce the depreciation life for buildings and related assets to 10 years, is not reasonable

- 391. After removing the compression assets, the remainder includes assets such as office fit-outs furniture, staff amenities, tools, new maintenance, and administrative buildings. DBP states that the value of this remainder of ‘Other’ assets, is around \$50m.¹³¹
- 392. In our Initial Review, we formed the view that, if the depreciation life of ‘Other’ assets was to be reduced from 30 years to 10 years, it would not be appropriate to continue to include building-related assets in the ‘Other’ category.
- 393. We noted Incenta’s observation that there was very little buildings and related capex incurred, however Incenta states that it found that DBP had incurred around \$7m over the period that it reviewed (2005 to 2020). From its review of other regulatory decisions and Financial Reporting Guidelines, Incenta provides evidence of depreciation lives for such assets of 50 to 80 years.
- 394. In our view, there is a material difference between reducing the depreciation lives of these assets from 30 years to 10 years, as DBP has proposed, and depreciating these assets over periods of 50 to 80 years. We do not accept the case in DBP’s Revised Plan, that the relevant assets should be depreciated over 10 years within the ‘Other’ category, because they *‘...are associated with the provision of pipeline services (they have no alternative use; most are in remote regions) and are thus subject to the potential for economic asset stranding which we address by setting a cap on economic lives to 2059.’*¹³² If anything, this information would support depreciating these assets over more than 10 years, consistent with the assets that DBP states they are associated with.
- 395. While a principles-based case could be made to apply a depreciation life of 50 years to building and related assets, there is merit in not creating a new asset depreciation category for what does appear to be a relatively small group of assets. On balance, therefore, we propose that the status quo is a reasonable approach - that is, to retain a 30-year depreciation life for the building and related assets that are currently in the ‘Other’ asset category. Pragmatically, and noting that they are mostly used in the provision of pipeline services, DBP could choose to categorise them along with ‘compression’ assets.

It is reasonable to depreciate remaining assets in the ‘Other’ category over 10 years

- 396. For clarity, and consistent with our advice in our Initial Report, except for compression assets and building-related assets, we consider that it is appropriate to depreciate remaining ‘Other’ assets over 10 years.

6.4 Assessment of proposed overall cap on economic lives

6.4.1 DBP’s proposal

DBP’s original proposal

- 397. In its Original Plan, DBP proposed to cap the lives of its assets at the year 2059, in determining a regulatory depreciation value for AA5. DBP proposed this on the basis that the economic life of the DBNGP is likely to be constrained by competing alternatives such that there would come a time when the economic value of its gas transport service would likely fall below a building block regulatory price. From modelling that DBP commissioned from ACIL, DBP proposed to cap the depreciation lives of all assets at the year 2059.

¹³¹ DBP Revised Plan, attachment 9.7, page 8

¹³² DBP Revised Plan, attachment 9.7, footnote 5 (page 7)

Review of DBP's original Plan

398. As an application of economic regulatory principles, we formed the view that it would be reasonable to deal with the limited life of the pipeline through re-profiling depreciation. However, we did not accept that DBP had reasonably demonstrated that the assumptions it had relied on in proposing to cap economic lives at the year 2059, reflected a balanced consideration of the range of possible scenarios. Information provided by submitters suggested counter scenarios to the effect that DBP had over-stated its case for limiting the life of the pipeline.¹³³
399. The ERA made its Draft Decision on the basis that DBP's proposal was not consistent with the NGR.¹³⁴

DBP's Revised Plan

400. DBP has again proposed to cap the economic life of the DBNGP assets, though has moved the year from 2059 to 2063 on the basis that this is the 'end date' for the asset which it derives from the modelling undertaken by ACIL for its original proposal. DBP considers that this implements the ERA's interpretation of the NGR, namely, that this is the year when its modelling indicates that the asset would need to be retired.¹³⁵
401. DBP has also provided information for ERA's further consideration (and which we take to mean, beyond the ERA's Final Decision) that considers options for applying different profiles to depreciation. DBP proposes consideration of a kinked depreciation profile in which the asset would be depreciated more steeply over the period when regulatory recovery of the asset value applies, such that whatever value remains after that time can be recovered under prices that by then are bound by competitive alternatives.¹³⁶

6.4.2 Our assessment

Our assessment of the modelled economic life

DBP has relied on the modelling previously provided

402. DBP has not updated the assessment on which it bases its proposed cap on asset lives, but rather refers to the modelling provided in its Original Plan. In summary, this was:
- Attachment 9.2, which comprised a 44-page Assessment of the Economic Life of the DBNGP;
 - Attachment 9.3, which comprised a report by ACIL Allen entitled Economic Depreciation Study;
 - Attachment 9.5, which comprised the 'WOOPS' Excel modelling in support of the proposed year to cap regulatory depreciation.

DBP has not demonstrated that the depreciation of its assets should be capped at 2063

403. We have again reviewed this material. While we respect the challenges in forecasting gas prices and the costs of future competitors over periods of up to 65 years,¹³⁷ as ACIL has sought to do, we consider that this modelling does not reasonably support DBP's proposed cap on depreciation lives for AA5.

¹³³ Refer to section 9.5 of our Initial Report

¹³⁴ ERA's covers its assessment of DBP's proposal regarding the economic life of the pipeline, in paragraphs 869 to 897 of its Draft Decision. EMCa's role in advising the ERA was and remains as economic and technical advisers and accordingly our advice does not cover legal interpretation of the NGR.

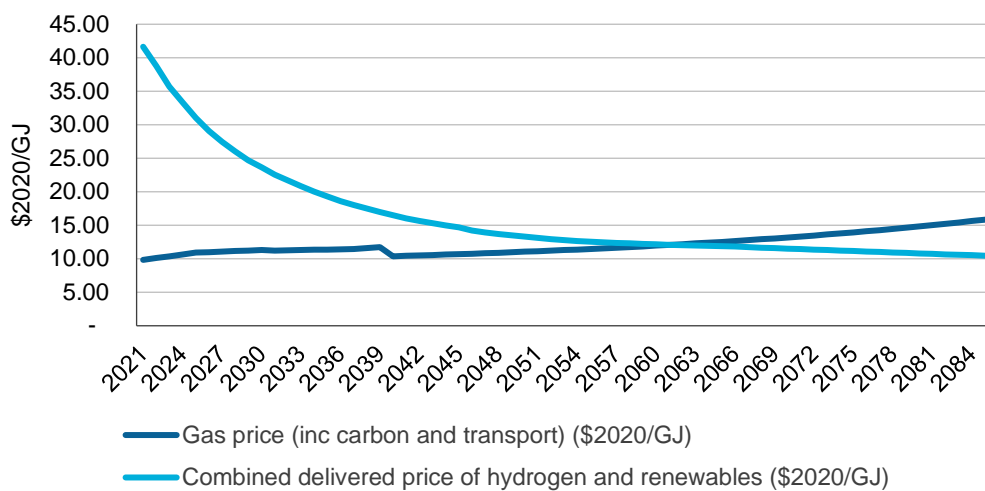
¹³⁵ DBP revised Plan, Attachment 9.7 (pages 8 and 9)

¹³⁶ DBP Revised Plan, Attachment 9.7, pages 10 to 16. Further information on the application of differing depreciation profiles is also provided in a report by Incenta, that is provided as DBP's Attachment 9.9.

¹³⁷ ACIL's WOOPS model forecasts scenario results to the year 2085

404. In its Revised Plan, DBP has referred to the WOOPS model originally provided, as the support for its proposed depreciation cap of 2063.¹³⁸ In Figure 6.1, we show the long-term comparison from ACIL’s modelling. It is important to be cognisant that this modelling necessarily involves 65-year forecasts of WA gas prices, which is challenging enough, but also 65-year forecasts of the costs of renewables and hydrogen and which would need to be considered uncertain to the point of being essentially speculative, especially with regard to timeframes.
405. While we observe a cross-over point from around 2063, the shallow slope of both lines shows the significant sensitivity of that date to relatively minor changes in assumptions. While industry forecasters would tend to agree on an increasing cost for gas and a decline in the cost of alternatives, the point of cross-over is extremely sensitivity to the respective rates of increase and decline.

Figure 6.1: Combined delivered price of hydrogen/renewables versus gas (incl transport and storage)



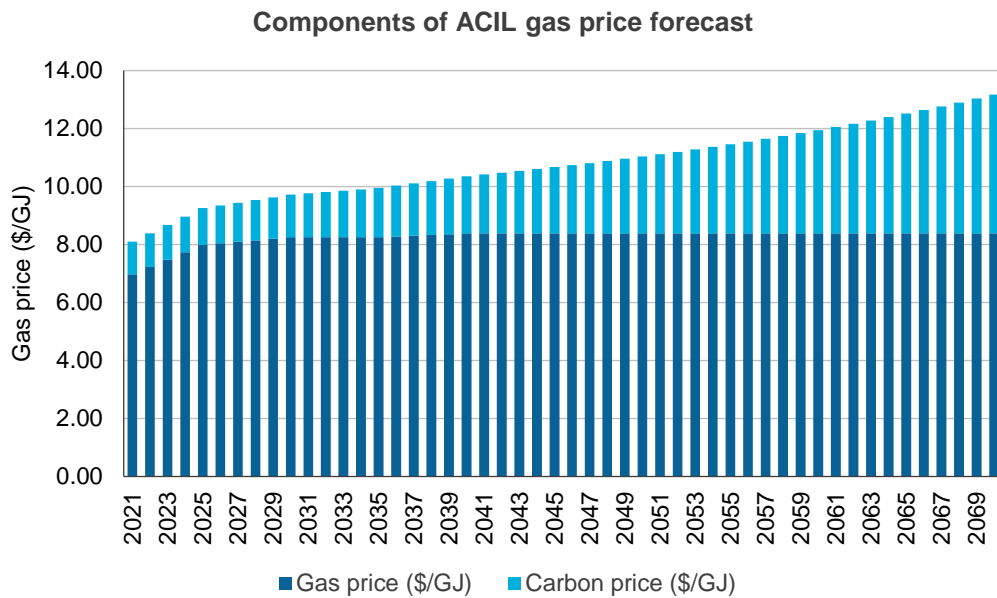
Source: ACIL WOOPS model, provided as DBP Attachment 9.5, tab ‘Results-scenarios’, Mid gas price scenario

406. We further investigated the assumptions underlying the forecast gas price that results in the 2063 ‘cross-over’. In ACIL’s modelling this comprises two components:
- An ‘onshore’ gas price, and
 - An assumed carbon price.¹³⁹
407. We illustrate this forecast in Figure 6.2.

¹³⁸ DBP Attachment 9.7, page 9. DBP refers to ‘row 86’ of the ‘results’ tab of the WOOPS model

¹³⁹ ACIL also models a regulated transport price, however in its modelling this falls to zero from 2039 and is therefore not a component in its cross-over assessment at 2063.

Figure 6.2: Components of ACIL gas price forecast



Source: EMCA, derived from ACIL WOOPS model, Attachment 9.5, tab 'Results-scenarios' with mid gas price scenario.

408. The sensitivity of the finding that 2063 represents a reasonable assessment of the economic life of the DBNGP is apparent from observation of this forecast together with the shallow inferred cross-over between gas and alternatives in Figure 6.1. As can be seen from Figure 6.2, the sole driver for the assumed increase in the gas price is the forecast increase in the 'carbon price' component. A relatively small reduction, for example, in the assumed slope of increase of the forecast carbon price would defer the cross-over by many years.
409. While not shown here, ACIL's modelling also includes a lower gas price scenario, which defers the cross over point to 2070.
410. We also compared ACIL's gas price forecast for the AA5 period with the revised gas price forecast that DBP has provided for the SUG and observe that ACIL's 'mid' forecast is around [REDACTED] higher than DBP's over this period. Whilst there are reasons for caution in extrapolating this difference over the 65-years of ACIL's analysis, this lends support to the arguments that we previously reported from submissions, questioning the (higher) gas price in ACIL's assessment.

Economic principles

411. DBP has provided considerable argument on economic principles and which includes reference to the National Gas Law and Rule (NGL and NGR).¹⁴⁰ While our brief as advisors to ERA does not include legal advice, we offer here some observations on the economic principles described in those documents, as follows.
- We observe the case that DBP makes regarding there being a 'stranded asset risk' that the economic life of the DBNGP asset may be shorter than the lives over which individual assets are currently being depreciated. As Incenta states: "...the presence of a material stranded asset risk does not mean there is no uncertainty about the extent of the risk, or that the risk is fully understood. Instead, the risk must simply be real, this is the nature of something being a "risk". A relevant question therefore is whether that risk is material and, if so, within what time frame might it materialise.
 - We observe a Revenue and Pricing Principle in the National Gas Law that "A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in (a) providing reference services". This

¹⁴⁰ We refer in particular to sections 1.3.3.2, 1.3.3.3 of DBP Revised Plan Attachment 9.7; also the report *Stranded asset risk and the National Gas Regime*, by Incenta, provided as Attachment 9.9

appears to reflect a regulatory economic principle of ‘*financial capital maintenance*’, under which regulatory depreciation applied to the RAB needs to be fully accounted for as a component of regulated revenue, such that eventually the capital investment costs are recovered.

- We observe NGR clause 89(1)(c), which allows for ‘...*adjustment [to the depreciation schedule] reflecting changes in the expected economic life of a particular asset, or a particular group of assets*’. The arguments made in DBP’s Attachment 9.7 and in the Incenta report regarding the application of some form of ‘kinked’ depreciation, appear to be consistent in principle with this clause and with the principle of financial capital maintenance which allows for recovery of the asset value.¹⁴¹
412. Economic principles appear not to preclude the option of seeking to design regulatory depreciation schedules that may vary from time to time as the economic life of the DBNGP becomes apparent. The scope to do so at some point in time is then a question of legal regulatory interpretation of the provisions open to regulators under the NGL and NGR (specifically NGR clause 89), assessment of the specifics of the case for an adjustment, and then design of such adjustment.

6.4.3 Conclusion

DBP has not made a reasonable case to foreshorten the economic life of the DBNGP assets, to 2063

413. We consider that DBP has not provided a sufficiently compelling case to cap the economic lives of its existing and new assets to the year 2063, as it has proposed in its Revised Plan.
414. We reiterate our conclusions from our Initial Report regarding the potential for the conceptual framework for such an adjustment to be considered at some time.¹⁴² Further information on economic principles that DBP has provided with its Revised Plan is consistent with our initial conclusions.

¹⁴¹ NGR clause 89(1)(d) similarly precludes ‘over-recovery’ of the asset value, stating a further depreciation schedule design requirement that ‘...*an asset is depreciated only once (ie that the amount by which the asset is depreciated over its economic life does not exceed the value of the asset at the time of its inclusion in the capital base...)*’

¹⁴² EMCa Initial Review, paragraphs 514 and 515

APPENDIX A – PERTH BASIN DEVELOPMENTS

A.1 Introduction and scope

415. The ERA requested that we provide a brief description of the possible impact of the development of the Perth Basin gas fields of Waitsia and West Erregulla gas field, and the associated offtake agreements with customers in the North West and South West of the state. We have also included a brief description of the recently announced Northern Goldfields Interconnect pipeline.
416. In section 4, which presents our assessment of DBP's revised AA5 capex business cases, we include commentary on the potential impact of the Perth Basin developments where it affects proposed capex business cases.

A.2 Overview of developments

417. In the last several years exploration and development activity in the Perth Basin has increased as technological advances have improved the economics of fields which had been considered marginal. In particular, the owners of the Waitsia Gas Project and West Erregulla Gas Field have progressed environmental and technical approvals and have signed offtake agreements with customers.
418. These developments will connect into the DBNGP near the existing connection to the Mondarra Gas Storage Facility, between CS7 and CS8 (at approximately kp1,000). As far as we are aware, there are no significant new gas demands forecast in the near term, the expectation is that these developments will replace existing domestic gas supplies to the Southwest, primarily from the Carnarvon Basin. The incremental DBNGP throughput would then be backhaul from the Perth Basin to the Karratha Gas Plant for any Waitsia gas sold as LNG. The impact on the DBNGP is expected to be lower operating costs from reduced compressor operation with a potential increase in revenue from contractual changes to reflect revised throughputs.
419. DBNGP Gas Transportation Agreements generally preclude a reversal of physical flow during the term of the contract and the DBNGP is configured such that a physical reversal cannot occur without engineering intervention. If a physical reversal of flow is required due to changing market conditions, it is likely that the existing contracts would have to be renegotiated. In any renegotiation, AGIG and shippers are likely to seek a "no worse off" outcome, so total DBNGP transportation revenue should not change in this circumstance.

A.3 Projects

A.3.1 Waitsia Gas Project

420. The Waitsia Gas Project is a staged development of the Waitsia gas fields, the existing Xyris Gas Processing Plant, and a new gas processing plant. The proponents are Mitsui Exploration & Production Australia (operator) and Beach Energy.
421. Stage 1 comprised refurbishment of the Xyris Gas Processing Plant and recommissioning of old gas wells. It was commissioned in 2016 and delivers up to 10TJ/day into the Parmelia Gas Pipeline.
422. Stage 1a was commissioned in September 2020, consisting of an expansion of the Xyris plant to 20TJ/day and connection to the DBNGP.
423. Stage 2 consists of the connection of new gas wells to a new gas processing plant with a projected capacity of 250TJ/day connected to the DBNGP. According to Beach Energy's

September 2020 Quarterly Report to the ASX, a Final Investment Decision is planned for December 2020. However, environmental approvals have yet to be obtained, with the latest update from the EPA, in September 2020, that its report had been published and the appeals period was open.

424. The Waitsia JV has entered into a "short term" agreement with North West Shelf Gas to export up to 1.5mtpa of LNG through the Karratha Gas Plant from late 2023. This would represent up to 250TJ/day of backhaul on the DBNGP from approximately kp1000 to kp0.

A.3.2 West Erregulla

425. The West Erregulla project is located in the Perth Basin slightly south of Waitsia, but still between CS7 and CS8 on the DBNGP. It is owned by a 50/50 joint venture of Strike Energy (operator) and Warrego Energy. The project is less advanced than Waitsia, with field appraisal still underway. However, the partners have appointed AGIG as preferred proponent to develop a new gas processing plant and connection to the DBNGP. A Final Investment Decision is expected in early 2021 with first gas planned for mid-2022. However, given the current status, this schedule appears optimistic.
426. The planned capacity of the new gas plant is 80TJ/day and, unlike Waitsia, the development is focussed solely on the domestic market. A Gas Sales Option Agreement for 25TJ/day has been entered into with CSBP, contingent on the project proceeding to FID.

A.3.3 Proposed Northern Goldfields Interconnect

427. Reports in late November 2020 indicated that APA Group intends to construct a new 580km Northern Goldfields Interconnect (NGI) pipeline between the Perth Basin and the Goldfields. It is to be '*completed in 2022 and link the Bunbury to Dampier pipeline to APA's Goldfields Gas Pipeline...*'¹⁴³ The article refers to a potential doubling of the volume of gas supply into the Goldfields via the NGI.

A.4 Impact on the DBNGP

A.4.1 Perth Basin transport on the DBNGP

428. These projects would be likely to lower operating costs due to reduced compressor operation, meaning less System Use Gas and lower running hours at CS2 to CS7. Based on the current project schedules, these impacts are likely to commence from 2023.
429. The relationship between throughput and compressor running hours and System Use Gas for the DBNGP can only be determined by modelling to optimise operation across the entire compressor fleet. However, a reduction of 275TJ/day (approximately 30%) in full haul throughput could be expected to reduce compressor running hours across the fleet by at least 20 to 25%.
430. The additional deliveries of gas into the DBNGP in the Midwest will result in an increase in revenue for AGIG from two sources:
- Deliveries from Waitsia to Karratha Gas Plant will be an incremental B1 Service with a tariff of approximately 70% of the T1 tariff or a negotiated non-reference service with the shipper (the revenue for which may be rebateable); and
 - Deliveries from either Waitsia or West Erregulla to customers in the Metro or Southwest regions will attract the full haul T1 tariff or Part Haul P1 tariff, as explained below.
431. The T1 Service was defined in the *Gas Transmission Regulations 1994* as a delivery to any outlet point downstream of CS9, irrespective of the inlet point. This definition was carried forward by the ERA in its Final Decision on DBP's first Access Arrangement and legacy Standard Shipper Contracts. Therefore, a delivery from West Erregulla to CSBP or from

¹⁴³ The West Australian newspaper, November 26, 2020, page 41

either Waitsia or West Erregulla to any customer in the Metro or Southwest regions under a legacy contract could attract the full T1 tariff. However, recent amendments to the definition of Part Haul services in DBP's Access Arrangement for the DBNGP mean that these deliveries could attract a distance pro-rated part haul under a new contract.

A.4.2 Impact of the NGI on the DBNGP

432. APA Group's proposed Northern Goldfields Interconnector pipeline is designed to deliver Perth Basin gas direct to markets in the Goldfields region, by-passing potential backhaul between CS7 and CS1 on the DBNGP. If it is achieved, the proposed 2022 operational date cited to in APA's press release¹⁴⁴ would potentially impact on DBP throughput and compressor station operation for more than half of the AA5 period. Given the timing of this announcement, we assume that the possible impact of this project on DBNGP throughput has not been considered in DBP's development of its demand and, consequently overhaul, forecasts.

¹⁴⁴ APA Group, ASX Announcement, APA forms WA gas grid with new Northern Goldfields Interconnect pipeline