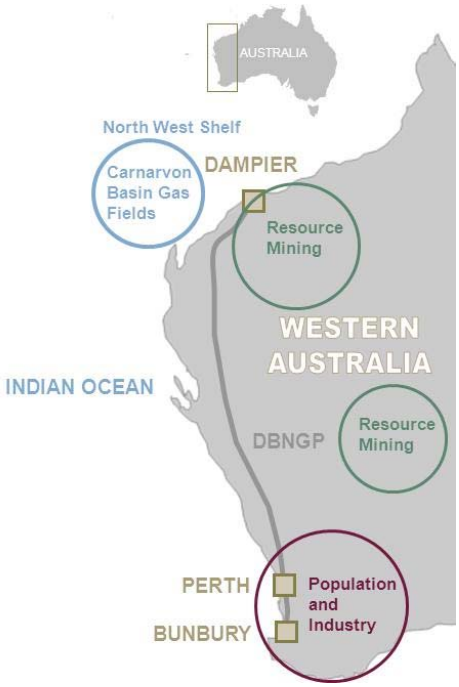
DBNGP Access Arrangement

2016 – 2020 Access Arrangement Period
Access Arrangement Information

Final

30June 2016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1. INTRODUCTION

1.1 This document comprises the Access Arrangement Information (**AAI**) for the revised Access Arrangement for the DBP Transmission Pty Ltd (DBP) Dampier to Bunbury Natural Gas Pipeline (**DBNGP**) proposed and given effect from 1 July 2016 by the Economic Regulation Authority (**Authority**) pursuant to rule 64 of the National Gas Rules (**NGR**).

1.2 The purpose of this document is to set out the information necessary to enable users and prospective users of the DBNGP to understand the derivation of the elements of the Access Arrangement for the DBNGP for the fourth access arrangement period spanning from 1 January 2016 to 31 December 2020 (**Current Access Arrangement Period**) and for compliance with the NGR.

1.3 In accordance with NGR 42, this AAI contains the information that is necessary for Shippers and Prospective Shippers:

(a) to understand the background to the Access Arrangement; and

(b) to understand the basis and derivation of the various elements of the Access Arrangement.

1.4 The AAI relates to the Current Access Arrangement Period.

1.5 Table 1 outlines the provisions of the NGR and NGL that outline what must be included in an AAI (**NGR Requirements**) and where NGR Requirements are addressed.

Table 1: Requirements of the Access Arrangement Information

NGR	Requirement	AAI Section
r. 72(1)(a)(i)	Capital expenditure (by asset class) over the earlier access arrangement period.	3
r.72(1)(a)(ii)	Operating expenditure (by category) over the earlier access arrangement period.	4
r.72(1)(a)(iii) (A) / (B)	Usage of the pipeline over the earlier access arrangement period showing for a transmission pipeline including minimum, maximum and average demand for each receipt or delivery point and user numbers for each receipt or delivery point.	5
r. 72(1)(b)	How the capital base is arrived at and, if the access arrangement period commences at the end of an earlier access arrangement period, a demonstration of how the capital base increased or diminished over the previous access arrangement period.	6
r. 72(1)(c)(i)	The projected capital base over the access arrangement period, including a forecast of conforming capital expenditure for the period and the basis for the forecast.	7
r. 72(1)(c)(ii)	A forecast of depreciation for the period including a demonstration of how the forecast is derived on the basis of the proposed depreciation method.	8
r. 72(1)(d)	To the extent it is practicable to forecast pipeline capacity and utilisation of pipeline capacity over the access arrangement period, a forecast of pipeline capacity and utilisation of pipeline capacity over that period and the basis on which the forecast has been derived.	10
r. 72(1)(e)	Forecast of operating expenditure over the access arrangement period and the basis on which the forecast has been derived.	11
r. 72(1)(f)	The key performance indicators to be used by the service provider to support expenditure to be incurred over the access arrangement period;	12
r. 72(1)(g)	The proposed return on equity, return on debt and allowed rate of return, for each regulatory year of the access arrangement period, in accordance with rule 87, including any departure from the methodologies set out in the rate of return guidelines and the reasons for that departure.	13
r.72(1)(ga)	The proposed formula (if any) that is to be applied in accordance with rule 87(12).	14

NGR	Requirement	AAI Section
r. 72(1)(h)	The estimated cost of corporate income tax calculated in accordance with rule 87A, including the proposed value of imputation credits referred to in that rule.	14
r. 72(1)(i)	If an incentive mechanism operated for the previous access arrangement period—the proposed carry-over of increments for efficiency gains or decrements for efficiency losses in the previous access arrangement period and a demonstration of how allowance is to be made for any such increments or decrements.	N/A
r. 72(1)(j)(i)	The suggested basis of reference tariffs, including the method used to allocate costs and a demonstration of the relationship between costs and tariffs.	15
r. 72(1)(j)(ii)	A description of any pricing principles employed but not otherwise disclosed under this rule.	15
r. 72(1)(k)	the service provider's rationale for any proposed reference tariff variation mechanism.	15.1
r. 72(1)(l)	The service provider's rationale for any proposed incentive mechanism.	N/A
r. 72(1)(m)	The total revenue to be derived from pipeline services for each regulatory year of the access arrangement period.	17

2. BASIS ON WHICH FINANCIAL INFORMATION IS PROVIDED

2.1 Financial information is provided on a calendar year basis.

2.2 Unless otherwise stated, financial information is stated in this AAI in real terms with values expressed on a 31 December 2015 basis.

2.3 Where necessary to express financial values in dollar values of 31 December 2015, nominal financial values have been escalated at the rate of inflation as measured by the Consumer Price Index (All Groups, Weighted Average of Eight Capital Cities) shown in Table 2, or de-escalated at the expected rate of inflation shown in Table 3. Actual and forecast year on year percentage changes are provided below.

Table 2: Rate of inflation 2011-15

2011	2012	2013	2014	2015
3.10%	2.20%	2.75%	1.72%	1.69%

Source: Australian Bureau of Statistics

Expected rate of inflation

2.4 Inflation for each year from 2016 to 2020 is determined using the linear interpolation and Fisher equation approach outlined in the ERA's Rate of Return Guidelines and based on the 20 trading days up to 10 June 2016. Expected inflation for each year is shown in Table 3.

Table 3: Rate of inflation 2016-20

2016	2017	2018	2019	2020
1.43%	1.43%	1.43%	1.43%	1.43%

3. CONFORMING CAPITAL EXPENDITURE 2011-15

3.1 For the purposes of NGR 72(1)(a)(i), Conforming Capital Expenditure (by asset class) made over the Prior Access Arrangement Period is shown in Table 4.

Table 4: Authority Approved Conforming capital expenditure 2011-15 (Real $m at 31 December 2015)

	2011	2012	2013	2014	2015
Expansion/Enhancement/Extension					
Pipeline	36.21	10.73	0.00	0.00	0.00
Compression	27.29	3.72	0.00	0.00	0.00
Metering	0.00	0.00	0.00	0.00	0.00
Other	19.80	(1.80)	0.00	0.00	0.05
other non-depreciable	0.00	0.00	0.00	0.00	0.00
BEP Lease	21.12	0.00	0.00	0.00	0.00
Sub total	**104.42**	**12.65**	**0.00**	**0.00**	**0.06**
Stay-in-business					
Pipeline	13.88	4.80	4.85	0.59	2.59
Compression	4.17	5.10	5.74	3.11	4.48
Metering	0.38	1.97	0.99	1.22	3.66
Other	36.06	8.23	9.71	7.60	11.68
Other non-depreciable	(0.02)	(0.04)	0.20	0.00	0.00
Sub total	**54.47**	**20.05**	**21.48**	**12.52**	**22.40**
Pipeline	50.09	15.52	4.85	0.59	2.59
Compression	31.46	8.82	5.74	3.11	4.48
Metering	0.38	1.97	0.99	1.22	3.66
Other	55.85	6.44	9.71	7.60	11.73
Other non-depreciable	(0.02)	(0.04)	0.20	0.00	0.00
BEP Lease	21.12	0.00	0.00	0.00	0.00
Total	**158.89**	**32.70**	**21.49**	**12.52**	**22.46**

4. OPERATING EXPENDITURE 2011-15

4.1 As required by NGR 72(1)(a)(ii), Operating Expenditure for the Prior Access Arrangement Period is provided in Table 5.

Table 5: Operating expenditure 2011 to 2015 (Real $m at 31 December 2015)

	2011	2012	2013	2014	2015
Costs other than fuel gas	80.85	73.24	69.59	72.32	65.66
Fuel Gas	13.41	9.92	10.11	16.04	19.43
Total	**94.26**	**83.15**	**79.69**	**88.36**	**85.09**

5. PIPELINE DEMAND

5.1 As required by NGR 72 (1)(a)(iii)(A), the following Tables contain the total minimum, maximum and average demand for inlet and outlet points used for the following Pipeline Services during the Prior Access Arrangement Period:

(a) Full Haul Services (Table 6);

(b) Part Haul (Forward Haul) Services (Table 7); and

(c) Back Haul Services (Table 8).

Table 6: Full haul demand 2011 to 2015

Full Haul	2011	2012	2013	2014	2015
Maximum	793.65	767.02	752.73	812.22	824.96
Average	630.52	631.80	631.31	643.22	652.56
Minimum	477.26	531.60	502.20	560.55	556.56

Table 7: Part haul demand 2011 to 2015

Part Haul	2011	2012	2013	2014	2015
Maximum	141.26	134.18	212.13	189.47	205.97
Average	110.31	106.47	130.66	116.88	147.83
Minimum	91.26	83.34	51.48	69.17	101.80

Table 8: Back haul demand 2011 to 2015

Back Haul	2011	2012	2013	2014	2015
Maximum	127.47	151.58	198.65	200.97	205.48
Average	105.17	128.96	146.48	178.37	167.76
Minimum	5.79	42.43	53.20	88.36	85.73

5.2 Information in the tables above is provided in an aggregated form. It is aggregated pursuant to NGR 43(2) as further disaggregated data would contain information which is sensitive, the public disclosure of which could cause undue harm to the legitimate business interest of the Operator, Shippers and/or Prospective Shippers.

5.3 As required by NGR 72(1)(a)(iii), Table 9 and Table 10 contains the following information :

(a) The number of Shippers for each Inlet Point (Table 9);

(b) The number of Shippers for all Outlet Points downstream of Compressor Station 9 (Table 10); and

(c) The number of Shippers for all Outlet Points to which Part Haul and Back Haul Services are provided (Table 10).

Table 9: Number of shippers by inlet point

Inlet/Receipt Point	ID	Aggregate Number of Shippers
DOMGAS Dampier Receipt	I1-01	29
MLV7 Interconnect	I1-03	24
Devil Creek	I1-04	26
Harriet	I1-02	33
Gorgon	I2-01	0
Macedon	I2-02	20
Mondarra Storage Facility	I8-01	6
Red Gully	I10-01	1

Table 10: Number of shippers by outlet

Outlet/Delivery Point	Aggregate Number of Shippers
Full Haul Points	17
Part Haul Points	29
Back Haul Points	22

5.4 Information contained in the Table 10 for Outlet Points is aggregated information. It is aggregated pursuant to NGR 43(2) as it contains elements of information which are sensitive information, the public disclosure of which could cause undue harm to the legitimate business interests of the Operator, a Shipper and/or Prospective Shippers.

6. OPENING CAPITAL BASE

6.1 In accordance with NGR 77(2) the Opening Capital Base for the Current Access Arrangement Period (i.e. the Opening Capital Base as at 1 January 2016) has been determined by the following formula:

(a) The Opening Capital Base as at the commencement of the Prior Access Arrangement Period adjusted, if at all, for any difference between estimated and actual capital expenditure included in that Opening Capital Base. This adjustment must also remove any benefit or penalty associated with any difference between the estimated and actual capital expenditure;

plus:

(b) Conforming Capital Expenditure made, or to be made, during the Prior Access Arrangement Period (being the amounts in Table 4);

plus

(c) Any amounts to be added to the capital base under NGR 82, 84 or 86;

less:

(d) Depreciation over the Prior Access Arrangement Period (to be calculated in accordance with any relevant provisions of the access arrangement governing the calculation of depreciation for the purpose of establishing the opening capital base); and

(e) Redundant assets identified during the course of the Prior Access Arrangement Period; and

(f) The value of pipeline assets disposed of during the Prior Access Arrangement Period.

6.2 The Opening Capital Base at the commencement of the Prior Access Arrangement Period (**PAAP Opening Capital Base**) did not need amending for any expenditure incurred during the access arrangement period that preceded the Prior Access Arrangement Period because the PAAP Opening Capital Base was determined using only actual capital expenditure during that period (as opposed to forecast or estimated capital expenditure). Accordingly, there is no requirement to move any benefit or penalty associated with any difference between the estimated and actual capital expenditure.

6.3 The Opening Capital Base as at the commencement of the Prior Access Arrangement Period (i.e. 1 January 2011) was $3,780.53 million (Real dollar values as at 31 December 2015).

6.4 The Opening Capital Base for the Current Access Arrangement Period has not been amended for any amounts in any of the following categories because there are no amounts during the Prior Access Arrangement Period that fall within these categories:

(a) Amounts to be added to the Capital Base under NGR 82;

(b) Amounts to be added to the Capital Base under NGR 84 ; and

(c) Amounts to be added to the Capital Base under NGR 86.

6.5 Table 11 below demonstrates how the Operator has arrived at the Opening Capital Base for the Current Access Arrangement Period to deal with the criteria referred to in NGR 77(2)(b), (d), (e) & (f).

6.6 In relation to the calculation of depreciation over the Prior Access Arrangement Period, a correction has been made for over-depreciation from that period. This is to reflect the fact that certain assets will have been over-depreciated by the end of the Prior Access Arrangement Period due to the application of approved forecast depreciation and conforming capital expenditure inputs. The amount of the over-depreciation for these assets has been “written up” through a “positive” depreciation amount in the first year of the Current Access Arrangement Period. The positive depreciation entry returns the asset class and hence the capital base, to its correct value by the end of the first year of the Current Access Arrangement Period.

Table 11: Opening capital base (Real $m at 31 December 2015)

Year ending 31 Dec	2011	2012	2013	2014	2015
Capital base at 1 Jan	3,780.53	3,835.60	3,763.90	3,680.17	3,585.78
Plus					
Conforming capital	158.89	32.70	21.49	12.52	22.46
Less					
Redundant and Disposed assets	4.80	0.39	0.79	2.22	0.78
Depreciation	99.01	104.01	104.42	104.70	105.04
Capital base at 31 December	**3,835.60**	**3,763.90**	**3,680.17**	**3,585.78**	**3,502.43**
DBNGP assets					
Capital base at 1 Jan	3,750.79	3,806.56	3,735.55	3,652.53	3,558.84
Plus					
Conforming capital expenditure	158.89	32.70	21.49	12.52	22.46
Less					
Redundant and Disposed assets	4.80	0.39	0.79	2.22	0.78
Depreciation	98.31	103.31	103.72	104.00	104.34
Capital base at 31 December	**3,806.56**	**3,735.55**	**3,652.53**	**3,558.84**	**3,476.19**
Shipper assets					
Capital base at 1 Jan	29.74	29.04	28.34	27.64	26.94
Plus					
Conforming capital	0.00	0.00	0.00	0.00	0.00
Less					
Redundant and Disposed assets	0.00	0.00	0.00	0.00	0.00
Depreciation	0.70	0.70	0.70	0.70	0.70
Capital base at 31 December	**29.04**	**28.34**	**27.64**	**26.94**	**26.24**

Source: Economic Regulation Authority, DBP Tariff Model, December 2015.

7. PROJECTED CAPITAL BASE

7.1 The Projected Capital Base for the Current Access Arrangement Period is calculated in accordance with NGR 78 by way of the following formula:

(a) the Opening Capital Base for the Current Access Arrangement Period;

plus

(b) forecast Conforming Capital Expenditure for the Current Access Arrangement Period;

less

(c) forecast of depreciation for the Current Access Arrangement Period.

7.2 There is no forecast value of pipeline assets to be disposed of during the Current Access Arrangement Period which is to be deducted from the Projected Capital Base.

7.3 Applying the formula above, the Projected Capital Base for each year of the Current Access Arrangement Period is outlined in Table 12.

7.4 The derivation of the values for each element of the formula above for establishing the Projected Capital Base is explained in the sections 8 & 9 of the AAI.

Table 12: Projected capital base (Real $m at 31 December 2015)

Year	2016	2017	2018	2019	2020
Capital Base (as at 1 Jan)	3,502.43	3,428.74	3,350.44	3,265.12	3,186.83
Plus					
Forecast Conforming Capital Expenditure	25.29	23.17	16.83	17.96	21.69
Less					
Forecast Depreciation	98.98	101.46	102.15	96.24	87.06
Forecast Asset Disposals	0.00	0.00	0.00	0.00	0.00
Projected Capital Base	**3,428.74**	**3,350.44**	**3,265.12**	**3,186.83**	**3,121.47**
DBNGP assets					
Capital base at 1 Jan	3,476.19	3,403.19	3,325.60	3,240.98	3,163.39
Plus					
Forecast Conforming Capital Expenditure	25.29	23.17	16.83	17.96	21.69
Less					
Disposed assets	0.00	0.00	0.00	0.00	0.00
Depreciation	98.28	100.76	101.45	95.54	86.36
Capital base at 31 December	**3,403.19**	**3,325.60**	**3,240.98**	**3,163.39**	**3,098.73**
Shipper assets					
Capital base at 1 Jan	26.24	25.54	24.84	24.14	23.44
Plus					
Forecast Conforming Capital Expenditure	0.00	0.00	0.00	0.00	0.00
Less					
Disposed assets	0.00	0.00	0.00	0.00	0.00
Depreciation	0.70	0.70	0.70	0.70	0.70
Capital base at 31 December	**25.54**	**24.84**	**24.14**	**23.44**	**22.74**

8. FORECAST CONFORMING CAPITAL EXPENDITURE

8.1 Forecast Conforming Capital Expenditure for the Current Access Arrangement Period is summarised in Table 13

Table 13: Forecast conforming capital expenditure 2016-2020 (Real $m at 31 December 2015)

Year	2016	2017	2018	2019	2020
Expansion/Enhancement/Extension					
Pipeline	0.00	0.00	0.00	0.00	0.00
Compression	2.38	2.10	0.00	0.00	0.00
Metering	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00
other non-depreciable	0.00	0.00	0.00	0.00	0.00
Sub total	**2.38**	**2.10**	**0.00**	**0.00**	**0.00**
Stay-in-business					
Pipeline	3.68	2.49	1.64	5.38	7.65
Compression	13.23	13.24	11.75	10.17	10.18
Metering	3.60	2.68	0.85	0.65	1.32
Other	2.40	2.65	2.60	1.76	2.55
Other non-depreciable	0.00	0.00	0.00	0.00	0.00
Sub total	**22.91**	**21.06**	**16.83**	**17.96**	**21.69**
Pipeline	3.68	2.49	1.64	5.38	7.65
Compression	15.61	15.34	11.75	10.17	10.18
Metering	3.60	2.68	0.85	0.65	1.32
Other	2.40	2.65	2.60	1.76	2.55
Other non-depreciable	0.00	0.00	0.00	0.00	0.00
Total	**25.29**	**23.17**	**16.83**	**17.96**	**21.69**

8.2 The Operator's forecast Conforming Capital Expenditure for the Access Arrangement Period is based on the need to ensure the Operator:

(a) maintains and improves the safety of pipeline services;

(b) maintains the integrity of pipeline services;

(c) complies with the regulatory obligations or requirements applicable to the DBNGP; and/or

(d) maintains its capacity to meet levels of demand for pipeline services existing at the time the capital expenditure is forecast to be incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity) . In this regard, the forecast demand is outlined in section 10 of this AAI.

8.3 The forecast amounts of expenditure for the Access Arrangement Period are the minimum amounts the Operator considers are required to meet these obligations. They are based on the outcomes of the Operator’s business planning and budgeting process.

9. FORECAST DEPRECIATION

9.1 A separate depreciation schedule has been determined for 5 classes of physical assets that form the DBNGP, these asset classes are provided in Table 14.

Table 14: Asset categories and asset lives

Asset Category	Asset life (years)
Pipeline	70
Compression	30
Metering	50
BEP Lease	57
Other	30

9.2 The Operator proposes to apply the asset categories provided in Table 14 to forecast conforming capital expenditure over the Current Access Arrangement Period.

9.3 The depreciation schedule has been designed:

(a) so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services;

(b) so that each asset or group of assets is depreciated over the economic life of that asset or group of assets;

(c) so as to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset, or a particular group of assets;

(d) so that (subject to the rules about capital redundancy), an asset is depreciated only once (i.e. 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 (adjusted for inflation)); and

(e) so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs.

9.4 The depreciation on each class of assets for the periods 1999 to 2004, 2005 to 2010 and 2011 to 2015 was the depreciation used in the determination of the reference tariff applicable during each of these periods, subject to the correction for over-depreciation for the Opening Capital Base for the Current Access Arrangement Period.

9.5 The depreciation, on the initial Capital Base as at 1 January 2000 and on Conforming Capital Expenditure made from 2000 to 2015, is determined using a straight line method with the following assumptions as to asset lives:

(a) In the case of the initial Capital Base as at 1 January 2000 – using the remaining asset lives for the following four asset classes as follows:

(i) Pipeline assets – 54.50 years;

(ii) Compression assets – 19.34 years;

(iii) Meter station assets – 39.98 years;

(iv) Other assets – 16.85 years; and

(b) In the case of Conforming Capital Expenditure made from 2000 to 2015 – using lives in each class of asset as shown in Table 14.

9.6 The depreciation for the Current Access Arrangement Period on forecast Conforming Capital Expenditure for that period has been determined using the straight line method with the lives in each class of asset shown in Table 14.

9.7 Table 15 shows the depreciation schedule for each class of assets comprising the Capital Base. It sets out the basis on which the pipeline assets constituting the capital base are to be depreciated for the purpose of determining the Reference Tariff.

Table 15: Depreciation schedule 2016 to 2020 (Real $m at 31 December 2015

Year ending 31 December	2016	2017	2018	2019	2020
Pipeline assets	58.22	58.28	58.31	58.33	58.41
Compression assets	34.11	34.63	35.15	29.11	19.78
Metering assets	(0.25)	1.13	1.18	1.20	1.21
Other depreciable assets	5.88	6.36	6.44	6.53	6.59
Non-depreciable asset (adjustment)	(0.06)	0.00	0.00	0.00	0.00
BEP Lease	0.37	0.37	0.37	0.37	0.37
Total	98.28	100.76	101.45	95.54	86.36

9.8 A further, but separate adjustment is to be made to the amount of depreciation on the Projected Capital Base for each regulatory year of the Current Access Arrangement Period. This adjustment is required to be made as a result of:

(a) the requirement in the NGR to adopt a post-tax nominal approach to the calculation of the Total Revenue in each regulatory year; and

(b) adopting the current cost accounting approach to accounting for the capital base and using that approach in the PTRM, which requires an adjustment to be made to avoid double counting for the effect of inflation.

9.9 NGR 89(1)(d) provides that the depreciation criteria should be designed so that an asset is depreciated only once (i.e. 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 (adjusted, if the accounting method approved by the ERA permits, for inflation)).

9.10 The depreciation schedule for the projected capital base as shown in Table 15 above does not address the part of the criteria in NGR 89(1)(d) requiring the adjustment for inflation. However, instead, the Operator has accounted for this part of the criteria in the calculation of the Total Revenue – see the line item in Table 21 named “Less inflationary gains on capital base”.

9.11 Accordingly, the depreciation schedule for the purposes of NGR 88 is to be construed as being both the information in Table 15 above and the line item in Table 21 named “Less inflationary gains on capital base”.

10. FORECAST PIPELINE CAPACITY

10.1 Table 16 provides the Capacity Forecast from 2016 to 2020.

Table 16: Capacity Forecast (TJ/day)

	2016	2017	2018	2019	2020
Total Full Haul	725.94	715.49	713.99	711.87	711.87
Total Part Haul	254.92	254.62	254.32	254.02	253.72
Total Back Haul	227.74	229.36	229.36	229.36	229.36

10.2 Capacity Forecast is based on actual contracted capacity as of August 2014, plus anticipated new contracted firm capacity during the Current Access Arrangement Period, and minus anticipated relinquishment of contracted capacity by shippers during that same period.

10.3 Table 17 provides the Pipeline Capacity[1] from 2016 to 2020.

Table 17: Pipeline Capacity (TJ/day)

	2016	2017	2018	2019	2020
Full Haul (TJ/day)	845	845	845	845	845

10.4 The Pipeline Capacity on the DBNGP is determined based on the following assumptions:

(a) For delivery of Full Haul pipeline services, the gas composition is as follows:

(i) Higher Heating Value – 37.0MJ/m3;

(ii) Wobbe Index - 46.5MJ/m3 ;

(iii) the percentage content of Inert Gases of no greater than 6.39%;

(iv) no LPG content;

(b) the ambient conditions on the DBNGP from Compressor Station 1 to Compressor Station 9 are average conditions for the month of January;

(c) gas is being delivered for receipt into the DBNGP at existing inlet points;

(d) the designed inlet pressure at the inlet point known as I1-01 is 8MPa; and

(e) all compressor units are operating.

10.5 Table 18 outlines the Throughput Forecast from 2016 to 2020.

Table 18: Throughput Forecast

	2016	2017	2018	2019	2020
Total Full Haul	620.22	610.57	614.23	618.02	621.61
Total Part Haul	109.39	119.44	124.44	124.44	124.39
Total Back Haul	187.35	187.34	187.34	187.34	187.35

10.6 Throughput Forecast is based on a combination of current usage levels, contracted capacity, historical throughput growth rates, publicly available information and shipper provided throughput forecasts.

[1] *Pipeline Capacity means the capacity to deliver firm pipeline services to any outlet point immediately downstream of compressor station 9 on the DBNGP.*

11. FORECAST OPERATING EXPENDITURE

11.1 Forecast operating expenditure for 2016 to 2020 is shown in Table 19.

Table 19: Forecast operating expenditure 2016-20 (Real $m at 31 December 2015)

	2016	2017	2018	2019	2020
Wages & salaries	29.28	29.66	30.04	30.43	30.83
Non-field expenses	14.77	14.35	14.40	14.83	15.34
Field Expenses	13.44	15.36	16.93	13.15	13.06
Government charges	7.30	7.30	7.30	7.30	7.30
Reactive maintenance	1.28	1.28	1.28	1.28	1.28
System use gas	35.81	34.31	34.75	35.25	35.80
Total	**101.88**	**102.26**	**104.70**	**102.24**	**103.59**

11.2 The Operator's forecast Operating Expenditure for the Access Arrangement Period is based on the following:

(a) the outcomes of its business planning and budgeting process; and

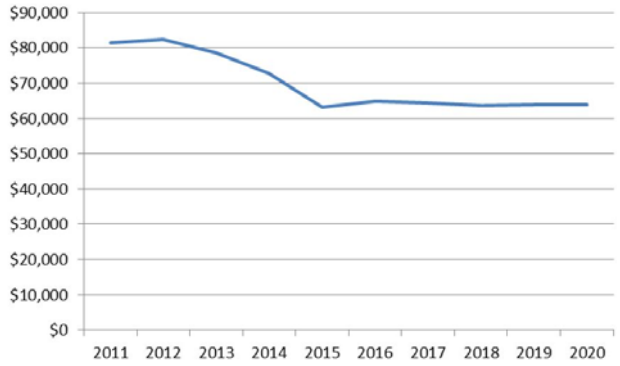
(b) the need for the forecast to be that which would be incurred by a prudent service provider acting efficiently in accordance with accepted industry practice, to achieve the lowest sustainable cost of delivering pipeline services.

12. KEY PERFORMANCE INDICATOR

12.1 Rule 72(1)(f) requires that the access arrangement information to contain the key performance indicators to be used by the service provider to support expenditure to be incurred over the Current Access Arrangement Period.

12.2 Figure 1 contains a key performance indicator that the Operator proposes to use to support expenditure to be incurred over the Current Access Arrangement Period. That indicator is calculated by dividing all operating expenditure for a regulatory year (excluding fuel gas, GEA/turbine overhauls and reactive maintenance categories) by the total energy delivered each regulatory year. Figure 1 contains the results in each regulatory year during the Prior Access Arrangement Period (using actual operating expenditure and actual total energy delivered) and the Current Access Arrangement Period (using forecast operating expenditure and forecast total energy to be delivered).

Figure 1: Key performance indicator (operating expenditure / total energy delivered)



Source: Operator

13. RATE OF RETURN

13.1 In accordance with NGR 72(1)(g) and, (ga), this section describes:

(a) the Operator's return on equity, return on debt and the Rate of Return, for each regulatory year of the Access Arrangement Period, in accordance with NGR 87;

(b) the departures made by the Operator from the methodologies set out in the Guidelines and the reasons for each departure; and

(c) the formula that is to be applied, in accordance with NGR 87(12), to vary the return on debt.

Allowed Rate of Return

13.2 The Operator's return on equity, return on debt and the Rate of Return, for each regulatory year of the Access Arrangement Period, are developed in accordance with NGR 87. The resulting input parameter values for the nominal after tax (vanilla) Weighted Average Cost of Capital (**WACC**) as the rate of return for the Current Access Arrangement Period for the calendar year 2016 are shown in Table 20.

Table 20: Rate of Return

WACC as at 10 June 2016	for 2016
Nominal Risk Free Rate	**1.80%**
Real Risk Free Rate	0.36%
Inflation Rate	**1.43%**
Debt Proportion	60%
Equity Proportion	40%
Debt Risk Premium (10 year trailing average)	**2.716%**
5 year IRS (effective yield)	**2.100%**
Return on Debt; 5 year Interest Rate Swap Spread	0.300%
Return on Debt; Debt Issuing Cost (0.125%) + Hedging (0.114%)	0.239%
Return on debt	**5.07%**
Australian Market Risk Premium	**7.4%**
Equity Beta	**0.7**
Corporate Tax Rate	30%
Franking Credit	40%
Nominal After Tax Return on Equity	**6.98%**
Nominal After Tax WACC	**5.83%**
Real After Tax WACC	4.33%

13.3 The nominal after tax WACC rate of return for 2016 is 5.83 per cent. This rate is applied in the tariff modelling for the Final Decision for calendar years 2016, 2017, 2018, 2019 and 2020.

Annual Updating

13.4 The estimate of the nominal after tax WACC will be annually updated during the Access Arrangement period in order to account for the annual update to the debt risk premium component of the WACC.

The first annual update of the WACC will apply as part of the tariff variation for the 2017 calendar year with subsequent annual updates in the 2018, 2019 and 2020calendar years. The annual update will be determined based on the formulas set out in detail in Appendix 4C of the Final Decision.[2] The resulting annual adjustment to the rate of return will be incorporated in the Annual Tariff Variation for the years 2017, 2018, 2019 and 2020.

13.5 The process for implementing the annual update is as follows:

- For each annual update for 2017, 2018, 2019 and 2020, the Authority will estimate the updated DRP following the relevant annual averaging period (using the relevant excel formulas set out in Appendix 4C of the Final Decision),[3] recalculate the rate of return, and then notify DBP of the outcomes as soon as practicable, in any event 10 business days. This will allow DBP to check the rate of return estimate, prior to its incorporation in the proposed annual tariff variation.
- Following that notification, DBP is required to respond on any issues as soon as practicable, in any event within 10 business days, in order to allow the updated DRP and rate of return estimates to be finalised prior to submission by DBP of its proposed annual tariff variation.
- In the event that there is a disagreement on the DRP annual update estimate, the Authority will work with DBP to ensure that any misapplication of the automatic formulas in Appendix 4 of the Final Decision are corrected in a timely manner.
- The updated annual rate of return based on the correct application of the DRP automatic update formulas is to be utilised for each annual tariff variation.

Nominal After Tax (Vanilla) WACC

13.6 The nominal vanilla WACC is calculated using the conventional form:

$$WACC = \frac{D}{V} \mathrm{R}_D + \frac{E}{V} \mathrm{R}_E$$

where

$\frac{D}{V}$ is the benchmark gearing level or debt as a proportion of total asset value V ;

R_D is the cost of debt financing;

$\frac{E}{V}$ is the proportion of total asset value funded by shareholders equity calculated as $\left(1-\frac{D}{V}\right)$; and

R_E is the return on shareholders' equity.

13.7 Each of the parameters are calculated as follows.

Gearing

13.8 Gearing of 60 per cent debt and 40 per cent equity will be applied for the purpose of determining the WACC. This parameter is fixed for the duration of the Access Arrangement.

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2 Economic Regulation Authority, *Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016 – 2020,* 30 June 2016, Appendix 4 Rate of Return.

3 Ibid.

Return on debt

13.9 The return on debt is calculated as follows:

$$\text{Cost of Debt} = \text{Nominal Risk Free Rate} + 5 \text{ year IRS spread} + \text{Debt Risk Premium} + \text{Issuing costs} + \text{Hedging costs}$$

Nominal risk free rate

13.10 The nominal risk free rate is estimated based on 20 trading days of Commonwealth Government Securities (**CGS**) yield observations interpolating a tenor of 5 years for each day. The 5 year interest rate swap (**IRS**) rate is based on 20 trading days of rate observations. The CGS interpolations and IRS spread observations are averaged and annualised to account for the semi-annual basis on which bond coupons are paid. The 20 day averaging period ends on and includes 31 May 2016. Both of these parameters are fixed for the duration of the Access Arrangement.

13.11 As at 31 May 2016 the nominal risk-free rate was 1.82 per cent and 5 year swap rate was 2.116 per cent. The 5 year IRS spread is calculated as the difference between these figures.

Debt Risk Premium

13.12 This is the only parameter in the WACC that is annually updated and thus drives the year to year change in the annual update of the rate of return.

Trailing Average

13.13 The DRP is estimated using a simple 10 year trailing average, consisting of a DRP for the 'current' year (that is, the year in which the WACC is being determined) and a DRP for each of the 9 prior years. The DRP is defined as the spread of the BBB band cost of debt at a 10 year tenor in excess of the 10 year IRS swap rate.[4]

Reserve Bank of Australia versus Authority Estimates

13.14 The DRP estimate for the 'current' year is produced using the Authority's revised bond yield approach. At the outset of the Access Arrangement, the DRP estimates for the 9 previous years are based on Reserve Bank of Australia (RBA) 'spread to swap' estimates for the BBB band, which have been linearly extrapolated to an effective tenor of 10 years. With each subsequent annual update the Authority's latest 'current' DRP estimate based on the revised bond yield approach will phase out the earliest years' RBA based DRP estimate in the trailing average. After 10 years all 10 DRP estimates in the trailing average will be those based on the revised bond yield approach. Further details on the statistical methods can be found in the Rate of Return section in Appendix 4 of the Final Decision.[5]

Automatic formula for the annual update of the DRP

13.15 The 'current year' WACC to be included in each annual update will be calculated using the automatic formulas set out in Appendix 4C in the Final Decision. The averaging period for each annual update is based on a 20 business day period between 1 June and 31 October in each relevant year. The exact 20 days averaging period for each relevant year is nominated by the service provider in advance and will remain confidential.

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4 In previous Access Arrangements the Authority defined the DRP as the spread between the cost of debt and *risk free rate of return* as opposed to the *IRS rate*.

5 Economic Regulation Authority, *Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016 – 2020,* 30 June 2016.

Issuing costs

13.16 The estimate of debt raising costs is 0.125 per cent per annum. The debt raising cost estimate covers:

- gross underwriting fee: including management fees, selling fees, arrangement fees and the cost of an underwriter for the debt;
- legal and road show fee: this includes fees for legal documentation and fees involved in creating and marketing a prospectus;
- company credit rating fee: a credit rating is generally required for the issue of a debt raising instruments, a company is charged annually by the credit rating agency for the services of providing a credit rating;
- issue credit rating fee: a separate credit rating is obtained for each debt issue;
- registry fee: the maintenance of the bond register; and
- paying fee: payment of a coupon and principal to the security holder on behalf of the issuer.

Hedging costs

13.17 An amount of 11.4 basis points per annum is allocated to meet the costs of entering into interest rate swap arrangements for the purpose of hedging changes in the 5 year IRS and the underlying risk free rate.

Return on Equity

13.18 The return on equity is estimated at the start of the access arrangement and is based on the following models:

- The Sharpe Lintner Capital Asset Pricing Model (**CAPM**) is utilised to estimate the return on equity.
- The Black CAPM is relevant for informing the theory of the return on equity. Given it is not reliable and practical to estimate a robust return on equity using this model, the model is not used directly.
- The DGM is a relevant model for informing the market return on equity and also the forward looking market risk premium (**MRP**).
- Other information such as historical data on equity risk premium; surveys of market risk and other equity analysts' estimates are also relevant for the purpose of estimating the MRP and the market return on equity. This other material is used for conditioning the estimates used for the CAPM or as a cross check for the return on equity.

13.19 The Authority considers the Sharpe Lintner CAPM to be the only relevant model for directly estimating the return on equity for an efficient benchmark entity in the Australian context. The return on equity is estimated using the Sharpe Lintner CAPM in the following form:

$$E_t(R_i) = R_{F,t} + \beta_i \times MRP_t$$

where

$E_t(R_i)$ is the return on asset i ;

$R_{F,t}$ is the risk free rate of return;

β_i is equity beta; and

MRP_t is the Authority's estimate of the forward looking market risk premium for the regulatory period.

Risk free rate of return

13.20 The nominal risk free rate is estimated based on 20 trading days of Commonwealth Government Securities (**CGS**) yield observations interpolating a tenor of 5 years for each day. The CGS interpolations are averaged and annualised to account for the semi-annual basis on which bond coupons are paid. The 20 day averaging period ends on and includes 10 June 2016.

13.21 As at 10 June 2016, the nominal risk-free rate was 1.80 per cent.

Market Risk Premium

13.22 The various models and information outlined in paragraph 13.18 are used to estimate ranges and inform a point estimate for the MRP of 7.40 per cent. Further details on the methods and decision process can be found in the Rate of Return section in the Final Decision (Appendix 4).[6]

Equity Beta

13.23 The equity beta is estimated as being 0.70. Further details on the methods and decision process can be found in the Rate of Return section in the Final Decision (Appendix 4).[7]

Inflation

13.24 This parameter is not used in the calculation of the nominal after tax WACC, but is used an input in the nominal post-tax financial model used for tariff determination. Inflation is implied through using the conventional Fisher equation to discount the real risk free rate out of the nominal risk free rate outlined in paragraph 13.10. The real risk free rate is calculated using Treasury indexed bond yield observations and the same method outlined for the nominal risk free rate. The Treasury indexed bonds pay a quarterly coupon and so are annualised accordingly. This parameter is fixed for the duration of the Access Arrangement.

Value of imputation credits – gamma

13.25 This parameter is not used explicitly in the calculation of the nominal after tax WACC, but is used as an input to modify historical equity returns data, which in turn are used in determining the MRP. It is also an input in the nominal post-tax financial model used for the tariff determination. Gamma is estimated as being 0.40 and is fixed for the duration of the Access Arrangement. Further details on the methods and decision process can be found in the Gamma section in the Final Decision (Appendix 5).[8]

6 Economic Regulation Authority, *Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016 – 2020,* 30 June 2016, Appendix 4.

7 Economic Regulation Authority, *Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016 – 2020,* 30 June 2016, Appendix 4.

8 Economic Regulation Authority, *Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016 – 2020,* 30 June 2016, Appendix 5.

14. ESTIMATED COST OF CORPORATE INCOME TAX

14.1 In accordance with NGR72(1)(h), this section outlines the estimated cost of corporate income tax calculated in accordance with NGR87A, including the proposed value of imputation credits referred to in NGR 87A (see paragraph 13.25 for the ‘’Value of imputation credits – gamma’).

14.2 The Operator's estimated cost of corporate income tax for each regulatory year of an access arrangement period (ETC_t) is to be estimated in accordance with the following formula:

$$ETC_t = (ETI_t \times r_t)\ (1 - \gamma)$$

Where

(i) ETI_t is an estimate of the taxable income for that regulatory year that would be earned by a benchmark efficient entity as a result of the provision of reference services if such an entity, rather than the service provider, operated the business of the service provider;

(ii) r_t is the expected statutory income tax rate for that regulatory year as determined by the AER; and

(iii) γ is the value of imputation credits.

14.3 The value of imputation credits is 40% (0.40)

14.4 The result of applying the formula above is outlined in the Table 20.

Table 20: Estimated cost of corporate income tax (Real $m 31 December 2015)

	2016	2017	2018	2019	2020
Gross estimated cost of corporate income tax	19.37	15.80	15.64	17.02	17.76
Less					
Imputation Credits	7.75	6.32	6.26	6.81	7.10
Estimated cost of corporate income tax	**11.62**	**9.48**	**9.39**	**10.21**	**10.65**

15. TARIFF SETTING APPROACH

15.1 Subject to paragraph 15.3, each of the Reference Tariffs (being the T1 Tariff, P1 Tariff and B1 Tariff) has been designed to recover from Shippers using each of the Reference Services that portion of the Total Revenue that reflects:

(a) those costs (including capital costs) which are directly attributable to the provision of the Reference Services; and

(b) a share of those costs (including capital costs) which are attributable to provision of the Reference Services jointly with Pipeline Services provided to other Shippers with contractual rights existing prior to the commencement of this Current Access Arrangement Period and other Pipeline Services which the Operator considers are reasonably foreseeable to be offered during the Access Arrangement Period.

15.2 In determining the Reference Tariffs for the T1 Service, P1 Service and B1 Service, costs have been allocated to the Services provided to Shippers with Access Contracts entered into prior to the commencement of the Current Access Arrangement Period, as if those Shippers had been provided with the respective Reference Services.

15.3 In accordance with section 12 of the Access Arrangement, the Operator and Nominees will not benefit, through increased revenue, from each amount of Funded Capital Expenditure that has been rolled into the Capital Base. So, subject to clause 12.4(b) of the Current Access Arrangement, the portion of the Total Revenue for each year of the Current Access Arrangement that equals the sum of the return on the Funded Capital Expenditure and the depreciation of the Funded Capital Expenditure will not be allocated to any pipeline service, including the Reference Tariffs.

15.4 The Reference Tariffs are designed:

(a) to generate from the provision of the Reference Services the portion of Total Revenue attributable to provision of the Reference Services;

(b) to generate from a Shipper or class of Shippers to which a Reference Service is provided, the portion of Total Revenue referable to providing the Reference Service to the Particular Shipper or class of Shippers; and

(c) consistently with the revenue and pricing principles in the NGL.

15.5 For the purpose of recovery of costs from Shippers and of earning the portion of Total Revenue attributable to the Reference Services, each of the Reference Tariffs are divided into a two part tariff structure:

(a) Capacity Reservation Tariff; and

(b) Commodity Tariff.

Capacity Reservation Tariff

15.6 The Capacity Reservation Tariff for each Reference Service, when applied to determine the Capacity Reservation Charge, recovers from each Reference Service Shipper a proportion of the return and depreciation on, and a proportion of the operating expenditure incurred in operating and maintaining, the DBNGP other than those assets that make up the DBNGP for which a capital contribution has been made by a Shipper.

15.7 In accordance with the terms of the Access Contract Terms and Conditions for each Reference Service:

(a) the Shipper must pay a Capacity Reservation Charge for each Gas Day during the Period of Supply regardless of whether the Shipper provides Gas at any Inlet Point and regardless of whether the Shipper takes Gas at any Outlet Point; and

(b) the Capacity Reservation Charge is the aggregate of the Shipper's Contracted Capacity for the Reference Service at each Outlet Point multiplied by the Capacity Reservation Tariff.

15.8 The Capacity Reservation Tariff is a number of dollars per GJ of Contracted Capacity for the T1 Service and a number of dollars per GJ of Contracted Capacity per kilometre for each of the P1 Service and B1 Service and is:

(a) as at the commencement of the Access Arrangement Period - as specified in the Current Access Arrangement;

(b) otherwise varied in accordance with clause 11 of the Current Access Arrangement.

Commodity Tariff

15.9 The Commodity Tariff for each Reference Service, when applied to determine the Commodity Charge, recovers from the Shipper a proportion of the forecast Operating Expenditure (including the cost of the System Use Gas used on the DBNGP).

15.10 In accordance with the terms of the Access Contract Terms and Conditions, the Shipper must pay a Commodity Charge for each Gas Day during the Period of Supply by calculating the multiple of the Commodity Tariff and each GJ of Gas Delivered to the Shipper up to Contracted Capacity for the relevant Service at all Outlet Points by the Operator on that Gas Day.

15.11 The Commodity Tariff is:

(a) for the T1 Service, a number of dollars per GJ of gas actually Delivered to any Outlet Point on the DBNGP; and

(b) for the P1 Service and B1 Service, a number of dollars per GJ of gas actually Delivered to any Outlet Point per kilometre.

Other tariff matters

15.12 The Shipper using a Reference Service is required to pay Other Charges as required by the Access Contract Terms and Conditions.

15.13 The Capacity Reservation Charge, the Commodity Charge and all Other Charges, as determined in accordance with the Access Contract Terms and Conditions, are exclusive of GST.

16. REFERENCE TARIFF VARIATION MECHANISM RATIONALE

16.1 NGR 92 requires inclusion of a Reference Tariff Variation Mechanism to be included in the Access Arrangement.

16.2 NGR 97 provides that a Reference Tariff Variation Mechanism may provide for variation of a Reference Tariff:

(a) in accordance with a schedule of fixed tariffs;

(b) in accordance with a formula set out in the Access Arrangement; or

(c) as a result of a cost pass through for a defined event (such as a cost pass through for a particular tax).

16.3 The Current Access Arrangement contains a Reference Tariff Variation Mechanism that is made up of three parts – see section 11 of the Access Arrangement:

(a) Annual Scheduled Variation of Reference Tariffs;

(b) Tax Changes Variation; and

(c) New Costs Pass Through Variation.

16.4 NGR 92(2) requires each that the Reference Tariff Variation Mechanism to be designed to equalise (in terms of present values):

(a) forecast revenue from Reference Services over the Access Arrangement Period; and

(b) the portion of Total Revenue allocated to Reference Services for the Access Arrangement Period.

16.5 NGR 97 also sets out criteria that the Reference Tariff Variation Mechanism must meet. They are that the Reference Tariff Variation Mechanism has regard to:

(a) the need for efficient tariff structures;

(b) the possible effects of the reference tariff variation mechanism on the administrative costs of the regulator, the service provider, and users or potential users;

(c) the regulatory arrangements (if any) applicable to the relevant reference services before the commencement of the proposed reference tariff variation mechanism; and

(d) the desirability of consistency between regulatory arrangements for similar services (both within and beyond the relevant jurisdiction); and any other relevant factor.

17. TOTAL REVENUE

17.1 The Total Revenue for each regulatory year of the Access Arrangement Period has been calculated using the building block approach described in NGR 76.

17.2 This means that the Total Revenue for each regulatory year of the Access Arrangement Period has been calculated as the sum of:

(a) A return on the projected capital base for the year;

(b) Depreciation on the projected capital base for the year (inclusive of a correction for the inflationary gains in the projected capital base);

(c) the estimated cost of corporate income tax for the year; and

(d) A forecast of operational expenditure for the year.

17.3 The Authority approved Total Revenue for each regulatory year of the Access Arrangement Period is included in Table 21.

Table 21: Total Revenue (Real $m at 31 December 2015)

	2016	2017	2018	2019	2020
Return on capital base	199.63	195.44	190.98	186.13	181.67
Depreciation	98.28	100.76	101.45	95.54	86.36
Less inflationary gains on RAB	(49.01)	(47.98)	(46.89)	(45.69)	(44.60)
Correction for over-depreciation	-	-	-	-	-
Estimated cost of corporate income tax	11.62	9.48	9.39	10.21	10.65
Operating expenditure	101.88	102.26	104.70	102.24	103.59
Total	**362.40**	**359.97**	**359.64**	**348.43**	**337.68**

17.4 It should be noted that the table above includes two line items used in the calculation of the Total Revenue that are not expressly identified as separate “building blocks” in NGR 76. They are:

(a) Correction for over-depreciation – this forms part the building block of the return on the project capital base

(b) Less inflationary gains on the capital base – this forms part of the building block of depreciation on the projected capital base.

18. DEFINITIONS

18.1 Unless the context otherwise requires, terms used in capitals in this AAI have:

(a) the meaning given in this section 18;

(b) if no meaning is given in this section 18, the meaning given in the Current Access Arrangement or the Access Contract Terms and Conditions; and

(c) if no meaning is given in this section 18 or in the Current Access Arrangement or the Access Contract Terms and Conditions, the meaning given in the NGA.

18.2 In this AAI:

AAI has the meaning given in paragraph **Error! Reference source not found.**.

AER means the Australian Energy Regulator.

Guidelines means the rate of return guidelines made and published by the ERA, in accordance with NGR 87(13), on 16 December 2013.

KPI means key performance indicator in this AAI.

Pipeline Capacity means the capacity to deliver pipeline services immediately downstream of Compressor Station 9 on the DBNGP, based on the assumptions outlined in paragraph 10.2.

Prior Access Arrangement Information has the meaning given to it in paragraph **Error! Reference source not found.** of this AAI.

Prior Access Arrangement Period means the period to which the Prior Access Arrangement applied as indicated in Table 4 of this AAI.

Rate of Return means the Allowed Rate of Return and for the purpose of the Access Arrangement Period, is the rate identified in Section 13 of this AAI, required for the purposes of establishing the Total Revenue and as determined under NGR 87.

Reference Tariff means the reference tariff for each Reference Service and as outlined in the Current Access Arrangement, and as varied in accordance with the Current Access Arrangement.

Total Revenue means the total revenue as determined for each regulatory year of the Access Arrangement Period by applying the formula in NGR 76.

WACC means the weighted average cost of capital approach, adopting the formula in Section 13.