August 2017

roma to brisbane pipeline

access arrangement information.

Effective 1 January 2018 to 30 June 2022

APT Petroleum Pipelines Pty Limited

ACN 009 737 393

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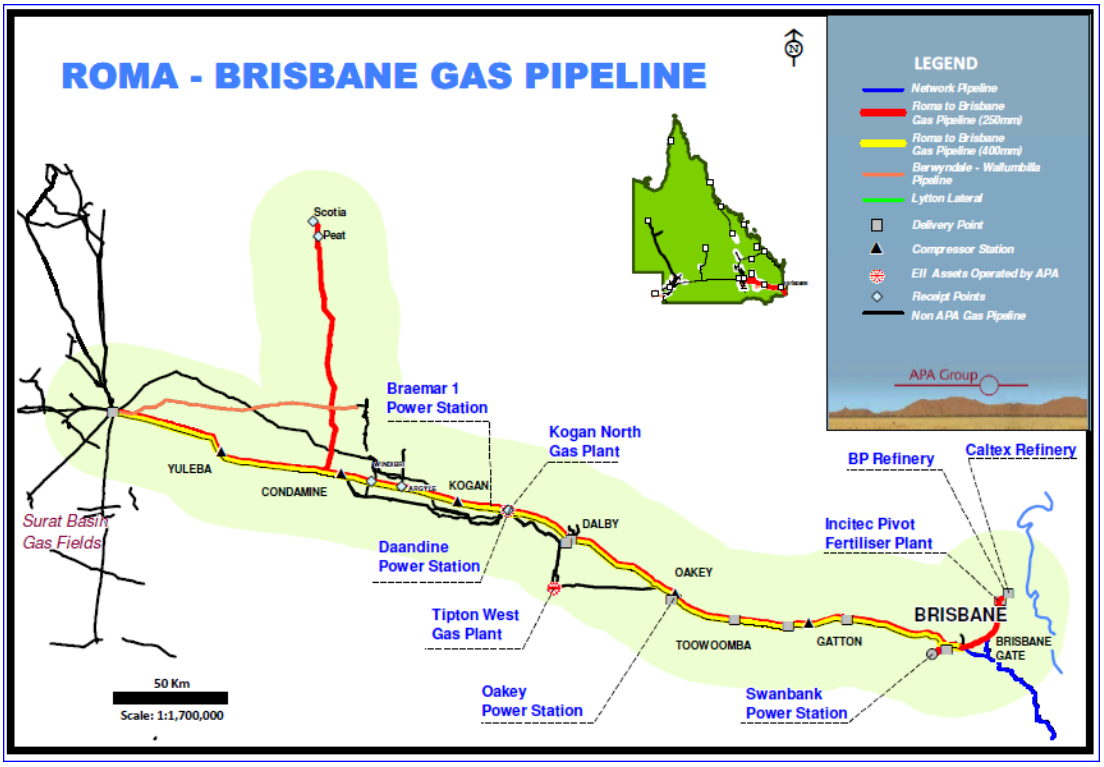
Contents

1 introduction

This Access Arrangement Information document has been prepared, in accordance with Rule 43(1) of the National Gas Rules (NGR), to provide Users and Prospective Users with sufficient information to understand the derivation of the Access Arrangement and its compliance with the NGR.

This Access Arrangement Information accompanies the APT Petroleum Pipelines Pty Limited (ACN 009 737 393) (APTPPL) access arrangement for the Roma to Brisbane Pipeline (RBP). The revised Access Arrangement commences on 1 January 2018.

Opened in 1969, the RBP is Australia's oldest natural gas pipeline. The RBP is a transmission Pipeline of 438 km in length and supplies major customers including Incitec Pivot, CS Energy's Swanbank E Power Station, BP's (now closed) Bulwer Island Refinery and energy retailers AGL and Origin Energy. Its capacity has been expanded a number of times and the capacity of the Pipeline is now more than five times its original size. The original Pipeline is fully looped (duplicated) with the exception of the Brisbane metro section (running from Ellengrove to Murarrie). Total RBP capacity is currently 207 terajoules (TJ)/day eastbound, and 120 TJ/day westbound.



A more detailed description of the Pipeline, including a map, is available on APA Group's website at www.apa.com.au, which shows the general location and key points of the Pipeline.

1.1 Structure of this document

This document follows the structure of Rule 72[1] setting out the requirements for content of the Access Arrangement Information for a full Access Arrangement proposal.

APTPPL's Access Arrangement proposal commences at the end of an earlier Access Arrangement Period, and therefore contains information relevant to the earlier Access Arrangement Period (in this case spanning from 1 September 2012 to 30 June 2017) as required under the NGR. This information is included in Part 2 of the Access Arrangement Information. The remaining parts of this Access Arrangement Information are as follows:

[1] All references to Rules or a particular Rule in this document refer to the National Gas Rules, or part thereof, unless an alternative meaning is expressly stated.

- Part 3 establishes the capital base for the Access Arrangement Period (in this case spanning 1 July 2017 to 30 June 2022), including forecast capital expenditure for the Access Arrangement Period;
- Part 4 discusses forecast utilisation for the Pipeline, including forecast customer numbers, reserved capacity and volumes used to derive tariffs;
- Part 5 outlines forecast operating expenditure for the Access Arrangement Period;
- Part 6 sets out key performance indicators for the Pipeline;
- Part 7 sets out the rate of return used in the Access Arrangement;
- Part 8 outlines the approach to taxation and how the tax asset base has been calculated;
- Part 10 discusses historical and proposed incentive mechanisms;
- Part 9 describes the Reference Services, approach to tariff setting and reference tariff variation mechanism; and
- Part 11 sets out the total revenue requirement for the Pipeline for each year of the access arrangement.

While the previous Access Arrangement operated from 1 September 2012 to 30 June 2017, financial information in this document is presented on a fiscal year basis.

2 information relevant to the earlier access arrangement period

2.1 Capital expenditure

Capital expenditure by asset class over the earlier Access Arrangement Period[2] is set out in Table 2.1 below. These costs are based on actual costs for financial years 2012/13 to 2016/17.

Table 2.1: Capital expenditure by asset class over the earlier access arrangement period ($m nominal)

	2012-13	2013-14	2014-15	2015-16	2016-17
Original Pipeline	0.48	3.36	6.54	5.66	14.08
Pipelines	2.84	3.34	10.40	0.61	0.89
Compressors	0.14	0.02	0.00	-	-
Regulators and meters	-	-	-	-	-
Easements	0.03	0.01	0.00	0.07	-
Communications	-	-	-	-	-
Other	-	-	-	-	-
Capitalised AA costs	0.07	-	-	0.06	0.91
Group IT	1.29	1.15	2.28	1.57	1.41
SIB Capex	1.02	2.55	3.77	1.89	0.92
PMA	-	-	-	-	-
Total Capex	**5.88**	**10.43**	**22.98**	**9.87**	**18.22**

[2] As required by Rule 72(1)(a)(i).

2.2 Operating expenditure

Operating expenditure by category over the earlier Access Arrangement Period[3] is set out in Table 2.2 below. These costs are based on actual costs for financial years 2012/13 to 2015/16, and forecast costs for financial year 2016/17.

Table 2.2: Operating expenditure by category over the earlier Access Arrangement Period ($m nominal)

	2012-13	2013-14	2014-15	2015-16	2016-17
Labour	5.0	5.0	5.3	6.8	7.0
Contractors	1.5	1.3	0.9	1.5	1.6
Other operating costs	1.3	1.9	1.6	0.9	0.9
Insurance, Licences and fees	0.8	0.8	1.0	0.6	0.6
Overheads/corporate costs	4.2	4.3	4.4	3.9	4.0
General	-	-	-	-	-
Management services fees	-	-	-	-	-
Treasury/financing costs	-	-	-	-	-
Total Opex	**12.8**	**13.4**	**13.2**	**13.8**	**14.1**

2.3 Pipeline usage

Pipeline minimum, maximum and average demand figures over the earlier Access Arrangement Period[4] are set out in Table 2.3 below. These figures are based on actual demand for financial years 2012/13 to 2016/17.

[3] As required by Rule 72(1)(a)(ii).

[4] As required by Rule 72(1)(a)(iii)(A).

Table 2.3: Minimum, average and maximum demand by delivery point

Delivery point Minimum, Average and Maximum Demand (GJ)		2012/13	2013/14	2014/15	2015/16	2016/17
Braemar PS	MIN	-	-	-	-	0
	AVG	6,802	6,459	10,923	9,797	3,837
	MAX	29,610	36,000	51,620	47,448	53,904
Brightview	MIN	-	-	-	-	-
	AVG	0	-	-	-	-
	MAX	-	-	-	-	-
Bulwer Island	MIN	11,130	18,627	3,043	-	-
	AVG	28,146	25,844	24,151	393	-
	MAX	36,563	35,953	39,255	3,342	-
Dalby Bio Refinery	MIN	35	-	-	-	0
	AVG	1,153	317	768	1,117	1,716
	MAX	1,578	1,328	1,422	2,430	2,595
Dalby Town Council	MIN	75	68	75	83	129
	AVG	373	317	303	316	329
	MAX	918	1,492	725	1,099	772
Doboy	MIN	36				
	AVG	559				
	MAX	1,169				
Ellen Grove	MIN	4,761	5,590	6,163	6,798	6,756
	AVG	13,985	15,158	15,158	15,205	15,407
	MAX	20,788	21,366	21,683	21,848	21,617
Gibson Island	MIN	11,829	11,592	4,757	-	10,274
	AVG	36,805	35,486	33,169	33,183	36,393
	MAX	40,890	41,519	40,153	40,976	40,741
Lytton	MIN	97	36	-	906	103
	AVG	6,999	5,361	7,445	7,732	6,692
	MAX	13,907	12,814	13,658	15,168	15,377
Mt Gravatt	MIN	728	884	468	671	917
	AVG	1,383	1,489	1,383	1,556	1,522
	MAX	1,900	1,867	1,975	1,931	1,876
Murarrie	MIN	4,539	4,271	4,032	6,194	4,708
	AVG	12,031	11,825	12,953	13,132	13,439
	MAX	18,166	17,668	19,942	19,257	19,895

Delivery point Minimum, Average and Maximum Demand (GJ)		2012/13	2013/14	2014/15	2015/16	2016/17
Oakey Allgas	MIN	25	17	15	12	7
	AVG	832	812	823	790	677
	MAX	1,448	1,416	1,423	1,472	1,439
Oakey PS	MIN	-	-	-	-	0
	AVG	598	2,188	16,564	17,679	4,888
	MAX	12,718	28,985	78,960	80,912	47,435
Redbank	MIN	456	398	335	382	245
	AVG	888	769	758	801	876
	MAX	1,351	1,311	1,225	1,221	1,304
Ritchie Road	MIN	311	330	361	363	240
	AVG	817	691	667	672	671
	MAX	1,116	1,036	1,338	867	880
Riverview	MIN	12	49	18	25	9
	AVG	885	891	834	904	833
	MAX	2,592	1,842	1,896	1,820	1,737
Runcorn	MIN	-	-	-	-	
	AVG	-	-	4	-	
	MAX	-	-	1,545	-	
Sandy Creek	MIN	-	-	-	-	0
	AVG	239	257	294	278	261
	MAX	641	508	543	553	474
Swanbank PS	MIN	-	-	-	-	-
	AVG	29,186	45,647	18,484	-	-
	MAX	52,879	61,830	60,404	-	-
Tingalpa	MIN	4,180	4,245	3,653	4,760	4,849
	AVG	6,101	6,668	6,768	6,997	7,481
	MAX	7,808	8,649	9,193	9,278	9,299
Toowoomba	MIN	662	650	665	698	809
	AVG	2,189	1,928	1,847	1,865	2,026
	MAX	3,922	3,584	3,347	3,750	3,472
Wallumbilla 3	MIN				-	0
	AVG				24,713	56,511
	MAX				126,623	154,244

Table 2.4: Minimum, Average and Maximum demand by receipt point

Receipt point Minimum, Average and Maximum Demand (GJ)		2012/13	2013/14	2014/15	2015/16	2016/17
Argyle	MIN	-	104	-	-	0
	AVG	66,538	65,595	62,893	38,712	40,846
	MAX	96,944	118,408	152,227	149,789	116,101
Condamine	MIN		-	-	-	0
	AVG		641	1,964	4,420	18,268
	MAX		9,915	24,902	32,662	59,476
Kogan North	MIN	-	5,437	-	-	0
	AVG	6,830	7,038	6,548	7,000	7,000
	MAX	11,612	11,932	11,037	11,665	10,916
Scotia	MIN	-	11,323	-	-	0
	AVG	23,675	27,489	28,600	23,865	27,978
	MAX	30,488	33,279	32,358	31,584	30,506
Wallumbilla entry	MIN	-	-	-	-	0
	AVG	29,050	18,630	26,921	27,820	4,531
	MAX	70,592	62,709	114,729	92,593	62,508
Windibri	MIN	-	-	-	-	0
	AVG	18,187	36,643	24,180	31,751	30,010
	MAX	50,003	70,101	67,902	98,928	98,931
Woodroyd	MIN	-	-	-	-	0
	AVG	7,359	7,774	3,345	3,710	5,980
	MAX	10,533	10,405	7,440	10,021	9,639

Pipeline customer numbers in total and by tariff class over the earlier Access Arrangement Period[5] are set out in Table 2.4 below. These figures are based on actual customer numbers for financial years 2012/13 to 2016/17.

Table 2.5: Customer numbers

	2012-13	2013-14	2014-15	2015-16	2016-17
Customer numbers	10	10	10	9	9

[5] As required by Rule 72(1)(a)(iii)(B).

3 the Capital Base

3.1 Opening Capital Base

3.1.1 *Opening Capital Base for Access Arrangement Period*

The Opening Capital Base for the Access Arrangement Period[6] is shown in Table 3.1 below.

Table 3.1: Opening Capital Base for the Access Arrangement Period ($m nominal)

	2012-13	2013-14	2014-15	2015-16	2016-17
opening capital base	417.07	420.75	427.47	438.88	437.15
plus net conforming capex	5.94	10.85	23.63	10.16	18.84
plus speculative capex	-	-	-	-	-
plus reused redundant assets	-	-	-	-	-
less depreciation	-12.69	-16.46	-17.91	-17.65	-16.78
plus indexation	10.43	12.33	5.69	5.75	9.31
adjustment for previous period	-	-	-	-	3.71
closing capital base	**420.75**	**427.47**	**438.88**	**437.15**	**452.22**

3.2 Projected Capital Base

The projected Capital Base for the Access Arrangement Period is made up of the following components:

- Opening Capital Base; plus
- Forecast conforming capital expenditure; less
- Forecast depreciation; less

[6] As required by Rule 72(1)(b).

- Forecast disposals.

These components are described in the following sections, and the projected Capital Base is provided in section 3.2.5 below.

3.2.1 *Forecast conforming capital expenditure for the Access Arrangement Period*

Forecast conforming capital expenditure by asset class over the Access Arrangement Period[7] is set out in Table 3.2 below.

Table 3.2: Forecast capital expenditure by asset class over the Access Arrangement Period ($m 2016-17)

	2017-18	2108-19	2019-20	2020-21	2021-22
Original Pipeline (DN250)	15.82	11.59	4.90	4.67	6.23
Pipelines	7.03	2.55	0.86	2.44	0.45
Compressor	0.10	0.10	-	-	-
Regulators and meters	0.26	-	0.08	-	-
Easements	-	-	-	-	-
Communications	-	-	-	-	-
Other	-	-	-	-	-
Capitalised AA costs	0.07	-	-	0.06	0.91
Group IT	1.61	0.59	0.47	0.58	0.43
SIB Capex	1.03	1.08	0.53	0.55	0.30
Total	**25.92**	**15.91**	**6.84**	**8.31**	**8.32**

APTPPL's capital expenditure forecast is derived based on purpose in categories as follows:

- Stay in Business capital expenditure – routine capital activities targeted at maintaining the Pipeline in good working order in the long term;

[7] As required by Rule 72(1)(c)(i).

- Growth related capital expenditure – expenditure required to maintain capacity to meet current customer demand and to provide additional capacity to meet future customer demand.
- Non-system capital expenditure is related to IT systems and software, motor vehicles, and plant and equipment which are not part of the Pipeline, but which are otherwise required to deliver Pipeline Services.

Forecast conforming capital expenditure by category over the Access Arrangement Period in shown in Table 3.3 below.

Table 3.3: Forecast conforming capital expenditure by category over the Access Arrangement Period ($m 2016-17)

	2017-18	2108-19	2019-20	2020-21	2021-22
Expansion	-	-	-	-	-
Stay in Business	25.36	15.33	6.37	7.73	7.89
Non System	0.56	0.58	0.47	0.58	0.43
Total	**25.92**	**15.91**	**6.84**	**8.31**	**8.32**

3.2.3 *Forecast depreciation*

Forecast depreciation by asset class over the Access Arrangement Period[8] is shown in Table 3.4 below.

Table 3.4: Forecast depreciation over the Access Arrangement Period ($m 2016/17)

	2017-18	2108-19	2019-20	2020-21	2021-22
Original Pipeline (DN250)	1.76	2.03	2.23	2.31	2.39
Pipelines	4.89	4.98	5.01	5.02	5.05
Compressor	0.76	0.76	0.76	0.76	0.76
Regulators and meters	0.01	0.02	0.02	0.02	0.02
Easements	-	-	-	-	-
Communications	0.00	0.00	0.00	0.00	0.00
Other	-	-	-	-	-
Capitalised AA costs	0.31	0.32	0.32	0.32	0.30
Group IT	3.37	3.71	3.83	2.67	0.68
SIB Capex	0.45	0.66	0.89	0.69	0.65
PMA	2.67	2.67	2.67	-	-
Redundant compressors	2.1	2.1	1.8	-	-
Total	**14.2**	**15.2**	**15.7**	**11.8**	**9.9**

[8] As required by Rule 72(1)(c)(ii).

Table 3.5 sets out APTPPL's asset economic lives.

Table 3.5: Asset remaining economic lives (years)

$000	Standard life	Remaining life
Original Pipeline (DN250)	60	35.8
Pipelines	80	65.4
Compressor	35	30.0
Regulators and meters	40	34.5
Easements	n/a	n/a
Communications	15	5.0
Other	5	0.0
Capitalised AA costs	5	4.9
Group IT	5	3.6
SIB Capex	5	3.3
PMA	12	3.0
Redundant Compressors	n/a	3.0

APTPPL has applied a straight-line methodology in determining future depreciation.

3.2.5 *Forecast disposals*

Forecast disposals for the Access Arrangement Period are set out in Table 3.6 below.

Table 3.6: Forecast disposals over the Access Arrangement Period ($m 2016/17)

	2017-18	2018-19	2019-20	2020-21	2021-22
Disposals	**0**	**0**	**0**	**0**	**0**

3.2.6 *Forecast redundant assets*

The forecast of assets that will be made redundant in the Access Arrangement Period in set out in Table 3.7 below.

Table 3.7: Forecast redundant assets over the Access Arrangement Period ($m 2016/17)

	2017-18	2018-19	2019-20	2020-21	2021-22
Forecast redundant assets	**0**	**0**	**0**	**0**	**0**

3.2.8 *Projected Capital Base over the Access Arrangement Period*

The projected Capital Base for the Access Arrangement Period[9] is shown in Table 3.8 below.

Table 3.8: Projected Capital Base for the Access Arrangement Period ($m nominal)

	2017-18	2018-19	2019-20	2020-21	2021-22
Opening capital base	452.22	473.81	484.43	484.99	493.32
plus indexation	11.08	11.61	11.87	11.88	12.09
plus forecast capex	27.22	17.12	7.57	9.45	9.63
less forecast depreciation	16.72	18.10	18.88	13.00	11.13
less forecast disposals	-	-	-	-	-
less forecast redundant assets	-	-	-	-	-
Closing capital base	**473.81**	**484.43**	**484.99**	**493.32**	**503.90**

[9] As required by Rule 72(1)(c).

4 forecast network demand and utilisation

4.1 Forecast customer numbers and volumes

Forecast customer numbers and volumes by customer class for the access arrangement period are set out in Table 4.1 below.

Table 4.1: Forecast customer numbers and volumes by customer class over the Access Arrangement Period

	2017-18	2018-19	2019-20	2020-21	2021-22
Total	8	8	8	8	8

4.2 Forecast network capacity and utilisation

Forecast network capacity and utilisation for the Access Arrangement Period[10] is shown in Table 4.2 below. Pipeline capacity reported is for deliveries upstream of the brisbane Metro section. The pipeline capacity for deliveries within the Brisbane Metro section is 110 TJ/day

Table 4.2: Forecast network capacity and utilisation for the Access Arrangement Period

	2017-18	2018-19	2019-20	2020-21	2021-22
Pipeline capacity - Eastbound	**207**	**207**	**207**	**207**	**207**
Peak utilisation	67%	75%	77%	75%	78%
Average utilisation	44%	45%	45%	45%	45%
Pipeline Capacity - Westbound	**120**	**120**	**120**	**120**	**120**
Peak utilisation	100%	100%	100%	100%	100%
Average utilisation	40%	40%	40%	40%	40%

[10] As required by Rule 72(1)(d).

4.3 Forecast demand

Forecast maximum and average demand for the Pipeline over the Access Arrangement Period is shown in Table 4.3 below.

Table 4.3: Forecast maximum and average demand for the Pipeline over the Access Arrangement Period (TJ/d)

	2017-18	2018-19	2019-20	2020-21	2021-22
Eastbound					
Maximum demand	139.3	154.9	159.3	156.0	160.5
Average demand	90.3	92.6	93.4	93.3	93.9
Westbound					
Maximum demand	120	120	120	120	120
Average demand	48	48	48	48	48

5 forecast operating expenditure

Forecast operating expenditure by category over the Access Arrangement Period is set out in Table 5.1 below.

Table 5.1: Forecast operating expenditure by category over the Access Arrangement Period ($m 2016-17)

$	2017-18	2018-19	2019-20	2020-21	2021-22
Labour	7.06	7.06	7.01	6.98	6.98
Contractors	1.58	1.58	1.57	1.57	1.57
Insurance, Licences and Fees	0.92	0.92	0.91	0.91	0.91
Other operating costs	0.63	0.63	0.63	0.62	0.62
Corporate costs	4.07	4.07	4.04	4.02	4.02
Debt raising costs	0.25	0.26	0.26	0.25	0.25
Forecast operating expenditure	**14.51**	**14.51**	**14.41**	**14.36**	**14.35**

APTPPL's forecast of operating expenditure for the Access Arrangement Period has been prepared using the base year methodology. This methodology involves the following steps:

- Selection of an appropriate base year in which to measure costs;
- Modification of the base year costs to ensure that all costs required for future operation of the Pipeline are added to the base year costs, and all costs in the base year costs which are not relevant to future operation of the Pipeline are subtracted from the base year costs;
- Modification of base year costs as required to reflect changed consumer numbers, additional Pipeline facilities required to supply gas to these additional consumers, and increased loads from existing consumers;
- Modification of the base year costs to reflect changes in input costs anticipated over the Access Arrangement Period; and

- Modification of the base year costs to reflect appropriate productivity improvements.

6 key performance indicators

Key performance indicators for the Access Arrangement Period[11] are shown in Table 6.1 below.

Table 6.1: Key performance indicators ($2016–17)

$	2017-18	2108-19	2019-20	2020-21	2021-22
Opex per pipeline km	14,854	14,854	14,751	14,700	14,690
Opex per mmkm	46	46	45	45	45

[11] As required by Rule 72(1)(f).

7 rate of return

The return on the projected capital base included in the total revenue is determined as the product of a rate of return and the projected capital base at the beginning of each regulatory year of an access arrangement period.

The rate of return – the allowed rate of return of rule 87 of the NGR – is a nominal vanilla weighted average of an estimate of the return on equity and an estimate of the return on debt.

7.1 Gearing

In the nominal vanilla weighted average, the weight assigned to the estimate of the return on equity in the rate of return is 40%, and the weight assigned to the estimate of the return on debt is 60%.

7.2 Risk free rate of return

A risk free rate has been estimated as the average of yields on Australian Government securities with terms to maturity of 10 years over the period of 20 consecutive business days ending 31 July 2017.

The estimate of the risk free rate of return is 2.68%.

7.3 Return on equity

The Sharpe-Lintner Capital Asset Pricing Model (SL CAPM), the foundation model of the AER's Rate of Return Guideline, has been used to estimate the return on equity.

The SL CAPM represents the expected return, $E(r_j)$, on a particular financial asset j, as:

$$E(r_j) = r_f + \beta_j \times [E(r_M) - r_f]$$

where r_f is the risk free rate of return; β_j is the beta for asset j, and $E(r_M)$ is the expected return on the market portfolio of assets.

APTPPL has departed from the Rate of Return Guideline when using the SL CAPM to estimate the return on equity.

At the time the SL CAPM is applied, estimates are made of:

- the rate of return on the risk free asset assumed to be available to investors at that time (the risk free rate); and
- the return those investors expect, at that time, to earn on the market portfolio.

The difference between the estimate of the return on the market portfolio and the estimate of the risk free rate is the estimate of the term $[E(r_M) - r_f]$ in the SL CAPM. This is not the approach of the Rate of Return Guideline, which proposes that the term $[E(r_M) - r_f]$ be estimated as a single parameter. Estimation of the term $[E(r_M) - r_f]$ as a single parameter is inconsistent with the economic principles from which SL CAPM is derived.

APTPPL has estimated the return on equity using the SL CAPM, with the following estimates for the parameters of the model:

- risk free rate: $r_f = 2.68\%$;
- equity beta: $\beta_j = 0.8$; and
- $E(r_M)$: 10.38%.

The estimated rate of return on equity is 8.8%.

7.4 Return on debt

APTPPL has departed from the AER's Rate of Return Guideline when estimating the return on debt. The Rate of Return Guideline proposes that the rate of return on debt be estimated as a prospective and progressively implemented trailing average.

APTPPL has estimated the rate of return as a simple historical trailing average of estimates of return on debt for each of the last 10 years.

The benchmark efficient entity of Rule 87(3) is a firm of similar scale to APTPPL. Such a firm would be expected to issue debt with a term to maturity of 10 years, and to stagger its debt issues to minimise refinancing risk, in the way the Rate of Return Guideline proposes, without any need for concern about

hedging arrangements which have to be "unwound". The trailing average approach to estimation of the return on debt can be implemented immediately (without any need for a period of transition).

Reserve Bank of Australia data for the yields on the bonds of Australian non-financial corporations rated BBB have been used to estimate terms of the trailing average.

Where necessary, the data have been extrapolated or interpolated in the way proposed by the AER so that the estimates of the return on debt obtained (and which are the terms of the trailing average) are for terms to maturity of 10 years consistent with the assumption made in respect of the financing of the benchmark efficient entity.

Using Reserve Bank of Australia data for July 2017, and for July in each of the previous nine years, an estimate of the return on debt for the benchmark efficient entity is 6.9%.

7.5 Allowed rate of return

The allowed rate of return used in calculating the revised reference tariff of the RBP Access Arrangement is a weighted average of the estimated return on equity of 8.4%, and the estimated return on debt of 6.9%. The weightings assigned to the estimates of the return on equity and the return on debt are, respectively, 40% and 60%. The allowed rate of return is 7.7%.

7.6 Annual updating

Rule 87(9)(b) permits the return on debt to be estimated using a method which results in that return, and the allowed rate of return, being different for different regulatory years in the access arrangement period.

APTPPL intends that the estimate of the return on debt be updated annually during the access arrangement period. This is to be done, for each year of the access arrangement period, by deleting the earliest term from the historical trailing average, and adding a new term calculated for the current year. The equal weighting of the terms is to be retained in the updating process.

If the return on debt is updated annually, then the total revenue is to be changed through the automatic application of the formula that is specified in the decision on the proposed revisions to the RBP Access Arrangement.[12]

7.7 Value of imputation credits

APTPPL has adopted the AER's estimate of 0.4 for gamma.

Although the Federal Court has found the AER not to be in error in its choice of one approach to estimation of gamma over another, the more basic question about the way in which the capital market values imputation credits remains. Market practitioners continue to assign to those credits little or no value. In these circumstances, a lower estimate of gamma – 0.25 – or even an estimate of zero cannot, at the present time, be rejected. APTPPL expects the debate on the valuation of imputation credits will continue, and an estimate of 0.4 will be no more than another step along the way.

[12] NGR, Rule 87(12).

8 taxation

APTPPL has adopted a post tax approach. Under this approach, the cash flows of the business include an estimate of the amount of tax payable on regulatory revenues.

APTPPL has rolled forward its TAB using the same principles as the normal asset base rollforward. That is, APTPPL has adopted the opening TAB in the earlier access arrangement period, and rolled it forward using actual capital expenditure. As the TAB is not indexed, it was not necessary to update the rollforward for outturn CPI increases. The TAB rollforward is shown in Table 8.1 and Table 8.2.

Table 8.1: Tax Asset Base as at 30 June 2017 ($m nominal)

	2012-13	2013-14	2014-15	2015-16	2016-17F
Opening TAB	134.18	126.78	124.25	133.84	128.89
Net additions	5.77	10.45	22.95	9.87	18.22
Tax depreciation	-13.17	-12.98	-13.36	-14.82	-13.94
Closing TAB	**126.78**	**124.25**	**133.84**	**128.89**	**133.17**

Table 8.2: Forecast Tax Asset Base ($m nominal)

$000	2017-18	2108-19	2019-20	2020-21	2021-22
Opening TAB	133.17	146.21	147.64	138.81	132.89
Net additions	26.56	16.70	7.38	9.22	9.39
Tax depreciation	-13.52	-15.26	-16.22	-15.13	-14.33
Closing TAB	**146.21**	**147.64**	**138.81**	**132.89**	**127.96**

The TAB is then applied to determine the corporate income tax allowance derived from the AER's Post Tax Revenue Model, as indicated in Table 8.3. This calculation of corporate income tax reflects a value for tax imputation credits, gamma, of 0.40.

Table 8.3: Corporate income tax allowance ($m nominal)

	2017-18	2108-19	2019-20	2020-21	2021-22
Tax allowance	1.76	1.73	1.72	0.67	0.46

9 approach to tariff setting

9.1 Reference Services

There is one Reference Services offered on the RBP - a Long Term Firm Service for receipt, transport and delivery of Gas over a minimum three year annual contract term

Consistent with existing contracts and customer enquiries, APTPPL considers this to be the Services likely to be sought by a significant portion of the market.

APTPPL also provides Negotiated Services.

9.2 Tariff structure

The Reference Service has a one-part tariff, being a Capacity Charge (expressed as dollars per GJ of MDQ per Day).

9.3 Allocation of revenue to tariffs

Reference Tariffs are designed to recover the Total Revenue based on derivation of demand for Long Term Firm Services.

This approach equalises revenue derived from the application of Reference Tariffs with the total Reference Service revenue requirement, in present value terms, assuming that assumptions regarding costs and demand hold.

The forecast revenue requirement for the Access Arrangement Period is shown in Table 10.1 below.

Table 9.1: Forecast revenue requirement for the Access Arrangement Period ($m nominal)

	2017-18	2108-19	2019-20	2020-21	2021-22
Return on capital	34.67	36.32	37.14	37.18	37.82
Return of capital	5.64	6.49	7.01	1.12	-0.95
plus operating and maintenance	14.86	15.23	15.50	15.82	16.20
plus revenue adjustments	1.74	-	-	-	-
plus net tax allowance	1.76	1.74	1.72	0.67	0.46
Building block revenue requirement	**58.67**	**59.79**	**61.36**	**54.79**	**53.53**

The net present value of the Reference Tariff revenue stream when discounted at the nominal vanilla WACC of 7.67% is $233.01 million.

Table 9.2: Reference Tariff revenue stream ($m nominal)

	2017-18	2108-19	2019-20	2020-21	2021-22
Smoothed revenue path	**49.49**	**54.81**	**58.69**	**62.53**	**66.83**

The net present value of the Reference Tariff revenue stream when discounted at the nominal vanilla WACC of 7.67% is $233.01 million which is equal to the present value of the revenue requirement.

9.4 Reference Tariffs

Tariffs for Reference Services are set out in the Access Arrangement. Tariffs are published for 2017/18 ($2016/17) and are exclusive of Goods and Services Tax (GST).

9.4.1 *Reference tariff variation mechanism*

Reference Tariffs are varied in later years of the Access Arrangement Period through the operation of the Reference Tariff variation mechanism, made up of:

- an Annual Scheduled Reference Tariff Adjustment Formula Mechanism - which applies in respect of each year during the Access Arrangement Period; and
- Cost Pass-through Reference Tariff Adjustment Mechanism - under which APTPPL may seek to vary one or more of the Reference Tariffs as a result of a Cost Pass-through Event/s.

9.4.2 *Annual reference tariff adjustment formula mechanism*

The annual tariff variation adjustment formula adjusts tariffs on each 1 July of the Access Arrangement Period as follows:

- The Capacity Tariff for the Long Term Firm Service will be varied by consumer price index (CPI) and an X factor.

A symmetrical annual tariff variation adjustment formula adjusts the reference tariff on each 1 July of the access arrangement period in respect of changes to the Consumer Price Index (CPI) and to the return on debt.

These adjustments are intended to ensure an efficient tariff over the access arrangement period. Relevant values and formulae for the above parameters are set out in section 4.7 of the access arrangement.

9.4.3 *Cost Pass-through Reference Tariff Adjustment Mechanism*

A symmetrical cost pass through reference tariff variation mechanism is included in the access arrangement to allow the reference tariff to be adjusted to recover (or return) material incremental costs resulting from defined cost pass through events.

The cost pass through events defined in the access arrangement are:

- a carbon cost event;
- a regulatory change event;
- a service standard event;
- a tax change event;

- a terrorism event;
- an insurer credit risk event;
- an insurance cap event;
- a natural disaster event.

Part 4.7 of the access arrangement sets out the tariff variation process the materiality threshold for cost pass-through events.

10 incentive mechanisms

10.1 historical incentive mechanism

There was no incentive mechanism operative in the earlier access arrangement period giving rise to increments or decrements that need to be included in the revenue requirement for the access arrangement period.[13]

10.2 proposed incentive mechanism

This access arrangement includes an Efficiency Benefit Sharing Scheme, an incentive mechanism of the type described under the Rules.

Under the EBSS, APTPPL retains any benefits (or penalties) for a period of five years after the year in which it was realised. This means that the benefits carry over into the next access arrangement period. The EBSS only applies to the first four years of an access arrangement period as the final year has not been completed when the calculation is made.

The calculation of the efficiency benefit for each year is cumulative, ie, benefits in a year accrue only to the extent that the savings in that year are greater than those already identified in prior years. This means that, especially in the later years of an access arrangement period, a saving from the originally approved operating and maintenance forecast can still generate a negative efficiency benefit.

APTPPL also faces incentives to increase the demand for transportation services over the access arrangement period compared with the forecast on which the access arrangement is based, as total revenue will not be adjusted to reflect differences between forecast and actual gas demand.

[13] As required by Rule 72(1)(i).

11 total revenue

The total revenue requirement to be derived from pipeline services over the access arrangement period is shown in Table 12.1 below.

Table 11.1: Total revenue requirement ($m nominal)

	2017-18	2108-19	2019-20	2020-21	2021-22
Return on capital	34.67	36.32	37.14	37.18	37.82
Return of capital	5.64	6.49	7.01	1.12	-0.95
plus operating and maintenance	14.86	15.23	15.50	15.82	16.20
plus revenue adjustments	1.74	-	-	-	-
plus net tax allowance	1.76	1.74	1.72	0.67	0.46
Building block revenue requirement	**58.67**	**59.79**	**61.36**	**54.79**	**53.53**