

DRAFT DECISION Amadeus Gas Pipeline Access Arrangement 2016 to 2021

Attachment 2 – Capital base

November 2015



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Note

This attachment forms part of the AER's draft decision on the access arrangement for the Amadeus Gas Pipeline for 2016–21. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

Overview

- Attachment 1 Services covered by the access arrangement
- Attachment 2 Capital base
- Attachment 3 Rate of return
- Attachment 4 Value of imputation credits
- Attachment 5 Regulatory depreciation
- Attachment 6 Capital expenditure
- Attachment 7 Operating expenditure
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Shortened forms

Shortened form	Extended form
AA	Access Arrangement
AAI	Access Arrangement Information
AER	Australian Energy Regulator
AGP	Amadeus Gas Pipeline
АТО	Australian Tax Office
сарех	capital expenditure
САРМ	capital asset pricing model
CESS	Capital Expenditure Sharing Scheme
СРІ	consumer price index
DRP	debt risk premium
EBSS	Efficiency Benefit Sharing Scheme
ERP	equity risk premium
Expenditure Guideline	Expenditure Forecast Assessment Guideline
gamma	Value of Imputation Credits
GSL	Guaranteed Service Level
MRP	market risk premium
NEGI	north eastern gas interconnector
NGL	national gas law
NGO	national gas objective
NGR	national gas rules
NPV	net present value
opex	operating expenditure
PFP	partial factor productivity
PPI	partial performance indicators
PTRM	post-tax revenue model
RBA	Reserve Bank of Australia
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
ТАВ	Tax asset base
UAFG	Unaccounted for gas

Shortened form	Extended form
WACC	weighted average cost of capital
WPI	Wage Price Index

2 Capital base

The capital base roll forward accounts for the value of APTNT's regulated assets over the access arrangement period. The opening capital base value for a regulatory year within the access arrangement period is rolled forward by indexing it for inflation, adding any conforming capex, and subtracting depreciation and other possible factors (for example, disposals or customer contributions).¹ Following this process, the AER arrives at a closing value of the capital base at the end of the relevant year. The opening value of the capital base is used to determine the return of capital (regulatory depreciation) and return on capital building block allowances.

We are required to make a decision on APTNT's opening capital base as at 1 July 2016 for the 2016–21 access arrangement period. We are also required to make a decision on APTNT's projected capital base for the 2016–21 access arrangement period. This attachment presents our draft decision on these matters.

2.1 Draft decision

We do not approve APTNT's proposed opening capital base of \$120.6 million (\$nominal) as at 1 July 2016. This is because we have made several amendments to APTNT's proposed roll forward model (RFM) to correct some input errors. We also updated the conforming capex estimate for 2015–16, as discussed in attachment 6.

We determine an opening capital base of \$112.2 million (\$nominal) as at 1 July 2016, which is \$8.4 million (\$nominal) less than that proposed by APTNT, a reduction of 7.0 per cent.

Table 2.1 summarises our draft decision on the roll forward of APTNT's capital base during the 2011–16 access arrangement period.

¹ The term 'rolled forward' means the process of carrying over the value of the capital base from one regulatory year to the next.

	2011–12	2012–13	2013–14	2014–15	2015–16
Opening capital base	92.1	92.7	106.1	107.6	107.4
Net capex	4.3	16.5	4.0	4.2	8.2
Indexation of capital base	1.5	2.3	3.1	1.4	2.7
Depreciation	-5.1	-5.4	-5.6	-5.9	-3.4
Closing capital base	92.7	106.1	107.6	107.4	114.9
Adjustment for difference between estimated and actual capital expenditure in 2010–11 ^a					-2.7
Opening capital base at 1 July 2016					112.2

Table 2.1AER's draft decision on APTNT's capital base roll forward forthe 2011–16 access arrangement period (\$million, nominal)

Source: AER analysis.

(a) Comprising the difference between the actual and estimated capex for 2010–11 and the return on that difference.

We do not approve APTNT's proposed roll forward of its projected capital base across the 2016–21 access arrangement period, and do not approve its closing capital base at 30 June 2021 of \$142.6 million (\$nominal). This is because we have not approved APTNT's proposed inputs to the projected capital base roll forward, specifically the opening capital base (section 2.4.1), depreciation (attachment 5) and forecast capex (attachment 6). Based on our approved amounts for these inputs, we determine a projected closing capital base of \$135.8 million (\$nominal) as at 30 June 2021. This is \$6.8 million (\$nominal) less than that proposed by APTNT, a reduction of 4.8 per cent.

Table 2.2 sets out the projected roll forward of the capital base during the 2016–21 access arrangement period.

Table 2.2AER's draft decision on projected capital base roll forward forthe 2016–21 access arrangement period (\$million, nominal)

	2016–17	2017–18	2018–19	2019–20	2020–21
Opening capital base	112.2	120.7	124.7	128.4	132.1
Net capex	9.3	4.9	4.7	4.9	5.1
Indexation of capital base	2.8	3.0	3.1	3.2	3.3
Depreciation	-3.5	-3.9	-4.1	-4.4	-4.7
Closing capital base	120.7	124.7	128.4	132.1	135.8

Source: AER analysis.

2.2 APTNT's proposal

APTNT's proposal outlined its opening capital base at 1 July 2016, projected capital base over the 2016–21 access arrangement period, and the depreciation approach for

determining the opening capital base at 1 July 2021 at the next access arrangement review.

2.2.1 Opening capital base as at 1 July 2016

APTNT proposed an opening capital base as at 1 July 2016 of \$120.6 million (\$nominal). This amount is calculated by rolling forward the opening capital base as at 1 July 2011 of \$91.8 million (\$nominal) by adding actual net capex, removing approved forecast depreciation and adding inflation indexation on the opening capital base in each year of the 2011–16 access arrangement period.²

APTNT's proposed capital base roll forward during the 2011–16 access arrangement period is shown in Table 2.3.

Table 2.3APTNT's proposed capital base roll forward during the 2011–16 access arrangement period (\$million, nominal)

Details	2011–12	2012–13	2013–14	2014–15	2015–16
Opening capital base	91.8	92.6	106.0	107.7	107.7
Net capex	4.3	16.5	4.0	4.2	15.5
Indexation of capital base	1.5	2.3	3.1	1.4	2.7
Depreciation	-5.0	-5.4	-5.5	-5.5	-3.1
Closing capital base	92.6	106.0	107.7	107.7	122.9
Adjustment for 2010–11 capex ^a					-2.3
Opening capital base at 1 July 2016					120.6

Source: APTNT, *Proposed RFM*, August 2015.

(a) Comprising the difference between the actual and estimated capex for 2010–11 and the return on that difference.

2.2.2 Projected capital base over the 2016–21 access arrangement period

APTNT proposed a projected closing capital base as at 30 June 2021 of \$142.6 million (\$nominal). APTNT determined this value by adjusting the closing value at 30 June 2016 for depreciation (attachment 5), forecast net capex (attachment 6) and inflation (attachment 3). The projected roll forward of the capital base during the 2016–21 access arrangement period is shown in Table 2.4.

² APTNT, 2016–21 Access arrangement revision submission, August 2015, table 7.4, p. 97.

Table 2.4	APTNT's proposed projected capital base roll forward during
the 2016-21	access arrangement period (\$million, nominal)

Details	2016–17	2017–18	2018–19	2019–20	2020–21
Opening capital base	120.6	140.2	141.0	141.3	141.5
Net capex	21.4	2.7	2.5	2.7	2.8
Indexation of capital base	3.0	3.5	3.5	3.5	3.5
Depreciation	-4.9	-5.4	-5.7	-6.0	-5.3
Closing capital base	140.2	141.0	141.3	141.5	142.6

Source: APTNT, Proposed PTRM, August 2015.

2.2.3 Capital base at the commencement of the 2021–26 access arrangement period

APTNT proposed to use forecast depreciation to determine the opening capital base as at 1 July 2021.³

2.3 AER's assessment approach

Our approach to assessing APTNT's projected capital base is consistent with that adopted in previous gas transmission decisions made under the NGR.⁴ In accordance with rule 77(2) and rule 78 of the NGR, we applied three steps to calculate the projected capital base:

- First, we confirm the value of the opening capital base for the first year of the 2011– 16 access arrangement period (in this case, 1 July 2011). Typically, this includes making an adjustment to account for any difference between actual and estimated capex in the final year of the previous access arrangement period (in this case, 2010–11). This adjustment is also subject to any changes made in our assessment of conforming capex for that year.
- Second, the opening capital base as at 1 July 2011 is rolled forward to determine the closing capital base as at 30 June 2016. This closing capital base is also used as the value of the opening capital base for the access arrangement period as at 1 July 2016. This involves:⁵
 - adding conforming actual capex for each year—this requires assessing the capex and determining that it is consistent with the provisions of the 2011– 16 access arrangement and data from audited annual reporting regulatory

³ APTNT, 2016–21 Access arrangement revision submission, August 2015, p. 97.

⁴ For example, AER: APT Petroleum pipeline Pty Ltd access arrangement final decision Roma to Brisbane pipeline, August 2012; AER: Access arrangement final decision APA GasNet Australia (Operations) Pty Ltd 2013–17 Part 2: Attachments, March 2013.

⁵ NGR, r. 77(2).

information notices, as well as the definition of 'conforming capital expenditure' in the NGR⁶

- removing forecast depreciation for each year based on the approach approved for the 2011–16 access arrangement
- removing any capital contributions during the 2011–16 access arrangement period
- adding any speculative capex or redundant assets that will be reused during the 2016–21 access arrangement period
- removing any redundant assets and disposals during the 2011–16 access arrangement period
- \circ indexing the roll forward each year for actual inflation.
- Third, the capital base is projected over the 2016–21 access arrangement period by rolling forward the opening capital base as at 1 July 2016 to 30 June 2021. This involves performing the following on the opening capital base:⁷
 - o adding forecast conforming capex for each year
 - o removing forecast depreciation for each year
 - removing the forecast value of assets to be disposed of during the 2016–21 access arrangement period
 - o indexing the capital base of the roll forward each year for forecast inflation.

2.3.1 Interrelationships

The level of the capital base substantially impacts the service provider's revenue and the price consumers pay. It is an input into the determination of the return on capital and depreciation (return of capital) allowances.⁸ Factors that influence the capital base will therefore flow through to these building block components and the annual building block revenue requirement. Other things being equal, a higher capital base increases both the return on capital and depreciation allowances. In turn, it increases the service provider's revenue, and prices for its services.

The capital base is determined by various factors, including;

- the opening capital base (meaning the value of existing assets at the beginning of the access arrangement period)
- net capex⁹
- depreciation
- indexation adjustment so the capital base is presented in nominal terms, consistent with the rate of return.

⁶ NGR, r. 77(2).

⁷ NGR, r. 78.

⁸ The size of the capital base also impacts the benchmark debt raising cost allowance. However, this amount is usually relatively small and therefore not a significant determinant of revenues overall.

⁹ Net capex is gross capex less disposals and capital contribution.

The opening capital base depends on the value of existing assets as well as actual conforming net capex, actual inflation outcomes and depreciation in the past.

The capital base when projected to the end of the access arrangement period may increase due to forecast new capex and the indexation adjustment. The size of the indexation adjustment depends on expected inflation (which also affects the nominal rate of return or WACC) and the size of the capital base at the start of each year.

Depreciation reduces the capital base. The depreciation allowance depends on the size of the opening capital base and the forecast net capex. By convention, the indexation adjustment is also offset against depreciation to prevent double counting of inflation in the capital base and WACC, which are both presented in nominal terms. This reduces the apparent size of the depreciation building block that feeds into the annual building block model for setting revenue.

Figure 2.1 shows the key drivers of the change in the capital base over the 2016–21 access arrangement period as proposed by APTNT. Overall, the closing capital base at the end of the 2016–21 access arrangement period would be 18.2 per cent higher than the opening capital base at the start of that period based on the proposal, in nominal terms. The proposed forecast net capex increases the capital base by about 26.7 per cent, while forecast inflation increases it by about 14.2 per cent. Forecast depreciation, on the other hand, reduces the capital base by about 22.6 per cent.

The capital base would rise by 7.1 per cent in real terms over the 2016–21 access arrangement period based on APTNT's proposal. The depreciation amount also largely depends on the opening capital base (which in turn depends on capex).

A ten per cent increase in the opening capital base causes revenues to increase by about five per cent. However, the impact on revenues of the annual change in capital base depends on the source of the capital base change, as some drivers affect more than one building block cost.

Figure 2.1 shows forecast net capex is the largest driver of the increase in the capital base. Refer to attachment 6 for the discussion on forecast capex.

A ten per cent increase in the opening capital base causes revenues to increase by about five per cent. However, the impact on revenues of the annual change in capital base depends on the source of the capital base change, as some drivers affect more than one building block cost.¹⁰

¹⁰ If capex causes the capital base increase, then return on capital, depreciation, and debt raising costs will all increase too. If a reduction in depreciation causes the capital base increase, revenue could increase or decrease. In this case, the higher return on capital is offset (perhaps more than offset) by the reduction in depreciation allowance. Inflation naturally increases the capital base in nominal terms. However, the real impact from changing the inflation forecast is inconsequential as revenues are updated annually by actual inflation and the X factor, which is generally unaffected by the assumed forecast inflation rate.





Source: AER analysis.

2.4 Reasons for draft decision

We do not approve APTNT's proposed opening capital base of \$120.6 million (\$nominal) as at 1 July 2016. We have instead determined an opening capital base value of \$112.2 million (\$nominal) as at 1 July 2016, a reduction of \$8.4 million (\$nominal) (or 7.0 per cent). This is due to the amendments we made in the proposed RFM for correcting some input errors.

We also do not approve APTNT's projected closing capital base of \$142.6 million (\$nominal) as at 30 June 2021. We instead determine a closing capital base of \$135.8 million (\$nominal) as at 30 June 2021, a reduction of \$6.8 million (\$nominal) or 4.8 per cent from the proposed value. The main reasons for the reduction are our adjustments to the opening capital base as at 1 July 2016 (section 2.4.1), forecast depreciation (attachment 5) and forecast net capex (attachment 6).

We are satisfied each of these amendments is necessary having regard to the requirements of the NGR. The reasons for our decision are discussed below.

2.4.1 Roll forward of capital base during the 2011–16 access arrangement period

To determine the opening capital base as at 1 July 2016, we have assessed APTNT's proposed roll forward of its capital base over the 2011–16 access arrangement period. As part of this assessment, we reviewed the following key inputs to the capital base roll forward:

 adjustment for actual capex in 2010–11(including an assessment of the inputs used to calculate this adjustment)

- conforming capex in the 2011–16 access arrangement period
- depreciation amounts in the 2011–16 access arrangement period
- actual inflation from 2009–10 to 2014–15 and forecast inflation for 2015–16.

We found some of the input values in APTNT's proposed RFM are inconsistent with relevant data sources such as ABS data and the 2011–16 decision models. Therefore, we amended them in the RFM to provide the correct values. We have discussed the input errors with APTNT. APTNT largely agreed with our amendments.¹¹

Our amendments to the APTNT's proposed inputs are discussed further below.

Adjustment for actual capex in 2010–11

APTNT proposed to remove \$2.3 million (\$nominal) from its capital base to adjust for the difference between estimated and actual capex for 2010–11. We accept APTNT's proposed approach to adjusting its capital base for actual capex in 2010–11. APTNT's proposal used the AER's RFM for electricity service providers, which provides for the adjustment of the difference between estimated and actual capex for 2010–11. Under the RFM, the capital base is adjusted for the difference between estimated and actual capex for 2010–11. Under the RFM, the capital base is adjusted for the difference between estimated and actual capex for 2010–11. Under the RFM, the capital base is adjusted for the difference between estimated and actual capex for the final year of the previous access arrangement period (in this case 2010–11) and the accumulated return on capital associated with that difference.¹²

In accepting the proposed approach, we have changed the amount removed from the capital base to \$2.7 million (\$nominal) from the proposed \$2.3 million (\$nominal). This reflects the amendments we made to the inputs used to calculate this adjustment in the proposed RFM. These amendments are:

- 2010–11 forecast net capex inputs—We have changed the proposed inputs to reflect the approved 2010–11 forecast net capex values with the half year rate of return adjustment as required by the RFM and consistent with the values in the 2011–16 decision models. APTNT used the unadjusted values in its proposed RFM.
- Forecast inflation for 2010–11 and rate of return for 2010–11 and 2011–12 inputs— We have changed the proposed inputs to be consistent with the approved values in the 2011–16 decision models. The proposed values did not reconcile with the approved values.

Conforming capital expenditure in the 2011–16 access arrangement period

Our assessment of conforming capex is set out in capex attachment 6. In determining the opening capital base as at 1 July 2016, we assessed whether APTNT's proposed capex amounts for the 2011–16 access arrangement are properly accounted for in the capital base roll forward.

¹¹ APTNT, *Response to AER information request: AER Amadeus 05 – RFM*, 16 September 2015.

¹² NGR, r. 77(2)(a).

We accept that APTNT's proposed capex for the 2011–16 access arrangement period is properly included in the capital base roll forward and is consistent with the requirements of the NGR.¹³ However, we have updated the inputs to the proposed RFM to reflect our adjustment to the proposed conforming capex for 2015–16. This is because we consider that \$7.0 million of APTNT's estimated capex for the belowground station pipework recoating project in 2015–16 should be deferred to the 2016–21 access arrangement period as discussed in capex attachment 6.

We note that the proposed capex for 2015–16 is an estimate. We expect APTNT may provide revised 2015–16 capex estimates based on more up to date information in its revised proposal. We will undertake the assessment of whether the actual 2015–16 amounts are conforming capex as part of the next access arrangement determination.

Depreciation used in the 2011–16 access arrangement period

Under the NGR, the AER must subtract from the capital base depreciation calculated in accordance with the relevant access arrangement.¹⁴

We approve APTNT's proposal to roll forward the capital base to 1 July 2016 using forecast depreciation (straight-line method, adjusted for actual inflation) in accordance with clause 3.5 of the approved 2011–16 access arrangement.

We accept the total amount of forecast straight-line depreciation subtracted from the capital base in the 2011–16 access arrangement period. However, we do not accept APTNT's proposal to reallocate total depreciation approved in the 2011–16 decision model across asset classes in order to avoid a negative value for some asset classes.¹⁵ We note that under the forecast depreciation approach approved in the 2011–2016 access arrangement, a negative value may exist for assets or asset classes due to an over-estimation of forecast capex at the last access arrangement review. The negative value represents over-recovery of the amount in the capital base However, any negative values that arise will be returned to customers by the amount of the negative depreciation calculated in the PTRM. This means the over-recovery by the service provider in one period is corrected for in the next period.

Although the proposed reallocation by APTNT does not impact the total opening capital base value as at 1 July 2016, it will affect the total forecast depreciation allowance for the 2016–21 access arrangement period. This is because APTNT's proposed adjustment has in effect changed the remaining asset lives as at 1 July 2016 for some assets. We therefore have changed the forecast depreciation values in the 2011–16 access arrangement period for each asset class to be consistent with the approved values for each asset class as set out in the approved 2011–16 PTRM.

¹³ NGR, r. 77(2)(b).

¹⁴ NGR, r. 77(2)(d).

¹⁵ APTNT, Response to AER information request: AER Amadeus 012–Revenue and depreciation, 7 October 2015, p. 2.

Actual inflation inputs

The actual inflation rate inputs in APTNT's proposed RFM reflect the March quarter on March quarter CPI reported by the Australian Bureau of Statistics (ABS). This approach is consistent with the annual tariff adjustment purposes.

However, we have amended the proposed actual inflation rates for 2009–10, 2010–11 and 2011–12. This is because the proposed values were sourced from the CPI series which was re-referenced in 2011–12. We consider that it is appropriate to use numbers from this series in the inputs from 2012–13 onwards, but earlier CPI inputs should be sourced from the 1989–90 reference period CPI reflecting the rates used for tariff adjustments for 2009–10, 2010–11 and 2011–12. We have therefore amended the proposed CPI inputs for these years.

We have also updated the forecast inflation rate for 2015–16 to 2.5 per cent in the RFM to be consistent with our draft decision forecast inflation rate (rate of return attachment 3). We will update this value for the actual inflation rate as part of the final decision.

2.4.2 Projected capital base during the 2016–21 access arrangement period

We forecast APTNT's projected capital base at 30 June 2021 to be \$135.8 million (\$nominal), a reduction of \$6.8 million (\$nominal) or 4.8 per cent from APTNT's proposal. This results from our draft decision on the inputs to the determination of the projected capital base. We have amended the inputs in the following ways:

- Reduced APTNT's opening capital base as at 1 July 2016 by \$8.4 million (\$nominal) or 7.0 per cent to reflect the changes required in this attachment.
- Reduced APTNT's proposed forecast net capex by \$3.4 million (\$2015–16) or 11.5 per cent. Our detailed assessment of the proposed forecast capex is set out in attachment 6.
- Reduced APTNT's proposed forecast regulatory depreciation allowance by \$5.0 million (\$nominal) or 49.1 per cent. Our assessment of the proposed forecast depreciation is set out in attachment 5.

2.4.3 Capital base at the commencement of the 2021–26 access arrangement period

The capital base at the commencement of the 2021–26 access arrangement period will be subject to adjustments consistent with the NGR.¹⁶ The adjustments for APTNT include (but are not limited to) actual inflation and approved depreciation over the 2016–21 access arrangement period.

¹⁶ NGR, r. 77(2).

We accept APTNT's proposal to use forecast depreciation for the 2016–21 access arrangement period to establish APTNT's opening capital base as at 1 July 2021.¹⁷ We approved such an approach in our recent gas decisions.¹⁸ This approach is also consistent with the approach outlined in our *Access Arrangement Guideline*.¹⁹ The amount of the forecast depreciation is to be approved by us in the final decision for the 2016–21 access arrangement period.

2.5 Revisions

We require the following revisions to make the access arrangement proposal acceptable:

Revision 2.1: Make all necessary amendments to reflect this draft decision on the roll forward of the capital base for the 2011–16 access arrangement period, as set out in Table 2.1.

Revision 2.2: Make all necessary amendments to reflect this draft decision on the projected opening capital base for the 2016–21 access arrangement period, as set out in Table 2.2.

¹⁷ APTNT, *Proposed PTRM*, August 2015. The amount of the forecast depreciation to be used for rolling forward the capital base at the next reset will be set out in our final decision for APTNT's 2016–21 access arrangement period.

¹⁸ AER, Final decision: APT Allgas access arrangement, June 2011, p. 13; AER, Final decision: Envestra access arrangement Qld, June 2011, p. 25; AER, Final decision: Envestra access arrangement SA, June 2011, p. 28; AER, Final decision: Envestra (Victoria) access arrangement proposal 2013–17 Part2: Attachments, March 2013, p. 24; AER, Final decision: AusNet (SP AusNet) arrangement proposal 2013–17 Part2: Attachments, March 2013, p. 23; AER, Final decision: MultiNet Gas arrangement proposal 2013–17, March 2013, p. 2; AER, Final decision: Jemena Gas Networks 2015–20, Attachment 2, June 2015, p. 2.

¹⁹ AER, *Final access arrangement guideline*, March 2009, pp. 61–62.