



# **FINAL DECISION**

## **Amadeus Gas Pipeline**

### **Access Arrangement**

#### **2016 to 2021**

## **Overview**

May 2016

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## Note

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

The final 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

Attachment 8 - Corporate income tax

Attachment 9 - Efficiency carryover mechanism

Attachment 10 - Reference tariff setting

Attachment 11 - Reference tariff variation mechanism

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## Shortened forms

Shortened form	Extended form
AA	Access Arrangement
AAI	Access Arrangement Information
AER	Australian Energy Regulator
ATO	Australian Tax Office
capex	capital expenditure
CAPM	capital asset pricing model
CPI	consumer price index
DRP	debt risk premium
ECM	Efficiency carryover mechanism
ERP	equity risk premium
Expenditure Guideline	Expenditure Forecast Assessment Guideline
gamma	value of imputation credits
GTA	Gas Transport Services Agreement
MRP	market risk premium
NGP	Northern Gas Pipeline (formerly North East Gas Interconnector/NEGI)
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
NPV	net present value
opex	operating expenditure
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
TAB	tax asset base
UAFG	unaccounted for gas
WACC	weighted average cost of capital
WPI	Wage Price Index

# 1 Introduction

We, the Australian Energy Regulator (AER), are responsible for the economic regulation of covered gas pipelines<sup>1</sup> in all states and territories in Australia except for Western Australia.

APT Pipelines (NT) Pty Limited (APTNT) operates the Amadeus Gas Pipeline (AGP), a covered transmission pipeline in the Northern Territory. As with other covered pipelines, we regulate APTNT's reference tariffs, and through these, its revenue for reference services.

The National Gas Law (NGL) and National Gas Rules (NGR) provide the regulatory framework governing gas networks. In regulating APTNT, we are guided by the National Gas Objective (NGO), which is set out in the NGL. The NGO is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.<sup>2</sup>

APTNT submitted an access arrangement revision proposal for the AGP on 4 August 2015, for the 2016–21 access arrangement period. Our draft decision, released for consultation on 26 November 2015, did not accept APTNT's proposal and specified the nature of amendments required to make the proposal acceptable to us. APTNT submitted a revised proposal on 6 January 2016. We received submissions on both the draft decision and revised proposal, which are available on our website.<sup>3</sup>

## 1.1 Structure of overview

This overview provides a summary of our final decision and its individual components. It is structured as follows:

- Section 2 provides a high-level summary of our final decision and the key issues.
- Section 3 sets out our final decision on APTNT's total revenue requirement.
- Section 4 provides a break-down of our revenue decision into its key components.
- Section 5 sets out our final decision on demand, APTNT's reference service, reference tariff setting and the reference tariff variation mechanism that will apply to APTNT. It also sets out our final decision on the incentive schemes to apply to APTNT.
- Section 6 sets out our final decision on non-tariff components.

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<sup>1</sup> Pipeline 'coverage' under the NGL determines the level of regulation that applies to a particular pipeline or network. The AGP is a covered pipeline. Under section 132 of the NGL, APTNT (as the service provider for the AGP), must therefore submit for our approval an access arrangement for the services it provides through the AGP.

<sup>2</sup> NGL, s. 23.

<sup>3</sup> <http://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/amadeus-gas-pipeline-access-arrangement-2016-21/revised-proposal>

- Section 7 explains our views on the regulatory framework and the NGO.

In our attachments we set out our detailed analysis of the individual components that make up our final decision.

## 2 Final decision

Our final decision is that APTNT can recover \$112.8 million (\$nominal, smoothed) from users of its reference service over the 2016–21 access arrangement period, which begins on 1 July 2016. This is a 16.2 per cent reduction to APTNT's revised proposed revenue of \$134.6 million (\$nominal). Our final decision allows APTNT to recover 2.0 per cent more from users than our November 2015 draft decision of \$110.7 million (\$nominal).

We accept that some aspects of APTNT's proposal are consistent with the requirements of the NGR. However, we have not approved all elements, and as such, have not approved APTNT's access arrangement proposal as a whole.<sup>4</sup> We have revised APTNT's proposed access arrangement having regard to our reasons for refusing to approve some elements of its proposal and the further matters identified in rule 64(2) of the NGR.<sup>5</sup> Our revisions are reflected in the *Approved - Access Arrangement for the Amadeus Gas Pipeline - 1 July 2016 to 30 June 2021*, which gives effect to this decision.

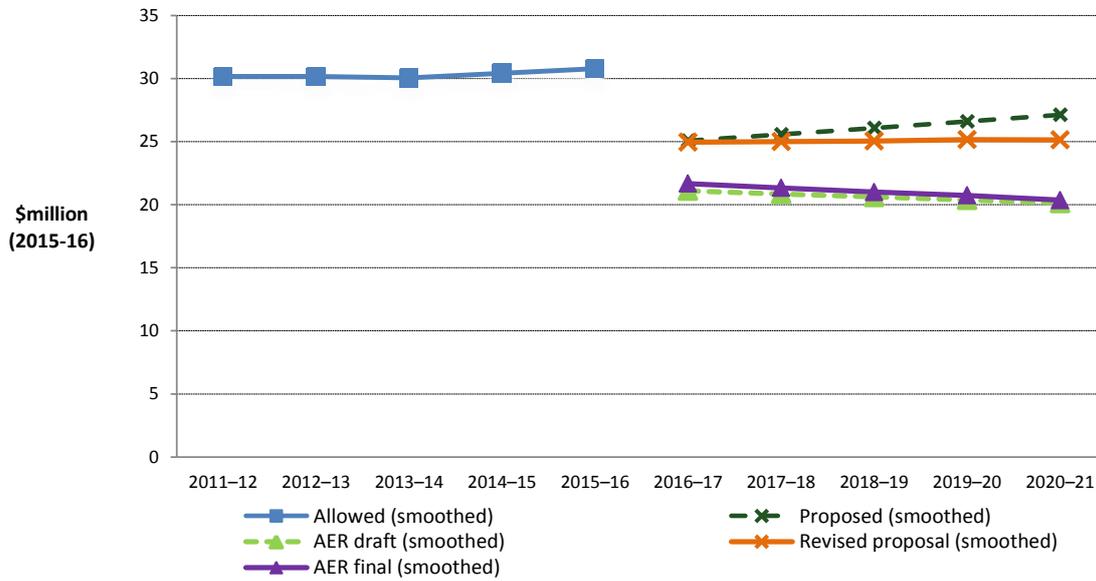
Figure 1 compares our final decision on APTNT's revenue for 2016–21 to its proposed revenue, and to the revenue allowed during the current access arrangement period.

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<sup>4</sup> NGR, r. 41(2).

<sup>5</sup> Rule 64(2) provides that the AER's proposal for an access arrangement or revisions is to be formulated with regard to (a) the matters the Law requires an access arrangement to include, (b) the service provider's access arrangement proposal, and (c) the AER's reasons for refusing to approve that proposal.

**Figure 1 APTNT’s past total revenue, proposed total revenue and AER final decision (\$ million, 2015–16)**



Source: AER analysis.

Note: APTNT did not receive any revenue from reference services in the 2011–16 access arrangement period. Its actual revenue in that period is entirely related to contractual arrangements for a non-reference service. The revenue earned under these contracts is confidential (see: APTNT, *Response to AER information request No 12* [email to AER], 12 October 2015).

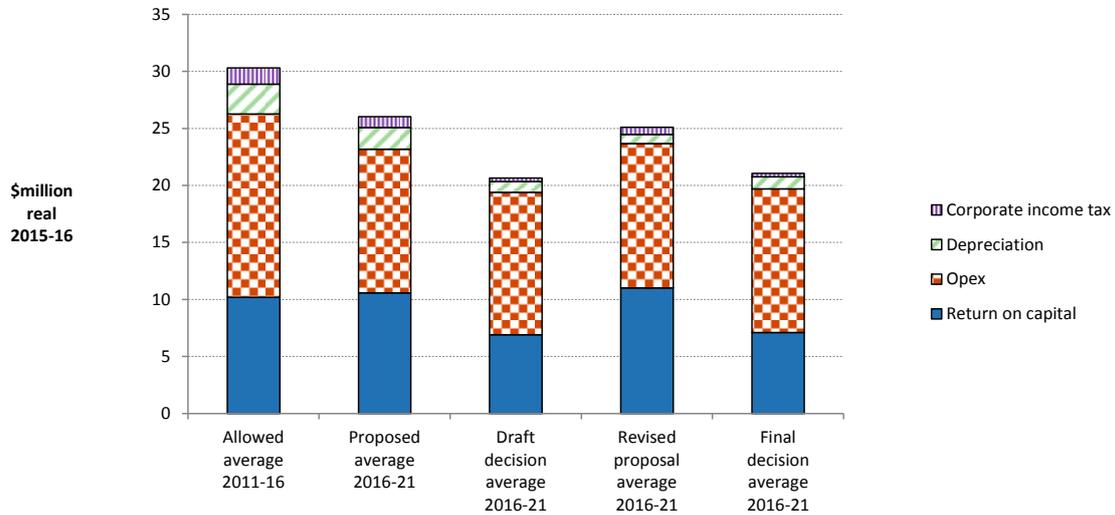
## 2.1 What is driving allowed revenue?

Consistent with our draft decision, we approve less revenue than that allowed for APTNT in the current access arrangement period. The total revenue we approve for the 2016–21 access arrangement period is \$33.7 million (\$ nominal)—or 23.0 per cent—less than that approved for 2011–16.<sup>6</sup> We also approve 16.2 per cent less revenue than APTNT sought to recover through its revised proposal.

Figure 2 compares the average annual building block revenue from our final decision against that proposed by APTNT for the 2016–21 access arrangement period, as well as the approved average amount for the 2011–16 access arrangement period.

<sup>6</sup> In real terms (\$2015–16), total revenue for 2016–21 is \$46.5 million (\$2015–16) or 30.7 per cent less than we approved for 2011–16.

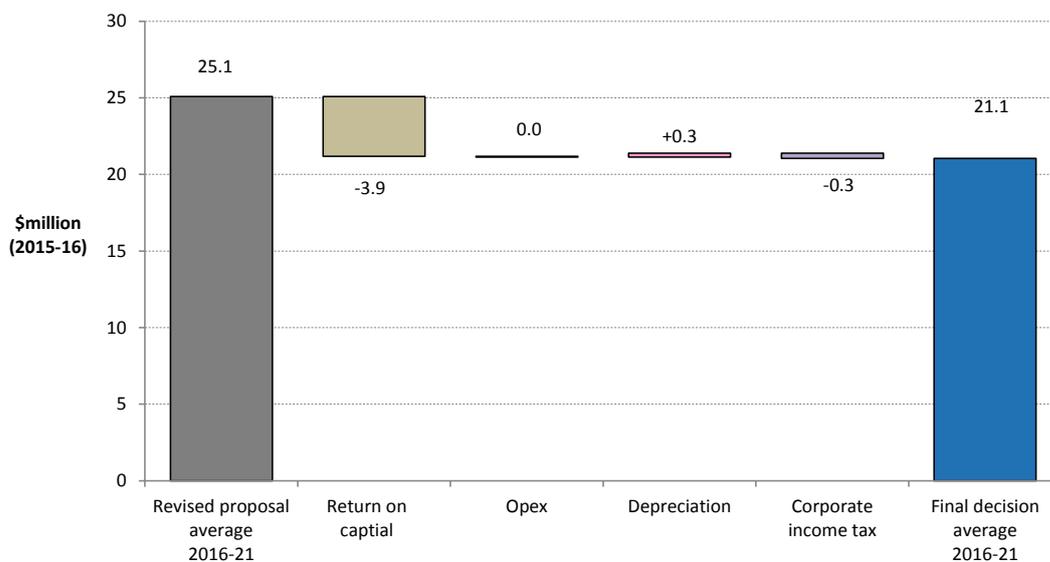
**Figure 2 AER's final decision average annual revenue (unsmoothed) compared with APTNT's revised proposal average annual revenue for 2016–21 and approved average annual revenue for 2011–16 (\$million, 2015–16)**



Source: AER analysis

Figure 3 compares our final decision to APTNT's revised proposal, broken down by the various building block components that make up the forecast revenue requirement.

**Figure 3 APTNT's revised proposal and AER's final decision average annual building block costs (\$million, 2015–16)**



Source: AER analysis.

The figures above highlight that the allowed rate of return—which feeds into the return on capital building block—is the key difference between our final decision and APTNT's revised proposal, and between our decision for the 2016–21 access arrangement period and that for the current, 2011–16 period. The allowed rate of return provides APTNT with revenue to service the interest on its loans and give a return on equity to its shareholders. It is applied to APTNT's capital base to determine the return on capital building block.

Prevailing market conditions for debt and equity heavily influence the rate of return. Financial conditions have changed since our last decision on the access arrangement for the AGP in July 2011. Interest rates are lower and financial market conditions are more stable. This means that the cost of debt and the returns required to attract equity are lower. This is reflected in a lower rate of return in this decision.

Our final decision is for a rate of return of 6.18 per cent (for 2016–17)—compared to APTNT's proposed 8.58 per cent and the 9.73 per cent set for the 2011–16 access arrangement period. While we have considered the information before us in APTNT's proposal and in submissions, our approach to the rate of return in this final decision is consistent with that in our draft decision and Rate of Return Guideline.

## 2.1.1 Northern Gas Pipeline

APTNT has characterised its current and previous access arrangement periods as periods of significant operational changes. It described its proposal for 2016–21 as reflecting a transition to more stable operating and commercial conditions, where most of the necessary integrity works for the AGP are now complete and contractual arrangements for the pipeline are well established. The exception to this—as APTNT has noted—is the anticipated connection of the new Northern Gas Pipeline (NGP) to the AGP, which will link northern gas fields to the Eastern gas market via the AGP.<sup>7</sup>

There are a number of uncertainties around what this will mean for the AGP in terms of demand, APTNT's expenditure requirements, and what this might mean for reference services and tariffs. This final decision will apply for five years, with the next review scheduled to commence by 1 July 2020. However, the NGR allow an access arrangement to provide for the next review of the access arrangement to be brought forward in specified circumstances.<sup>8</sup> Rather than speculate—at the possible expense of APTNT and/or its users—our final decision and APTNT's revised proposal include such a trigger event.<sup>9</sup> Should it become clear that the implications of the NGP for this access arrangement are substantial, this trigger can be used to bring forward the next review so that we can consult on what revisions to the access arrangement—if any—may be required.

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<sup>7</sup> APTNT, *Amadeus Gas Pipeline Access Arrangement Revision Proposal: Submission* (August 2015), p. 5.

<sup>8</sup> NGR, r. 51.

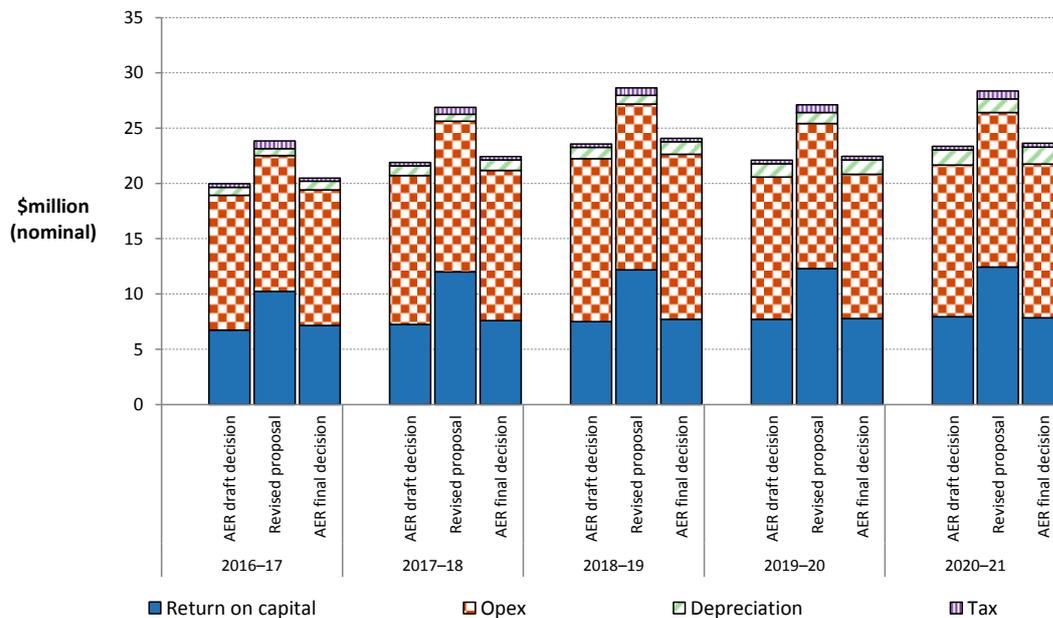
<sup>9</sup> NGR, r. 51(1)(a).

## 2.2 Key differences between our draft and final decisions

While our approved forecast revenue requirement is less than APTNT proposed, it is higher than our draft decision.

Figure 4 compares our final decision on each of the revenue building blocks to our draft decision.

**Figure 4 AER's final decision and APTNT's revised proposal building block components of total revenue – unsmoothed (\$million, nominal)**



Source: AER analysis.

In response to our draft decision we have received further information from a number of sources. APTNT submitted a revised proposal on 6 January 2016. It also provided further material in response to our information requests about its revised proposal. We received submissions from APTNT's users and other stakeholders on our draft decision and APTNT's revised proposal (listed in Appendix A to this Overview). We have had regard to all of this information in reaching our final decision.

A number of aspects of our decision on APTNT's forecast revenue have changed since our draft decision.

In its original proposal APTNT proposed a rate of return of 8.3 per cent, which we did not accept. In its revised proposal, APTNT increased its revised proposed rate of return to 8.58 per cent. The higher rate of return in APTNT's revised proposal is largely driven by a change in its approach to estimating the return on debt. APTNT previously proposed to calculate its return on debt using a hybrid transition which combines a gradual transition of the base rate to a trailing average and a backwards looking debt risk premium. However, it now proposes an immediate transition to a trailing average

(using both a backwards looking base rate and debt risk premium). This approach is more favourable to APTNT in revenue terms than the approach it originally proposed.

While our approach to the rate of return remains unchanged, updated data means that the 6.18 per cent rate of return approved in this final decision is higher than our draft decision of 6.02 per cent. (see section 4.2)

Our final decision on APTNT's past and forecast conforming capex has also changed. The opening capital base as at 1 July 2016 will be higher than our draft decision (\$115.8 million (\$nominal), compared to \$112.2 million in our draft decision). However, the closing capital base will be \$128.2 million (\$nominal) as at 30 June 2021, compared to \$135.8 million in our draft decision. (see sections 4.1 and 4.5).

## 3 Total revenue

The total revenue requirement is a forecast of the efficient cost of providing gas transmission services over the access arrangement period. The total revenue set out in this final decision has been determined by assessing each building block cost of APTNT's access arrangement proposal. We have assessed whether these building block costs are consistent with the costs that would be incurred by an efficient provider of gas transmission services.

APTNT operates under an average tariff cap. Tariffs are derived from the total revenue requirement *after* consideration of demand. This means that the tariff we determine (including the means of varying the tariff from year to year) is the binding constraint across the 2016–21 access arrangement period, rather than the total revenue requirement set in our decision.<sup>10</sup>

APTNT's revised proposed tariff path reflects a 3.1 per cent decrease in tariffs (in nominal terms) in 2016–17 followed by an increase of 0.6 per cent for each subsequent year of the 2016–21 access arrangement period. Our final decision tariff path produces lower total smoothed revenue than APTNT's revised proposal, in line with our reductions to total unsmoothed revenue. Our final decision tariff path provides for a decrease of 15.8 per cent in tariffs (in nominal terms) in 2016–17 and a further decrease of 1.0 per cent for each subsequent year of the 2016–21 access arrangement period. However, we note that APTNT's pipeline is fully committed to a single customer which has negotiated a contract price for the supply of gas.<sup>11</sup>

### 3.1.1 The building block approach

We have employed the building block approach to determine APTNT's total revenue—that is, we based the total revenue on our estimate of the efficient costs that APTNT is likely to incur in providing gas transmission network services. The building block costs, as shown in Figure 5, include:<sup>12</sup>

- return on the projected capital base (return on capital)
- depreciation of the projected capital base (return of capital)
- the estimated cost of corporate income tax
- forecast opex.

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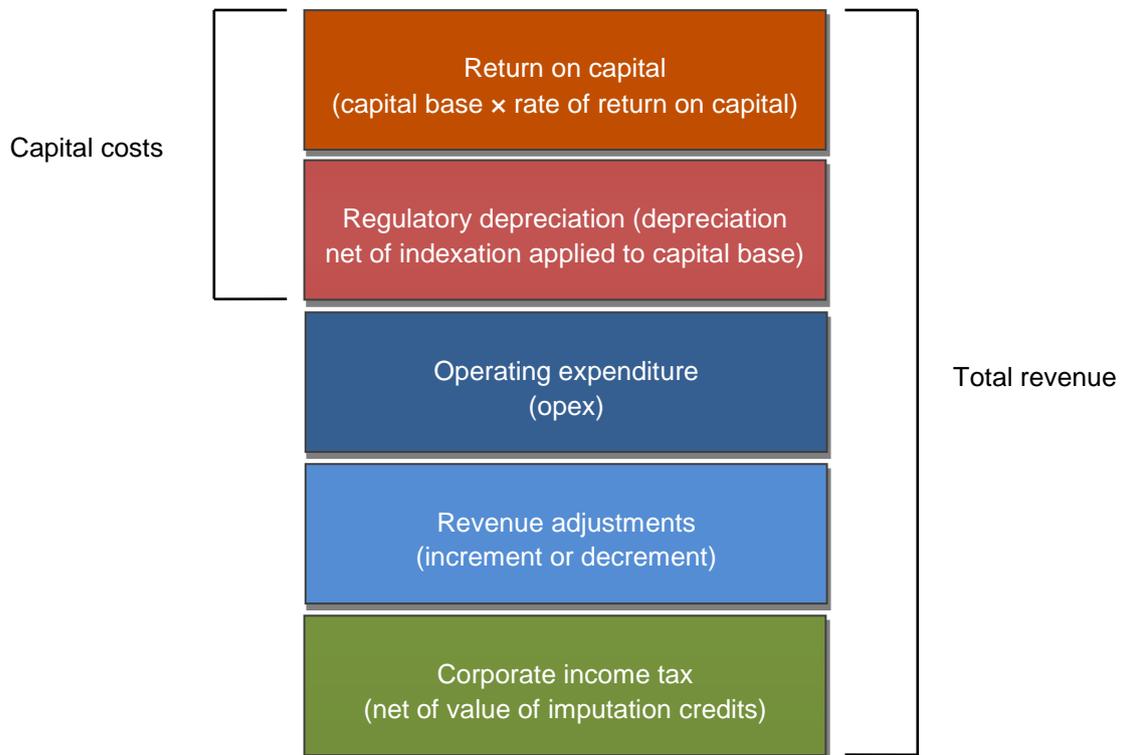
<sup>10</sup> Where actual demand across the 2016–21 access arrangement period varies from the demand forecast in the access arrangement, APTNT's actual revenue will vary from the revenue allowance determined in our decision. In general, if actual demand is above forecast demand, APTNT's actual revenue will be above forecast revenue, and vice versa.

<sup>11</sup> AER, *APTNT response to information request No. 12* [email to AER], 7 October 2015; APTNT, *Amadeus Gas Pipeline access arrangement revision proposal submission*, August 2015.

<sup>12</sup> NGR, r. 76.

Our assessment of capex directly affects the size of the capital base and therefore, the revenue generated from the return on capital and depreciation building blocks.

**Figure 5 The building block approach for determining total revenue**



Note: There were no revenue adjustments arising from the current access arrangement period.

### 3.1.2 Final decision

We do not approve APTNT's revised proposed total revenue requirement (smoothed) of \$134.6 million (\$nominal) for reference services over the 2016–21 access arrangement period. Our final decision on total revenue has been determined using the building block approach set out in rule 76 of the NGR. Based on our assessment of the building block costs, we determine a total revenue requirement (smoothed) of \$112.8 million (\$nominal) for APTNT over the 2016–21 access arrangement period. This total smoothed revenue requirement is \$21.8 million (or 16.2 per cent) lower than APTNT's revised proposal.

We do not approve APTNT's revised proposed 2016–21 tariff path, which would result in a real reduction of 5.4 per cent in 2016–17 followed by a 1.8 per cent real decrease in tariffs for each of the remaining years of the 2016–21 access arrangement period.<sup>13</sup> As a result of our lower total revenue requirement and accepted demand forecast, our final decision results in a real tariff decrease of 17.7 per cent in 2016–17, and then

<sup>13</sup> APTNT, *Amadeus Gas Pipeline access arrangement revision proposal, response to draft decision submission*, January 2016, p. 104.

further real decreases of 3.4 per cent for each subsequent year of the 2016–21 access arrangement period.

Table 1 sets out our final decision on APTNT's revenue requirement by building block costs for each year of the 2016–21 access arrangement period, the total revenue after equalisation (smoothing) and the X factors for use in the tariff variation mechanism.

**Table 1 AER's final decision on APTNT's smoothed total revenue and X factors for the 2016–21 access arrangement period (\$million, nominal)**

Building block	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Return on capital	7.2	7.6	7.7	7.8	7.9	38.1
Regulatory depreciation	0.8	0.9	1.1	1.3	1.5	5.7
Operating expenditure	12.3	13.6	14.9	13.0	13.9	67.7
Corporate income tax	0.3	0.3	0.3	0.3	0.3	1.5
Building block revenue – unsmoothed	20.5	22.4	24.1	22.5	23.6	113.1
<b>Building block revenue – smoothed</b>	<b>22.2</b>	<b>22.4</b>	<b>22.5</b>	<b>22.8</b>	<b>22.9</b>	<b>112.8</b>
X factor <sup>a</sup>	17.75%	3.36%	3.36%	3.36%	3.36%	n/a
Inflation forecast	2.39%	2.39%	2.39%	2.39%	2.39%	n/a
Nominal price change	–15.78%	–1.05%	–1.05%	–1.05%	–1.05%	n/a

Source: AER analysis.

n/a: not applicable.

(a) Under the CPI–X form of control, a positive X factor is a decrease in price (and therefore in revenue).

The X factor for 2016–17 is indicative only. The final decision establishes 2016–17 tariffs directly, rather than referencing a change from 2015–16 tariffs.

### 3.1.3 Revenue equalisation (smoothing) and tariffs

Our assessment of APTNT's total building block revenue (unsmoothed revenue) yields a lumpy revenue profile. In order to smooth out reference tariffs, we determine a smoothed revenue profile across the 2016–21 access arrangement period. APTNT operates under an average tariff cap as its tariff variation mechanism.<sup>14</sup> This means we determine the average tariff change each year such that the net present value (NPV) of unsmoothed and smoothed revenue across the entire period is the same. This average

<sup>14</sup> An average tariff cap is where the total revenue is divided by forecast energy capacity to establish the average tariff. For 2016–17 the established average tariff becomes the reference tariff which forms the starting point for adjusting the price path under the CPI–X tariff variation mechanism.

tariff change is labelled the 'X factor'. The mechanics of the tariff variation mechanism are addressed in attachment 11.

Table 2 presents our final decision X factors, and compares them to APTNT's revised proposal, initial proposal and our draft decision.

**Table 2 Average tariff change across the access arrangement period (X factors) — comparison of APTNT's revised proposal and AER's final decision (per cent)**

	2016–17	2017–18	2018–19	2019–20	2020–21
<b>Real price change (X factor)</b>					
APTNT proposal <sup>a</sup>	4.92%	0.00%	0.00%	0.00%	0.00%
AER draft decision	19.98%	3.09%	3.09%	3.09%	3.09%
APTNT revised proposal	5.36%	1.77%	1.77%	1.77%	1.77%
AER final decision	17.75%	3.36%	3.36%	3.36%	3.36%
<b>Nominal price change (CPI–X)<sup>b</sup></b>					
APTNT proposal	–2.65%	2.39%	2.39%	2.39%	2.39%
AER draft decision	–18.07%	–0.77%	–0.77%	–0.77%	–0.77%
APTNT revised proposal	–3.10%	0.58%	0.58%	0.58%	0.58%
AER final decision	–15.78%	–1.05%	–1.05%	–1.05%	–1.05%

Source: APTNT, *Revised proposed PTRM*, January 2016; AER analysis.

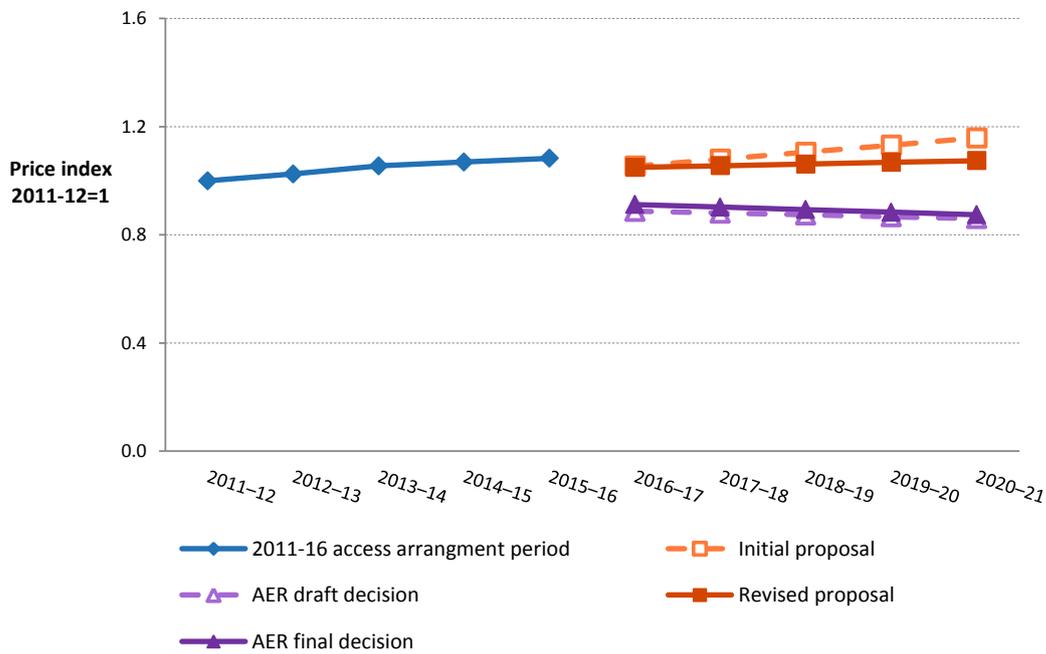
- (a) Under the CPI–X form of control, a positive X factor is a decrease in price (and therefore in revenue). For example, an X factor of 4.92 per cent in 2016–17 means a real price decrease of 4.92 per cent that year. After consideration of inflation (assumed at 2.39 per cent) this becomes a nominal price decrease of 2.65 per cent. The X factor for 2016–17 is indicative only. The final decision establishes 2016–17 tariffs directly, rather than referencing a change from 2015–16 tariffs.
- (b) Reflecting an inflation forecast of 2.39 per cent.

Figure 6 shows indicative tariff paths for APTNT's reference services across the 2011–21 period. It compares APTNT's proposed tariff path with that approved in the 2011–16 access arrangement, and with this final decision.<sup>15</sup> This provides a broad overall indication of the average movement across this period.

Table 3 shows the indicative tariffs for APTNT's reference services across the 2016–21 access arrangement period. It compares the proposed tariffs with those approved for this final decision.

<sup>15</sup> The tariff path for 2011–21 uses actual inflation figures for 2011–15, and estimated inflation for 2015–21.

**Figure 6 Indicative reference tariff paths for APTNT's reference services from 2011 to 2021 (nominal index)**



Source: AER analysis.

**Table 3 Indicative reference tariffs across the access arrangement period — comparison of APTNT's revised proposal and AER's final decision (\$/GJ)**

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
<b>AER final decision</b>						
Reference tariff	0.7076 <sup>a</sup>	0.5959	0.5897	0.5835	0.5774	0.5714
Nominal change <sup>b</sup>		-15.78%	-1.05%	-1.05%	-1.05%	-1.05%
<b>APTNT revised proposal</b>						
Reference tariff	0.7076 <sup>a</sup>	0.6864	0.6911	0.6959	0.7007	0.7055
Nominal change <sup>c</sup>		-2.99%	0.69%	0.69%	0.69%	0.69%

Source: APTNT, *Revised proposed PTRM*, January 2016; AER analysis.

(a) Approved reference tariff for 2015-16 (see: AER, *Approval letter: Amadeus Pipeline annual tariff variation 2015-16*, 20 May 2015).

(b) Reflecting an inflation forecast of 2.39 per cent.

(c) Reflecting APTNT's revised proposed CPI forecast of 2.5 per cent.

The tariff path in APTNT's revised proposal was a decrease of 3.0 per cent in tariffs (in nominal terms) in 2016-17, followed by an increase of 0.7 per cent for each subsequent year of the 2016-21 access arrangement period. Because our final

decision provides for lower total smoothed and unsmoothed revenue than APTNT's revised proposal, a decrease to the tariff path is required over the 2016–21 access arrangement period to reflect the change in revenue from the 2011–16 access arrangement period. Our final decision tariff path therefore shows a decrease of 15.8 per cent in tariffs (in nominal terms) in 2016–17 and a further decrease of 1.0 per cent for each subsequent year of the 2016–21 access arrangement period.

In determining an appropriate smoothing profile for this final decision we have balanced a number of competing objectives:

- Equalising (in NPV terms) unsmoothed and smoothed revenue
- Providing price signals through reference tariffs that reflect the underlying efficient costs
- Minimising variability in tariffs in 2015–16 and within the 2016–21 access arrangement period
- Minimising the likelihood of variability in tariffs at the start of the 2021–26 access arrangement period.

Each of these points is discussed in turn.

First, we are satisfied that our final decision tariff path for APTNT's 2016–21 access arrangement period achieves revenue equalisation as required by rule 92(2) of the NGR.<sup>16</sup> As set out above, we have made substantial reductions to the unsmoothed revenue proposed by APTNT. Accordingly, we set the tariff path so that it adjusts the smoothed revenue downward to better reflect the unsmoothed building block costs.

Second, but closely related to the first point, our smoothing allows closer alignment of tariffs and costs. This aids the achievement of the NGO and the revenue and pricing principles, including through providing a price signal that facilitates efficient use of natural gas services.<sup>17</sup> Our final decision tariff path shows a large decrease in the first year of the 2016–21 access arrangement period reflecting the lower unsmoothed building block costs.

Third, in setting the tariff path, we aim to minimise tariff volatility in 2015–16 and within the 2016–21 access arrangement period. Our chosen tariff path reflects this objective, but also reflects the consideration we must give to other competing objectives. For instance, setting a flat tariff path from 2015–16 would better minimise within-period volatility, but would not achieve revenue equalisation.

Fourth, in setting the tariff path, we also aim to minimise the likelihood of tariff volatility between this access arrangement period and the next. We do not know what APTNT's efficient costs will be in 2021–22, or across the 2021–26 access arrangement period

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<sup>16</sup> The revenue equalisation occurs in NPV terms, discounting the yearly cash flows at the rate of return to reflect the time value of money.

<sup>17</sup> NGL, ss. 23, 24.

more generally. The unsmoothed building block costs for 2020–21 (the last year of the 2016–21 access arrangement period) are the best available proxy. Hence, this objective requires minimising the divergence between the smoothed and unsmoothed revenues for the last year of the access arrangement period—for APTNT, this is 2020–21. If there were no significant changes in forecast costs from 2020–21 to 2021–22, this final year divergence gives us an estimate of the size of the tariff change at the start of the 2021–26 access arrangement period. For this final decision, this final year divergence is 3 per cent, which is consistent with our usual target. We note that if there are significant changes in costs at the start of the 2021–26 access arrangement period, this might increase or decrease the required tariff change at that time.

We are satisfied that our final decision tariff path reflects our balanced consideration of these competing objectives.

## 4 Key elements of decision on APTNT's revenue

The components of our decision include the building blocks we use to determine the revenue APTNT may recover from its customers.

In setting our overall total revenue requirement for APTNT of \$113.1 million (\$nominal, unsmoothed) for the 2016–21 access arrangement period we:

- apply relevant tests under the NGR, the assessment methods and tools developed as part of our Better Regulation guidelines.<sup>18</sup> We considered information provided by APTNT, consultants and stakeholder submissions.
- consider our overall revenue decision against section 23 of the NGL, including the individual components and relationships we discuss in section 7.

The following section summarises our decision by building block and provides a summary of our reasons and analysis. The attachments to this final decision provide the detailed explanation of our analysis and findings.

### 4.1 Capital base

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.

The capital base roll forward accounts for the value of APTNT's regulated assets over the access arrangement period. The level of the capital base substantially impacts the service provider's revenue and the price that users ultimately pay. It is an input into the determination of the return on capital and depreciation (return of capital).<sup>19</sup> 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.

We determine an opening capital base value of \$115.8 million (\$nominal) as at 1 July 2016 for APTNT. This amount is \$3.7 million (or 3.1 per cent) lower than APTNT's revised value of \$119.5 million. This is because:

- We updated the inflation input for 2015–16 using actual March 2015 consumer price index (CPI) published by the Australian Bureau of Statistics.<sup>20</sup>
- We amended the conforming capex estimate for 2015–16.

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<sup>18</sup> <http://www.aer.gov.au/networks-pipelines/better-regulation>.

<sup>19</sup> 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.

<sup>20</sup> The March quarter CPI is used as a proxy for the June financial year in the 2011–16 access arrangement period.

Table 4 summarises our final decision on the roll forward of APTNT's capital base during the 2011–16 access arrangement period.

**Table 4 AER's final decision on APTNT's capital base roll forward for the 2011–16 access arrangement period (\$million, nominal)**

	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	13.1
Indexation of capital base	1.5	2.3	3.1	1.4	1.4
Depreciation	–5.1	–5.4	–5.6	–5.9	–3.4
Closing capital base	92.7	106.1	107.6	107.4	118.5
Adjustment for difference between estimated and actual capital expenditure in 2010–11 <sup>a</sup>					–2.7
<b>Opening capital base at 1 July 2016</b>					<b>115.8</b>

Source: AER analysis.

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

We determine a closing capital base of \$128.2 million (\$nominal) as at 30 June 2021. This is \$18.2 million (or 12.4 per cent) lower than APTNT's revised proposal of \$146.4 million. This difference results from our final decision on other elements of APTNT's revised proposal, which have:

- reduced APTNT's proposed opening capital base as at 1 July 2016 by \$3.7 million (\$nominal) or 3.1 per cent, as we discussed above
- reduced APTNT's proposed forecast net capex for the 2016–21 access arrangement period by \$13.1 million (\$nominal) or 42.1 per cent
- increased APTNT's proposed forecast straight-line depreciation for the 2016–21 access arrangement period by \$1.1 million (\$nominal) or 5.1 per cent
- reduced APTNT's proposed forecast inflation to 2.39 per cent per annum for the 2016–21 access arrangement period from 2.5 per cent per annum. This results in a decrease to the indexation of the capital base component over the 2016–21 access arrangement period by \$2.5 million (\$nominal) or 14.5 per cent.

Table 5 sets out the projected roll forward of the capital base during the 2016–21 access arrangement period.

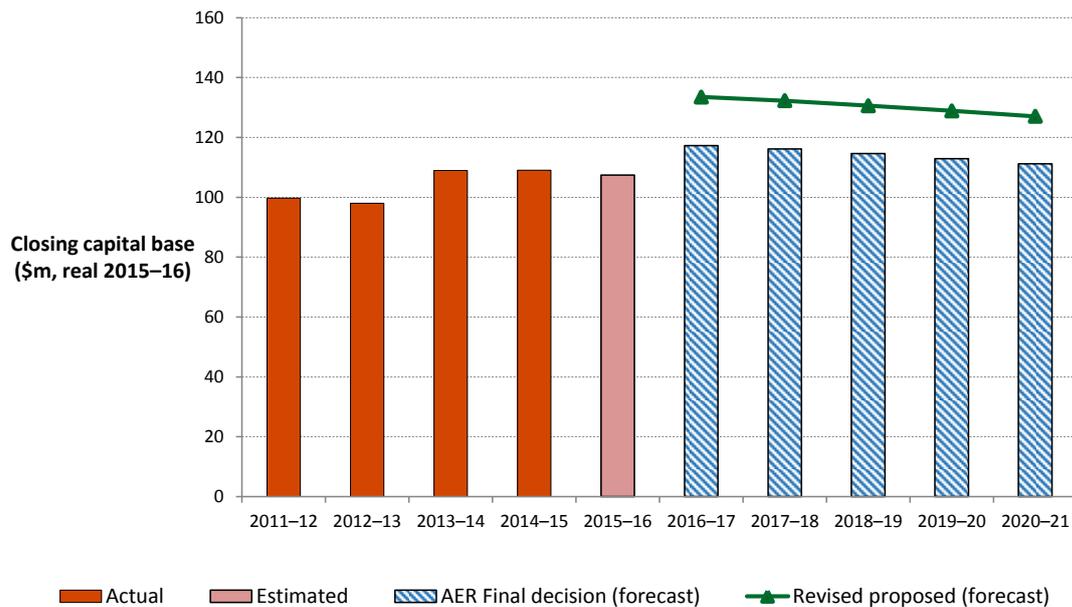
**Table 5 AER's final decision on projected capital base roll forward for the 2016–21 access arrangement period (\$million, nominal)**

	2016–17	2017–18	2018–19	2019–20	2020–21
Opening capital base	115.8	123.0	124.7	126.0	127.1
Net capex	7.9	2.7	2.4	2.5	2.6
Indexation of capital base	2.8	2.9	3.0	3.0	3.0
Depreciation	-3.5	-3.9	-4.1	-4.3	-4.6
Closing capital base	123.0	124.7	126.0	127.1	128.2

Source: AER analysis.

Figure 7 compares our final decision on APTNT's forecast capital base to APTNT's revised proposal and actual capital base in real dollar terms.

**Figure 7 APTNT's actual capital base, revised proposed forecast capital base and AER final decision forecast capital base (\$ million, 2015–16)**



Source: AER analysis.

## 4.2 Rate of return (return on capital)

The allowed rate of return provides a service provider a return on capital to service the interest on its loans and give a return on equity to investors. The return on capital building block is calculated as a product of the rate of return and the value of the capital base.

We are satisfied that the allowed rate of return of 6.18 per cent (nominal vanilla) we determined contributes to the NGO and achieves the allowed rate of return objective set out in the NGR.<sup>21</sup> That is, we are satisfied that this allowed rate of return is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to APTNT in providing reference services.<sup>22</sup>

This allowed rate of return will apply to APTNT for the 2016–17 regulatory year. A different rate of return will apply to APTNT in each remaining regulatory year of the 2016–21 access arrangement period. This is because we will update the return on debt component of the rate of return each year to partially reflect prevailing debt market conditions in each year. We discuss this annual update further below.

In its initial and revised proposals APTNT proposed that we depart from the rate of return guideline (the Guideline) and our draft decision on the allowed rate of return for APTNT. APTNT provided further information in support of its revised proposal, which included a change in methodology to the calculation of return on debt. The Australian Competition Tribunal (the Tribunal) also recently reviewed several of the aspects of our approach to estimating the rate of return that have been contested in our assessment of APTNT's proposal. While it upheld a number of these, it found error in other aspects of our approach and remitted these matters back to us. On 24 March 2016, we applied to the Federal Court for judicial review of these aspects of the Tribunal's decision.

With respect to the current decision before us, we have considered the information provided by APTNT as well as submissions from other stakeholders on APTNT's revised proposal. However, we are not satisfied that a change in our approach would produce an allowed rate of return that better achieves the allowed rate of return objective. Our reasons are highlighted below and explained in further detail in Attachment 3 to this decision.

We agree with the following aspects of APTNT's revised rate of return proposal:

- adopting a weighted average of the return on equity and return on debt (WACC) determined on a nominal vanilla basis (as required by the NGR)
- adopting a 60 per cent gearing ratio
- adopting a 10 year term for the return on debt
- estimating the return on debt by reference to a third party data series

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<sup>21</sup> NGR, r. 87(2).

<sup>22</sup> NGR, r. 87(3).

- estimating the risk free rate using nominal Commonwealth government securities averaged over 20 business days as close as practical to the commencement of the access arrangement period.
- accepting our approach to extrapolating the return on debt where necessary.

However, we are not satisfied that APTNT's proposed (indicative) 8.58 per cent rate of return for the 2016–17 regulatory year has been determined such that it achieves the allowed rate of return objective.<sup>23</sup>

Our allowed rate of return is a weighted average of our return on equity and return on debt estimates (WACC) determined on a nominal vanilla basis that is consistent with our estimate of the value of imputation credits.<sup>24</sup> Also, in arriving at our decision we have taken into account the revenue and pricing principles (RPPs) as set out in the NGL and are also satisfied that our decision will or is likely to contribute to the achievement of the NGO.<sup>25</sup> Our rate of return and APTNT's proposed rate of return are set out in Table 6.

**Table 6 Final decision on APTNT's rate of return (% nominal)**

	Previous access arrangement (2011–16)	APTNT revised proposal (2016–17)	AER final decision (2016–17)	Allowed return over 2016–21 period
Return on equity (nominal post-tax)	10.33	9.6	7.1	Constant (7.1%)
Return on debt (nominal pre-tax)	9.33	7.9	5.56	Updated annually
Gearing	60	60	60	Constant (60%)
Nominal vanilla WACC	9.73	8.58	6.18	Updated annually for return on debt
Forecast inflation	2.55	2.5	2.39	Constant (2.39%)

Source: AER analysis; APTNT, *2016 to 2020 revised regulatory proposal*, 6 January 2016; APTNT, *Amadeus Gas Pipeline: Access arrangement information effective August 2011–June 2016*, July 2011.

Our return on equity estimate is 7.1 per cent. Consistent with the Guideline, the return on equity remains constant over the access arrangement period. Our return on equity point estimate and the parameter inputs are set out in Table 7. APTNT proposed departing from the approach in the Guideline. We are not satisfied that doing so would result in an outcome that better achieves the allowed rate of return objective.<sup>26</sup> We do not agree with APTNT that the method we applied in the draft decision will result in a

<sup>23</sup> APTNT, *Amadeus Gas Pipeline Access Arrangement Information*, January 2016, p. 26.

<sup>24</sup> NGR, r. 87(4).

<sup>25</sup> NGL, s. 28.

<sup>26</sup> NGR, r. 87(6).

return on equity which is inconsistent with the allowed rate of return objective.<sup>27</sup> Our return on equity draft decision and this final decision is largely consistent with the views in the Guideline.

**Table 7 Final decision on APTNT's return on equity (nominal)**

	AER previous decision (2011–16)	APTNT revised proposal (2016-21)	AER final decision (2016–21)
Nominal risk free rate (return on equity only)	5.53%	2.92%*	2.57%**
Equity risk premium	4.8%	6.68%	4.55%
MRP	6.0%	7.48–8.58%	6.50%
Equity beta	0.8	0.8	0.7
Nominal post-tax return on equity	10.33%	9.6%	7.1%

Source: AER analysis; APTNT, *Amadeus Gas Pipeline access arrangement information*, January 2016; APTNT, *Amadeus Gas Pipeline access arrangement information effective August 2011–June 2016*, July 2011.

\* Calculated with a placeholder averaging period of 2 November 2015 to 30 November 2015.

\*\* Calculated with an averaging period of 20 business days to 24 March 2016 agreed upon in advance of its commencement.

Our return on debt estimate for the 2016–17 regulatory year is 5.56 per cent. This estimate will change each year as we partially update the return on debt to reflect prevailing interest rates over APTNT's debt averaging period in each year. Our return on debt estimate for future regulatory years will be determined in accordance with the methodology and formulae we have specified in this decision. As a result of updating the return on debt each year, the overall rate of return and consequently APTNT's revenue will also be updated.

Consistent with our draft decision, we agree there should be a transition from the on-the-day approach to the trailing averaging approach. However, we disagree with the hybrid form of transition proposed in APTNT's (initial) access arrangement proposal.<sup>28</sup> In its revised proposal, APTNT departed from its initial position to apply a transition to the trailing averaging approach.<sup>29</sup> It now proposes to not apply a transition (that is, to immediately move to a trailing average approach). We also disagree with APTNT on this approach.

Consistent with our draft decision, we apply a transition to both the base rate and debt risk premium components of the return on debt as per the Guideline.

<sup>27</sup> APTNT, *Amadeus Gas Pipeline: Access arrangement information*, January 2016, p. 26.

<sup>28</sup> APTNT, *Amadeus Gas Pipeline: Access arrangement revision proposal submission*, August 2015, p. 137.

<sup>29</sup> APTNT, *Amadeus Gas Pipeline: Access arrangement information*, January 2016, p. 24.

Our final decision on the return on debt approach is to:

- estimate an on-the-day rate (that is, based on prevailing market conditions) in the first regulatory year (2016–17) of the 2016–21 access arrangement period, and
- gradually transition this rate into a trailing average approach (that is, a moving historical average) over 10 years.<sup>30</sup>

### 4.3 Value of imputation credits (gamma)

Under the Australian imputation tax system, investors can receive an imputation credit for income tax paid at the company level.<sup>31</sup> These are received after company income tax is paid, but before personal income tax is paid. For eligible investors, this credit offsets their Australian income tax liabilities. If the amount of imputation credits received exceeds an investor's tax liability, that investor can receive a cash refund for the balance. Imputation credits are therefore valuable to investors and are a benefit to investors in addition to any cash dividend or capital gains they receive from owning shares.

However, the estimation of the return on equity does not take imputation credits into account.<sup>32</sup> Therefore, an adjustment for the value of imputation credits is required. This adjustment could take the form of a decrease in the estimated return on equity itself. An alternative but equivalent form of adjustment, which is employed under the NGR, is via the revenue granted to a service provider to cover its expected tax liability. Specifically, the NGR require that the estimated cost of corporate income tax be determined in accordance with a formula that reduces the estimated cost of corporate tax by the 'value of imputation credits' (represented by the Greek letter,  $\gamma$ , 'gamma').<sup>33</sup> This form of adjustment recognises that it is the payment of corporate tax which is the source of the imputation credit return to investors.

We adopt a value of imputation credits of 0.4 for this decision, based on our conceptual approach and a wide range of relevant evidence. Estimating the value of imputation credits is a complex and imprecise task, and as such, requires the use of regulatory judgement. There is no consensus among experts on the appropriate value or estimation techniques to use. Conceptually, the value of imputation credits must be between 0 and 1, and the range of expert views on the value of imputation credits is almost this wide.

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<sup>30</sup> This final decision determines the return on debt methodology for the 2016–21 access arrangement period. This period covers the first five years of the 10 year transition period. This decision also sets out our intended return on debt methodology for the remaining five years. However, we do not have the power to determine in this decision the return on debt methodology for those years. Under the NER, the return on debt methodology must be determined in future decisions that relate to that period.

<sup>31</sup> *Income Tax Assessment Act 1997*, parts 3–6.

<sup>32</sup> While the return on equity is not reduced to take into account the value of imputation credits, we note our estimate of the MRP does consider the value we use for imputation credits to ensure it reflects the value to investors in the domestic Australian market inclusive of credits.

<sup>33</sup> NGR, rr. 76(c), 87A.

We do not accept APTNT's proposed value of imputation credits of 0.25.<sup>34</sup> We assessed its reasoning in its revised proposal, and respond in detail in Attachment 4. After APTNT submitted its revised proposal, a number of service providers made late submissions.<sup>35</sup> These late submissions asked us to take into account a range of issues identified in the recent Australian Competition Tribunal (the Tribunal) decisions for ActewAGL Distribution, Ausgrid, Endeavour Energy, Essential Energy and Jemena Gas Networks.<sup>36</sup> We have considered these submissions as fully as possible in the limited time permitted, and we set out our response in Attachment 4. We also sought expert advice from Dr Martin Lally (Lally), in response to the issues raised in these submissions.<sup>37</sup>

In light of the above, in coming to a value of imputation credits of 0.4:

- We adopt a conceptual approach consistent with the Officer framework, which we consider best promotes the objectives and requirements of the NGR. We consider this conceptual approach allows for the value of imputation credits to be estimated on a consistent basis with the allowed rate of return and allowed revenues under the post-tax framework in the NGR.<sup>38</sup>
- We use the widely accepted approach of estimating the value of imputation credits as the product of two sub-parameters: the 'distribution rate' and the 'utilisation rate'. We use a wide range of relevant evidence to estimate these parameters, having regard to expert advice on each source of relevant evidence.
- Overall, the evidence suggests a range of estimates for the value of imputation credits might be reasonable. With regard to the merits of the evidence before us, we choose a value of imputation credits of 0.4 from within a range of 0.3 to 0.5.
- Lally's latest advice recommended a value of imputation credits of at least 0.5. This is higher than the estimate of 0.4 we adopt in this decision. We maintain our approach and final estimate because we consider it meets the requirements of the NGR, taking into account the importance of regulatory certainty and predictability.

We elaborate on our reasons for this decision in Attachment 4.

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<sup>34</sup> APTNT, *Revised access arrangement proposal: Response to draft decision—Submission*, January 2016, pp. 89–94.

<sup>35</sup> *United Energy, Submission on AER preliminary determination - Submission on gamma*, 26 April 2016; CitiPower/Powercor, *Submission on implications of recent Australian Competition Tribunal Decision*, 18 April 2016; ActewAGL, *Implication of recent Tribunal decisions for final decision and updates to the allowed rate of return and forecast inflation estimate*, 12 May 2016.

<sup>36</sup> For example, see Australian Competition Tribunal, *Applications by Public Interest Advocacy Centre Ltd and Ausgrid [2016] ACompT 1*, 26 February 2016, para 1(c).

<sup>37</sup> Lally, *Gamma and the ACT Decision*, May 2016.

<sup>38</sup> In finance, the consistency principle requires that the definition of the cash flows in the numerator of a net present value (NPV) calculation must match the definition of the discount rate (or rate of return / cost of capital) in the denominator of the calculation (see Peirson, Brown, Easton, Howard, Pinder, *Business Finance*, McGraw-Hill, Ed. 10, 2009, p. 427). By maintaining this consistency principle, we provide a benchmark efficient entity with an ex ante total return (inclusive of the value of imputation credits) commensurate with the efficient financing costs of a benchmark efficient entity

## 4.4 Regulatory depreciation (return of capital)

Regulatory depreciation is a component of the annual building block revenue requirement.<sup>39</sup> When determining the total revenue for APTNT, we must decide on the depreciation for the projected capital base (otherwise referred to as ‘return of capital’).<sup>40</sup> Regulatory depreciation is used to model the nominal asset values over the 2016–21 access arrangement period and the depreciation forecast in the total revenue requirement.<sup>41</sup>

A service provider can only recover the capex it has incurred on assets once. The depreciation forecast reflects how quickly the capital base is being recovered, and is based on the remaining and standard asset lives used in the depreciation calculation. Higher (or quicker) depreciation leads to higher revenues over the access arrangement period. It also causes the capital base to reduce more quickly (assuming no further capex). This reduces the return on capital building block, although this impact is usually less than that of the increased depreciation forecast.

In coming to a decision on the proposed depreciation schedule, we assess the compliance of the proposed depreciation schedule with the depreciation criteria set out in the NGR.<sup>42</sup> We must also take into account the NGO and the RPPs.<sup>43</sup> If a proposed depreciation schedule complies with the NGR, we must approve it.

Our final decision on APTNT's regulatory depreciation allowance is \$5.7 million (\$nominal) over the 2016–21 access arrangement period as set out in Table 8.

**Table 8 AER’s final decision on APTNT’s regulatory depreciation allowance for the 2016–21 access arrangement period (\$million, nominal)**

	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Straight-line depreciation	3.5	3.9	4.1	4.3	4.6	20.4
Less: indexation on capital base	2.8	2.9	3.0	3.0	3.0	14.7
<b>Regulatory depreciation</b>	<b>0.8</b>	<b>0.9</b>	<b>1.1</b>	<b>1.3</b>	<b>1.5</b>	<b>5.7</b>

Source: AER analysis.

<sup>39</sup> Under our standard approach, the distinction is made between straight-line depreciation and regulatory depreciation. The difference being that regulatory depreciation is the straight-line depreciation minus the indexation adjustment.

<sup>40</sup> NGR, r. 76(b).

<sup>41</sup> Regulatory depreciation is the net total of the straight-line depreciation (negative) and the annual inflation indexation (positive) on the projected capital base.

<sup>42</sup> NGR, r. 89.

<sup>43</sup> NGL, s 28; NGR r. 100(1). The NGO is set out in NGL, s. 23. The revenue and pricing principles are set out in NGL, s. 24.

Our final decision on APTNT's regulatory depreciation allowance is an increase of \$1.4 million (\$nominal) or 33.0 per cent to APTNT's revised proposal. This increase is mainly because of our final decisions on other components of APTNT's revised proposal which affect the calculation of the regulatory depreciation allowance.<sup>44</sup> These include:

- a reduction to APTNT's revised opening capital base as at 1 July 2016 of \$3.7 million (\$nominal) or 3.1 per cent.
- a reduction to APTNT's revised forecast net capex of \$13.1 million (\$nominal) or 42.1 per cent.
- a reduction to APTNP's revised forecast inflation from 2.5 per cent per annum to 2.39 per cent per annum. This results in a decrease to the indexation of the capital base component over the 2016–21 access arrangement period by \$2.5 million (\$nominal) or 14.5 per cent, causing a net increase in the regulatory depreciation allowance.

Consistent with our draft decision, we accept APTNT's revised proposed standard asset lives for its asset classes. We also accept APTNT's proposed weighted average method to calculate the revised remaining asset lives as at 1 July 2016. However, we have updated APTNT's remaining asset lives as at 1 July 2016 to reflect the amended capital base roll forward for the 2011–16 access arrangement period.

## 4.5 Capital expenditure

Capital expenditure (capex) refers to the capital expenses incurred in the provision of pipeline services. The return on and of forecast capex for reference services are two of the building blocks we use to determine a service provider's total revenue requirement.

We must make two decisions regarding APTNT's capex. First, we are required to assess past capex and determine whether it meets the criteria set out in the NGR to be added to the opening capital base.<sup>45</sup> Where capex meets these criteria, it is referred to as "conforming capex".<sup>46</sup> Secondly, we are required to assess APTNT's forecast of required capex for the 2016–21 access arrangement period to determine whether it is conforming capex.

Our final decision approves \$42.1 million (\$2015–16) of APTNT's proposed total net capex of \$44.4 million (\$2015-16) for the 2011–16 access arrangement period as conforming capex, based on updated information provided by APTNT after the submission of its revised proposal. This amount will be rolled into APTNT's opening capital base as at 1 July 2016.

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<sup>44</sup> NGR, rr. 88–90.

<sup>45</sup> NGR, r. 77(2)(b).

<sup>46</sup> NGR, r. 79.

Our final decision approves \$16.8 million (\$2015–16) of APTNT’s proposed \$29.0 million (\$2015–16) total net forecast capex for 2016–21. This is a reduction of \$12.2 million (or 42 per cent) from the total capex forecast in APTNT’s revised proposal.

Table 9 compares APTNT’s proposed capex with that approved in our final decision.

**Table 9 Comparison of AER approved and APTNT’s revised proposed capital expenditure over the 2016–21 access arrangement period (\$million, 2015–16)**

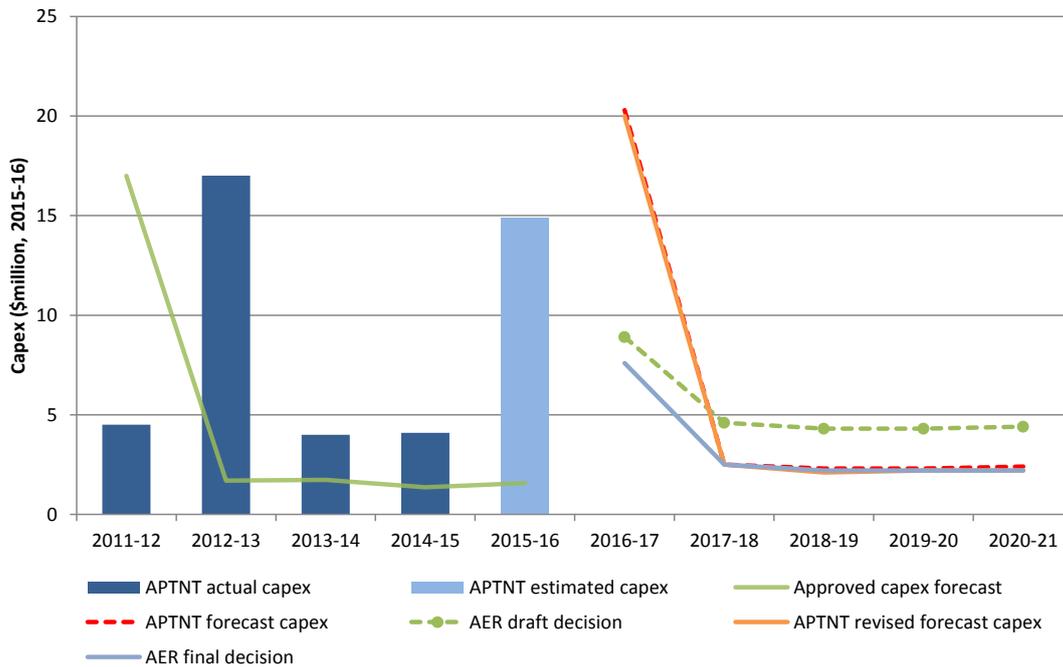
Category	Proposed	Approved <sup>(a)</sup>	Difference (\$millions)	Difference (%)
Expansion	-	-	-	-
Replacement	21.0	8.6	-12.3	-59.0%
Non-system	8.7	8.8	0.1	2.0%
<b>GROSS TOTAL CAPITAL EXPENDITURE</b>	<b>29.7</b>	<b>17.4</b>	<b>-12.3</b>	<b>-41.2%</b>
Contributions	-	-	-	-
Asset disposals	0.7	0.7	-	-
<b>NET TOTAL CAPITAL EXPENDITURE</b>	<b>29.0</b>	<b>16.8</b>	<b>-12.2</b>	<b>-42.1%</b>

Source: AER analysis.

Note: (a) Including AER labour escalation adjustments.

Figure 8 compares APTNT’s actual/estimated capex for the current access arrangement period and its forecast capex for 2016–21 to our final decision on conforming capex.

**Figure 8 APTNT actual, estimated and forecast capex and AER final decision conforming capex (\$2015-16)**



Source: AER analysis; APTNT, *Attachment B-6 Supporting model – Capital expenditure*, August 2015 and *Amadeus Gas Pipeline Access Arrangement Revised Proposal - B6 Capex model - 2016 AER labour escalators*, January 2016.

The differences between the total net capex approved in our final decision and that in APTNT's revised proposal is largely attributable to forecast expenditure on two projects:

- Belowground station pipework recoating project—this project spans both the current and forecast access arrangement periods, and is now approximately 60 per cent complete. After submitting its revised access arrangement proposal, APTNT provided an updated (lower) estimate of likely costs for this project. Our final decision reflects this updated information. The majority of the approved expenditure for this project (\$7.3 million) is reflected in the approved conforming capex in the 2011–16 access arrangement period. The remaining \$1.8 million has been included in our total capex forecast for 2016–21.
- Channel Island spurline piggability project—APTNT included forecast capex of \$10.8 million for this project in its total capex forecast for 2016–21. However, we are not satisfied that APTNT's forecast capex for this project would be incurred by a prudent operator acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services.<sup>47</sup> Our

<sup>47</sup> NGR, r. 79(1)(a).

approved forecast of total net capex for 2016–21 therefore does not incorporate APTNT's forecast expenditure for this project.

The reasons for our decision are set out in Attachment 6 to this final decision.

## 4.6 Operating expenditure

In our draft decision, we accepted APTNT's proposed opex forecast of \$62.8 million (\$2015–16), which was consistent with the estimate derived from our revealed cost (base-step-trend) forecasting methodology. APTNT did not revise its opex forecast in its revised proposal.

We did not receive any specific submissions on APTNT's forecast opex. Our review has not identified any new information which impacts upon our reasoning as set out in the draft decision.

For the reasons set out in our draft decision, we therefore accept APTNT's total forecast opex of \$62.8 million (\$2015–16) for the 2016–21 access arrangement period.

Table 10 shows our approved opex forecast.<sup>48</sup>

**Table 10 AER final decision on total opex—APTNT (\$million, 2015–16)**

	2016–17	2017–18	2018–19	2019–20	2020–21	Total
APTNT's proposal	11.9	12.9	13.9	11.8	12.3	62.8
AER decision	11.9	12.9	13.9	11.8	12.3	62.8
Difference	–	–	–	–	–	–

Source: APTNT, *Access arrangement revised proposal, 2016–21 Access arrangement information*, January 2016, p. 17; AER analysis.

Note: Excludes debt raising costs.

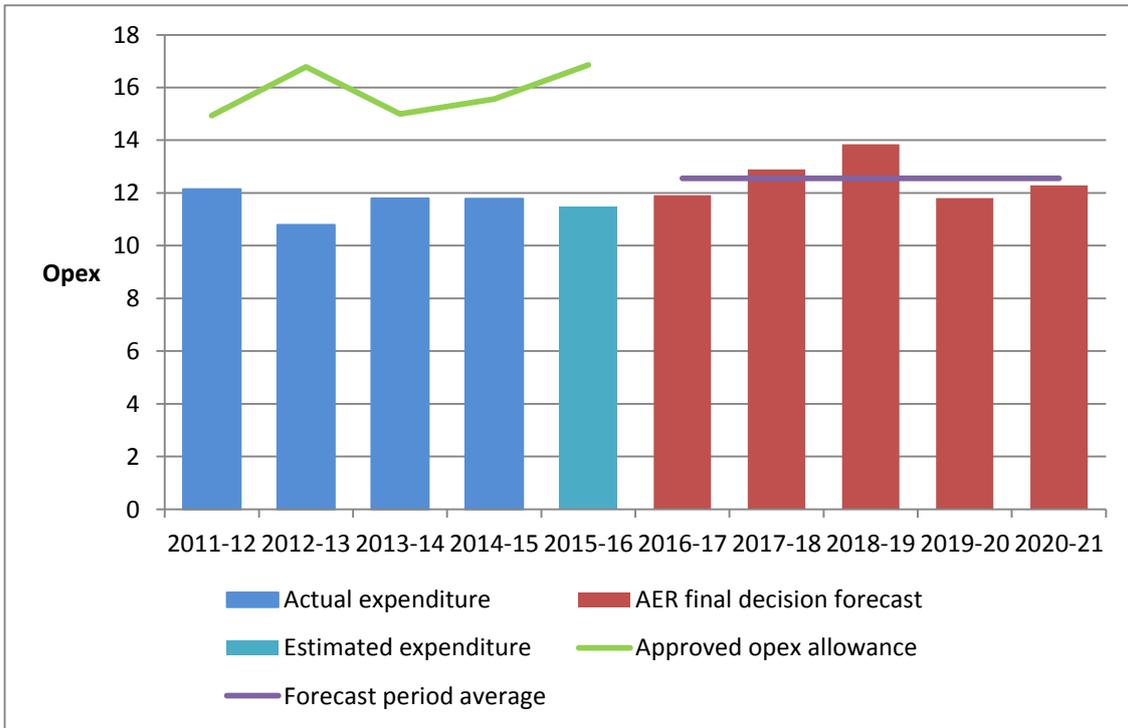
Our final decision allows an eight per cent real increase from APTNT's actual opex in the current access arrangement period. APTNT underspent relative to its opex forecast in 2011–16. Savings—associated with integration into the APA Group structure, and efficiencies associated with business wide initiatives such as consolidation of engineering and finance resources—are reflected in the base year from which opex for 2016–21 has been forecast. However, these savings are offset by increases in forecast opex due to:

- Forecast changes in labour costs (but no real price changes to materials)
- Pigging costs, including for delays and deferrals to the pigging schedule from the current access arrangement period to 2016–21.

<sup>48</sup> NGR, r. 91.

Figure 9 compares forecast opex for the 2016–21 period to APTNT’s allowed and actual opex in 2011–16.

**Figure 9 APTNT’s historical and forecast opex (\$million, 2015–16)**



Source: APTNT, *RIN response*, August 2015, APTNT, *Amadeus Gas Pipeline access arrangement revision proposal, Post tax revenue model*, January 2016.

Note: Excludes debt raising costs.

## 4.7 Corporate income tax

The NGR require us to make a decision on the estimated cost of corporate income tax for APTNT's 2016–21 access arrangement period.<sup>49</sup> The estimated cost of corporate income tax contributes to our determination of the total revenue requirements for APTNT over the 2016–21 access arrangement period. It provides for APTNT to recover the costs associated with the estimated corporate income tax payable during the period.

Our final decision includes an estimated cost of corporate income tax allowance of \$1.5 million (\$nominal) for APTNT over the 2016–21 access arrangement period as shown in Table 11. This is a reduction of \$1.8 million or 53.8 per cent from APTNT’s revised proposal.

<sup>49</sup> NGR, r. 76(c).

**Table 11 AER’s final decision on corporate income tax allowance for APTNT (\$million, nominal)**

	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Tax payable	0.5	0.5	0.5	0.5	0.6	2.6
Less: value of imputation credits	0.2	0.2	0.2	0.2	0.2	1.0
<b>Net corporate income tax allowance</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>1.5</b>

Source: AER analysis.

Consistent with our draft decision, we accept APTNT’s proposed approach for calculating the cost of corporate income tax for the 2016–21 access arrangement period. In accepting the approach, however, we have adjusted a number of inputs in APTNT’s revised proposed PTRM for calculating the cost of corporate income tax. These adjustments, which reflect our final decisions on other elements of APTNT’s revised proposal, include:

- changing the value of gamma to 0.4 from 0.25.
- changes to other building block components including the rate of return on capital and forecast capex that impact total revenues and therefore also impact the forecast cost of corporate income tax.<sup>50</sup>

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<sup>50</sup> NGR, r. 87A.

## 5 Demand, reference tariffs and incentive schemes

### 5.1 Demand

Demand is an important input to the derivation of APTNT's reference tariffs. In simple terms, tariff prices are determined by dividing cost (as reflected in forecast revenue) by total demand (GJ/day), such that an increase in forecast demand has the effect of reducing the tariff price and vice versa.

Demand forecasts can also affect capex and opex linked to increased network capacity. However, APTNT has not proposed to increase the capacity of the AGP during the access arrangement period.

In our draft decision we accepted APTNT's proposed demand and pipeline utilisation forecasts on the basis that:<sup>51</sup>

- we considered that the demand forecast methodology and assumptions adopted by APTNT were arrived at on a reasonable basis in accordance with the NGR
- we were satisfied that the information in APTNT's proposal satisfied the requirements of the NGR in relation to minimum, maximum and average demand from the earlier access arrangement period and forecast pipeline capacity and utilisation over the 2016–21 access arrangement period
- we were satisfied that APTNT's forecast user numbers for the 2016–21 access arrangement period were arrived at on a reasonable basis.

We have not identified any new information which impacts upon our reasoning as set out in the draft decision. We remain satisfied that APTNT's demand forecasts, including its forecasts for capacity utilisation, have been arrived at on a reasonable basis. As such we consider that APTNT's demand forecasts represent the best estimate possible in the circumstances.<sup>52</sup>

The Power and Water Corporation (PWC) submitted that the firm capacity of the AGP will materially increase with the connection of the Northern Gas Pipeline (NGP) to the AGP.<sup>53</sup> PWC also challenged APTNT's view that the reference tariff will be unaffected by the NGP, particularly if existing AGP capacity is reallocated from PWC to new NGP users.<sup>54</sup>

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<sup>51</sup> AER, Draft Decision, *Amadeus Gas Pipeline Access Arrangement 2016 to 2021, Attachment 13 - Demand*, November 2015.

<sup>52</sup> NGR, r. 74(2).

<sup>53</sup> Power and Water Corporation, *Submission to Amadeus Gas Pipeline Access Arrangement 2016-21*, 4 February 2016, p.2.

<sup>54</sup> Power and Water Corporation, *Submission to Amadeus Gas Pipeline Access Arrangement 2016-21*, 4 February 2016, p.2.

We maintain our view that the connection of the NGP to the AGP may impact on future demand on the AGP and, as a result, the reference tariff. To address this uncertainty we have made provision for an early review of the access arrangement if this becomes necessary (discussed in section 6 below).

## 5.2 Services covered by the access arrangement

We accept the reference service APTNT proposes to offer on its network over the 2016–21 access arrangement period. As we concluded in our draft decision, we consider APTNT’s proposed reference service (the firm service) will be sought by a significant part of the market.<sup>55</sup> Therefore it must be covered by the access arrangement.

We also accept that the following services are not likely to be sought by a significant part of the market, and therefore should not be specified as a reference service:

- interruptible service—a gas transport service from any receipt point to any delivery point on the AGP, where APTNT is entitled to cease (or interrupt) the receipt of gas from, or delivery of gas to, the user when:
  - the pipeline capacity is constrained/curtailed, or
  - to meet the capacity requirements of other users of the firm service
- negotiated service—a service negotiated to meet the needs of a user which differ from those of the firm or interruptible service, including potential as available services.<sup>56</sup>

This decision is consistent with our draft decision and APTNT’s revised proposal.

## 5.3 Reference tariffs and reference tariff variation mechanism

Service providers are required under the NGR to specify a reference tariff for each reference service.<sup>57</sup> Reference tariffs are updated annually in accordance with the reference tariff variation mechanism.

As in our draft decision, our final decision accepts APTNT’s proposed structure of reference tariffs for the 2016–21 access arrangement period.<sup>58</sup> We are satisfied the proposed structure of the reference tariffs complies with the requirements of the NGR.<sup>59</sup> The quantum of the proposed reference tariffs has been amended to reflect the

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<sup>55</sup> NGR, r. 101(2).

<sup>56</sup> APTNT, *Amadeus Gas Pipeline access arrangement revision proposal submission*, August 2015, p. 23.

<sup>57</sup> NGR, r. 48(1)(d)(i).

<sup>58</sup> AER, *Draft decision: Amadeus Gas Pipeline access arrangement 2016 to 2021: Attachment 10—Reference tariff setting*, November 2015, p. 6.

<sup>59</sup> NGR, rr. 93, 94.

difference between our final decision on APTNT's forecast revenue requirement and that in APTNT's revised proposal (discussed in section 3).

However, we have not fully accepted the reference tariff variation mechanism in APTNT's revised proposal. APTNT accepted our draft decision reference tariff variation mechanism,<sup>60</sup> but proposed a number revisions to our draft decision pass through factor formula.<sup>61</sup>

We generally accept APTNT's proposed revisions to the access arrangement due to the inclusion of the pass through adjustment factor. We agree that the revisions will provide transparency on the application of the pass through adjustment factor and consistent use of terms within the access arrangement.

However, we do not agree with APTNT's proposed changes to the annual tariff notification period.

While we accept the proposed revisions to the pass through adjustment factor, we do not accept APTNT's proposed change to the tariff notification to be made at least 30 business days before the date of implementation.<sup>62</sup> This proposal was made in response to questions we put to APTNT regarding its intended revisions to the access arrangement.<sup>63</sup>

We note APTNT initially proposed to make the tariff notification that it submits to the AER for approval 50 days before its implementation a draft notification.<sup>64</sup> APTNT proposed this as a draft because a key input—the Australian Bureau of Statistics (ABS) March quarter consumer price index—is not available until after this time. It proposed that a subsequent updated tariff notification would be provided once the March quarter CPI became available. Such practice has been undertaken in the current access arrangement period.

We consider this process is administratively inefficient. We are now adopting a December quarter CPI in place of the March quarter, meaning that a 50 business day timeline is now workable with a single submission.<sup>65</sup> Only one tariff variation will now

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<sup>60</sup> APTNT, *Amadeus Gas Pipeline access arrangement revised proposal: Response to draft decision submission*, January 2016, pp. 104–108.

<sup>61</sup> APTNT, *Amadeus Gas Pipeline access arrangement revised proposal: Response to draft decision submission*, January 2016, pp. 107–108.

<sup>62</sup> APTNT, *RE: 040316 AER Information request - AER Amadeus 014 - Tariff Variation Mechanism* [email to AER], 24 March 2016.

<sup>63</sup> APTNT, *RE: 040316 AER Information request - AER Amadeus 014 - Tariff Variation Mechanism* [email to AER], 24 March 2016.

<sup>64</sup> APTNT, *Access arrangement for the Amadeus Gas Pipeline: 1 July 2016 to 30 June 2021*, August 2015, cl. 4.7.2; APTNT, *Amadeus Gas Pipeline access arrangement revision proposal submission*, August 2015, p. 173.

<sup>65</sup> As the same timing of CPI escalation will be used for the RAB roll forward at the next regulatory reset for APTNT in 2021, this change will allow us to update the actual CPI for RAB roll forward purposes well before the publication date of the AER's decision at the next reset. We note that there will be an overlapping issue of the March quarter CPI when the transition to the December quarter CPI occurs (this will occur in the 2017–18 tariff variation proposal). This is because the CPI for the March quarter 2017 will be reflected in both 2016–17 and 2017–18

be required. We note this approach is consistent with the timing of CPI escalation for other gas distribution networks such as ActewAGL and Jemena Gas Networks (New South Wales). APTNT's suggestion of a 30 business day timeline reflects the date on which March quarter CPI becomes available. As March quarter CPI is no longer used, the provision for late submission of tariff notifications is no longer required.

We have also made changes to the pass through adjustment factor formula in our draft decision. These changes are required so that our final decision pass through formula is consistent with APTNT's reference tariff variation mechanism and satisfies rule 92(2) in regards to equalisation of the present values.

In addition, while we approve the seven pass through events in APTNT's revised access arrangement proposal, we have in most cases amended the definitions proposed by APTNT.

## 5.4 Incentive schemes

A full access arrangement may include (or we may require it to include) one or more incentive mechanisms to encourage efficiency in the provision of services by the service provider.

Our final decision is to apply an opex efficiency carryover mechanism (ECM) to APTNT in the 2016–21 access arrangement period. The ECM we approve is the same mechanism included in our draft decision.

APTNT did not agree with our draft decision to apply an ECM on the grounds that the existing long term contract for services already imposed incentives on it to improve its ongoing efficiency. APTNT argued the application of the ECM would introduce a regulatory burden without offsetting benefits.

We consider that benefits will accrue from the application of an ECM in the long term. In a regulatory framework that includes an ECM, cost shifting to inflate base year opex is penalised through negative carryover amounts. In such an environment, the efficiency of base year opex to be used for forecasting opex in future periods is a less intrusive top-down process, reducing regulatory burden in future years.

We have established APTNT's opex for the next access arrangement period using our top-down revealed cost methodology. The ECM is intrinsically linked to this methodology. This is because the ECM provides us with greater confidence that the base year is efficient and can be used to forecast opex for a future access arrangement period. It also provides confidence that a service provider has a continuous incentive to make efficiency gains. For these reasons we consider it is necessary to apply an ECM to APTNT in the 2016–21 period.

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prices. However, we consider this is only a transitional issue and will not have a material impact on the APTNT's tariffs or revenue.

We are also confident that the costs likely to be incurred due to the application of an ECM will be negligible. This is because the information used to calculate efficiency carryover amounts is already captured by APTNT. Any marginal increase in the regulatory burden facing APTNT is likely to be offset by the savings arising from the use of a non-intrusive top-down assessment of opex by us and APTNT in future regulatory periods.

APTNT also considered our draft decision did not adequately address the impact of the NGP trigger event occurring. The trigger event we added (discussed further in section 6) recognised the uncertainty around the timing and potential impact of the connection of the NGP and AGP, and that an access arrangement period less than five years may result. The approved ECM for the next period allows the final carryover amounts to take into account any change in the length of the access arrangement. The mechanism also excludes any opex associated with the new pipeline interconnection. For these reasons we remain satisfied that the ECM approved in this final decision is compatible with the trigger for early review.

## 6 Non-tariff components

With limited exceptions, our final decision accepts the non-tariff components of APTNT's revised proposal.

APTNT's revised proposal incorporated the majority of the revisions we required to the terms and conditions on which it will provide its reference service. Where it did not do so, it sought to address the concerns we had raised with its preferred drafting. As a result, we are now satisfied with all but one of APTNT's proposed terms and conditions. We remain of the view that the current, 10 per cent cap on APTNT's own liability over the life of an agreement is sufficient to protect its interests without the addition of its proposed 2.5 per cent annual cap, and have not approved this additional constraint. This is consistent with our draft decision.

APTNT's revised proposal restated without revision its original proposals on the following components of its access arrangement:

- queuing requirements
- extension and expansion requirements<sup>66</sup>
- capacity trading requirements
- changing receipt and delivery points.

These were approved in our draft decision, and we maintain our decision to approve them in this final decision.

APTNT's revised proposal also incorporated the amendments we required to its review submission and revisions commencement dates, specifying a single, fixed date for each. However, our draft decision also required APTNT to amend its access arrangement to include provision for the review to take place earlier than planned should this be required when the NGP and the AGP are connected.<sup>67</sup>

The Review Submission Date will be accelerated under Rule 51 on written notification by the AER that one of the following events has occurred:

- (a) the interconnection of another pipeline with the Pipeline; or
- (b) the introduction of a significant new source of gas supply to one or more of the markets to which gas is delivered from the pipeline;

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<sup>66</sup> A significant factor in approving the extensions and expansions policy is the fact that, under the approved revision and commencement clause, the interconnection of the NGP will trigger a full review of the access arrangement. The relationship between these issues is discussed in our draft decision - AER, *Draft Decision, Amadeus Gas Pipeline Access Arrangement 2016 - 2021, Attachment 12 - Non-tariff components*, November 2015, pp. 26.

<sup>67</sup> AER, *Draft Decision, Amadeus Gas Pipeline Access Arrangement 2016 - 2021, Attachment 12 - Non-tariff components*, November 2015, pp. 12-18 to 12-28.

that substantially changes the types of Services that are likely to be sought by the market or has a substantial effect on the volume and/or direction of flow of natural gas through all or part of the Pipeline.

Such notice will not be given within 18 months of the Review Submission Date in this clause 1.6.

APTNT's revised proposal included an alternative trigger that:

- narrowed the trigger event so that it was limited to a change in the types of services provided, and did not take into account changes in the volume and/or direction of flow of natural gas through the AGP
- added constraints on the operation of the trigger and any early review to:
  - explicitly require consultation on whether a trigger had occurred, and
  - fix minimum time for APTNT to prepare an access arrangement revision proposal.

We consider the trigger specified in our draft decision is the preferable alternative to that proposed by APTNT to deal with the potential implications of interconnection. The approved access arrangement is drafted accordingly. We take this view because we consider the impact of an interconnection is uncertain in relation to both the types of services that may be demanded and the volumes of gas that may be transported.

We accept in principle APTNT's proposal that its access arrangement explicitly include a requirement for consultation before the trigger is activated and the review of its access arrangement brought forward. We have amended the drafting of this provision to make it clear that the nature of that consultation will be determined by us as the responsible regulator, and not by APTNT. However we remain of the view that the process and timeframe allowed for APTNT to prepare for an early review is most appropriately determined when a trigger event occurs (for example, with regard to our consultation with APTNT on the Regulatory Information Notice for the review) and have not accepted this proposed revision.

## 7 Understanding the NGO

The NGO is the central feature of the regulatory framework. The NGO is

to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.<sup>68</sup>

Energy Ministers have provided us with a substantial body of explanatory material that guides our understanding of the NGO.<sup>69</sup> The long term interests of consumers are not delivered by any one of the NGO's factors in isolation, but rather by balancing them in reaching a regulatory decision.<sup>70</sup>

In general, we consider that we will achieve this balance and, therefore, contribute to the achievement of the NGO, where consumers are provided a reasonable level of safe and reliable service that they value at least cost in the long run.<sup>71</sup> We have also considered the quality and reliability of services provided to consumers. For example, the opex allowance and pass through mechanism approved in this final decision have been set so that APTNT can meet existing and new regulatory requirements. Our approved capex forecast includes expenditure to replace assets that are aged or in unacceptable condition.

The nature of decisions under the NGR is such that there may be a range of economically efficient decisions, with different implications for the long term interests of consumers.<sup>72</sup> At the same time, however, there are a range of outcomes that are unlikely to advance the NGO, or advance the NGO to the degree that others would.

For example, we do not consider that the NGO would be advanced if allowed revenues encourage overinvestment and result in prices so high that consumers are unwilling or unable to efficiently use the network.<sup>73</sup> This could have significant longer term pricing implications for those consumers who continue to use network services.

Equally, we do not consider the NGO would be advanced if allowed revenues result in prices so low that investors are unwilling to invest as required to adequately maintain the appropriate quality and level of service, and where customers are making more use of the network than is sustainable. This could create longer term problems in the

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<sup>68</sup> NGL, s. 23.

<sup>69</sup> Hansard, *SA House of Assembly*, 9 February 2005, pp. 1451–1460.  
Hansard, *SA House of Assembly*, 27 September 2007, pp. 963–972.  
Hansard, *SA House of Assembly*, 26 September 2013, pp. 7171–7176.

<sup>70</sup> Hansard, *SA House of Assembly*, 26 September 2013, p. 7173.

<sup>71</sup> Hansard, *SA House of Assembly*, 9 February 2005, p. 1452.

<sup>72</sup> *Re Michael: Ex parte Epic Energy* [2002] WASCA 231 at [143].  
Energy Ministers also accept this view – see Hansard, *SA House of Assembly*, 26 September 2013 p. 7172.  
AEMC, *Rule Determination National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006 No. 18*, p. 50.

<sup>73</sup> NGL, s. 24(7).

network<sup>74</sup> and could have adverse consequences for safety, security and reliability of the network.

The NGL also includes the revenue and pricing principles (RPP), which support the NGO.<sup>75</sup> As the NGL requires,<sup>76</sup> we have taken the RPPs into account throughout our analysis. The RPPs are:

A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—

- providing reference services; and
- complying with a regulatory obligation or requirement or making a regulatory payment.

A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—

- efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and
- the efficient provision of pipeline services; and
- the efficient use of the pipeline.

Regard should be had to the capital base with respect to a pipeline adopted—

- in any previous—
  - full access arrangement; or
  - decision of a relevant regulator under section 2 of the Gas Code; or
- in the Rules.

A reference tariff should allow for a return commensurate with the regulatory and commercial risks involved in providing the reference service to which that tariff relates.

Regard should be had to the economic costs and risks of the potential for under and over investment by a service provider in a pipeline with which the service provider provides pipeline services.

Regard should be had to the economic costs and risks of the potential for under and over utilisation of a pipeline with which a service provider provides pipeline services.

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<sup>74</sup> NGL, s. 24(6).

<sup>75</sup> NGL, s. 24.

<sup>76</sup> NGL, s. 28(2).

Consistent with Energy Ministers' views, we set the amount of revenue that service providers can recover from customers to balance all of the elements of the NGO and consider each of the RPPs.<sup>77</sup> For example:

- In determining forecast opex and capex that reasonably reflects the opex and capex criteria, we take into account the revenue and pricing principle that we should provide APTNT with a reasonable opportunity to recover at least efficient costs. (Refer to Attachment 6–capex and Attachment 7–opex).
- We take into account the economic costs and risks of the potential for under and over investment by a service provider in our assessment of APTNT's forecast capex and opex proposals. (Refer to Attachment 6–capex and Attachment 7–opex).
- We consider the economic costs and risks of the potential for under and over utilisation of APTNT's network in our decisions on demand forecasting and forecast augmentation capex (Refer to Attachment 6–capex and Attachment 13–demand).
- Our introduction of the efficiency carryover mechanism in this decision provides APTNT with effective incentives which we consider will promote economic efficiency with respect to the reference service that APTNT provides throughout the access arrangement period. (Refer to Attachment 9–efficiency carryover mechanism).
- We have determined APTNT's opening capital base taking into account the capital adopted in the previous access arrangement. (Refer to Attachment 2–capital base).
- The allowed rate of return objective reflects the revenue and pricing principle in s. 24(5). We have determined a rate of return that we consider will provide APTNT with a return commensurate with the regulatory and commercial risks involved in providing pipeline services. (Refer to Attachment 3–rate of return).
- Our financing determinations provide APTNT with a reasonable opportunity to recover at least the efficient costs of accessing debt and capital. (Refer to Attachment 3–rate of return).

In some cases, our approach to a particular component (or part thereof) results in an outcome towards the end of the range of options that may be favourable to the businesses, for example, our choice of equity beta. Some of these decisions include:

- selecting at the top of the range for the equity beta
- setting the return on debt by reference to data for a BBB broad band credit rating, when the benchmark is BBB+
- the cash flow timing assumptions in the post-tax revenue model.

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<sup>77</sup> Hansard, *SA House of Assembly*, 27 September 2007 pp. 965, Hansard, *SA House of Assembly*, 9 April 2008 p. 2886, Hansard, *SA House of Assembly*, 26 September 2013, p. 7173.

We take into account the RPPs when exercising discretion about an appropriate estimate. This requires recognition that for the long term interests of consumers, the risk of under compensation for, or underinvestment by, a service provider may be less desirable than the risk of overcompensation or overinvestment. However, we are also conscious of the risk of introducing an inherent bias towards higher amounts where estimates throughout the different components of the forecast revenue requirement are each set too conservatively.<sup>78</sup> The legislative framework recognises the complexity of this task by providing us with significant discretion in many aspects of the decision-making process to make judgements on these matters.

Part 9 of the NGR provides specifically for the economic regulation of covered pipelines. It includes detailed rules about the individual components of our decisions. These are intended to contribute to the achievement of the NGO.

## 7.1 Achieving the NGO to the greatest degree

An access arrangement decision is complex and must be considered as such. In most instances, the provisions of the NGR do not point to a single answer, either for our decision as a whole or in respect of particular components. They require us to exercise our regulatory judgment. For example, Part 9 of the NGR requires us to prepare forecasts, which are predictions about unknown future circumstances. As a result, there will likely always be more than one plausible forecast. There is substantial debate amongst stakeholders about the costs we must forecast, with both sides often supported by expert opinion. As a result, for certain components of our decision there may be several plausible answers or several plausible point estimates.

When the components of our decision are considered together, this means there will almost always be several potential, overall decisions. More than one of these may contribute to the achievement of the NGO. Where this is the case, our role is to make an overall decision that we are satisfied contributes to the achievement of the NGO to the *greatest degree*.<sup>79</sup>

We approach this from a practical perspective, accepting that it is not possible to consider every permutation specifically. Where there are choices to be made among several plausible alternatives each of which would result in an overall decision that contributes to the achievement of the NGO, we have selected what we are satisfied would result in an overall decision that contributes to the achievement of the NGO to the greatest degree.

Also, in coming to this final decision we have considered APTNT's proposal. We have examined each of the building block components of the forecast revenue requirement, and the incentive mechanisms that should apply across the next access arrangement period. We have considered submissions we received in regard to APTNT's proposal.

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<sup>78</sup> : AEMC, *Rule Determination, National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006 No. 18*, 16 November 2016, p. 52.

<sup>79</sup> NGL, s. 28(1)(b)(iii).

We have conducted our own analysis and engaged expert consultants to help us better understand if and how APTNT's proposal contributes to the achievement of the NGO. We have also considered how the individual components of our decision relate to each other, the impact that particular components of our decision have on others, and have described these interrelationships in this final decision. We have had regard to and weighed up all of the information assembled before us in making this final decision, and have made as much of this information publicly available as practicable for the purposes of consultation.

Therefore, we are satisfied that among the options before us, our final decision on APTNT's access arrangement for the 2016–21 access arrangement period contributes to achieving the NGO to the greatest degree.

### 7.1.1 Interrelationships between individual components

Considering individual components in isolation ignores the importance of interrelationships between components of the overall decision, and would not contribute to the achievement of the NGO. As outlined by Energy Ministers, considering the elements in isolation has resulted in regulatory failures in the past.<sup>80</sup> Interrelationships can take various forms, including:

- underlying drivers and context which are likely to affect many constituent components of our decision. For example, forecast demand affects the forecasts of efficient levels of capex and opex in the access arrangement period (see attachments 6, 7 and 13).
- direct mathematical links between different components of a decision. For example, the value of imputation credits ( $\gamma$ ) has an impact on the appropriate tax allowance; the benchmark efficient entity's debt to equity ratio has a direct effect on the cost of equity, the cost of debt, and the overall vanilla rate of return (see attachments 3, 4 and 8).
- trade-offs between different components of revenue. For example, undertaking a particular capex project may affect the need for opex and vice versa (see attachments 6 and 7).
- trade-offs between forecast and actual regulatory measures. The reasons for one part of a proposal may have impacts on other parts of a proposal. For example, completion of forecast augmentation (capex) to the network will mean the service provider has more assets to maintain, leading to higher opex requirements (see attachments 6 and 7).
- the service provider's approach to managing its network. The service provider's governance arrangements and its approach to risk management will influence most

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<sup>80</sup> SCER, *Regulation Impact Statement: Limited Merits Review of Decision-Making in the Electricity and Gas Regulatory Frameworks – Decision Paper*, 6 June 2013 p. 6.

aspects of the proposal, including capex/opex trade-offs (see attachments 6 and 7).

We have considered interrelationships, including those above, in our analysis of the individual components of our decision. These considerations are explored in the relevant attachments.

## A List of submissions

Submission from	Date received
Power and Water Corporation	4 February 2016
Territory Generation	4 February 2016
ActewAGL Distribution	4 February 2016