



**DRAFT DECISION
APA VTS Australia
Gas access arrangement
2018 to 2022**

**Attachment 6 – Capital
expenditure**

July 2017

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Note

This attachment forms part of the AER's draft decision on the access arrangement for APA Australia for 2018–22. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 - Services covered by the access arrangement

Attachment 2 - Capital base

Attachment 3 - Rate of return

Attachment 4 - Value of imputation credits

Attachment 5 - Regulatory depreciation

Attachment 6 - Capital expenditure

Attachment 7 - Operating expenditure

Attachment 8 - Corporate income tax

Attachment 9 - Efficiency carryover mechanism

Attachment 10 - Reference tariff setting

Attachment 11 - Reference tariff variation mechanism

Attachment 12 - Non-tariff components

Attachment 13 - Demand

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Shortened forms

Shortened form	Extended form
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	(Opex) Efficiency Carryover Mechanism
ERP	equity risk premium
Expenditure Guideline	Expenditure Forecast Assessment Guideline
gamma	Value of Imputation Credits
MRP	market risk premium
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
STTM	Short Term Trading Market
TAB	Tax asset base
UAFG	Unaccounted for gas
WACC	weighted average cost of capital
WPI	Wage Price Index

6 Capital expenditure

Capital expenditure (capex) refers to the capital costs and expenditure incurred in the provision of pipeline services.¹ This investment mostly relates to assets with long lives and these costs are recovered over several access arrangement periods. Annually, APA recovers the costs of these assets through the return on capital and depreciation building blocks that form part of its total revenue for the VTS. In this way APA recovers the financing costs of its asset base and the depreciation associated with these assets over their expected life.

This attachment outlines our assessment of APA's proposed conforming capex for the VTS for the 2013–17, and forecast capex for the VTS for the 2018–22 access arrangement period.

The proposal APA submitted in January 2017 set out the capex it considered it would require over the 2018–22 access arrangement period. Submissions on that proposal from APA's users and the Australian Energy Market Operator (AEMO)—the operator of the VTS—suggested that additional capex would be necessary to address system security concerns. These views were supported by AEMO's Victorian Gas Planning Report,² and Gas Statement of Opportunities,³ (both released in late March 2017) and in its system security notices.⁴ In response, APA provided additional information on the capex required to address the tightening of the supply/demand balance in the VTS forecast by AEMO in March 2017.⁵ Specifically, it proposed to bring forward the planned construction of the Western Outer Ring Main (WORM). In support of its proposal APA provided a Business Case for the WORM, a supplementary submission on capital expenditure, and revised modelling. Our draft decision considers this updated information together with the other capex items included in APA's January proposal.

¹ NGR, r. 69.

² AEMO, *Victorian Gas Planning Report: Declared Transmission System Planning for Victoria*, March 2017.

³ AEMO, *Gas Statement of Opportunities: For Eastern and South-Eastern Australia*, March 2017.

⁴ AEMO, *Notice of a Threat to System Security – Seeking a Market Response*, 10 March 2017 <<https://www.aemo.com.au/-/media/Files/Gas/DWGM/2017/Threat-to-System-Security-Notice---SWP-to-Port-Campbell-constraint.pdf>>, AEMO, *Notice of a Threat to System Security*, 10 March 2017 <<https://www.aemo.com.au/-/media/Files/Gas/DWGM/2017/Threat-to-System-Security-Notice---Warragul.pdf>>.

⁵ AEMO, *Victorian Gas Planning Report: Declared Transmission System Planning for Victoria*, March 2017, p. 55, AEMO, *Gas Statement of Opportunities: For Eastern and South-Eastern Australia*, March 2017.

6.1 Draft decision

6.1.1 Conforming capex for 2013–17

We approve \$402.3 million (\$2017) of APA's proposed total net capex of \$408.3 million (\$2017) for the 2013–17 access arrangement period as conforming capex.⁶ This is shown by capex category in Table 6.1.

Table 6.1 AER approved capex, 2013 to 2017 (\$million, 2017)

Category	2013	2014	2015	2016	2017 ^(f)	Total (2013–17)
Augmentation	12.3	112.4	74.6	92.1	52.3	343.8
Replacement & Upgrade	1.6	7.5	14.2	10.5	2.1	35.9
Non-System	1.7	4.2	5.7	2.3	8.6	22.6
TOTAL CAPEX	15.6	124.2	94.5	105.0	63.0	402.3

Source: AER analysis.

Totals may not add due to rounding.

Notably, APA did not undertake several augmentation, replacement and upgrade projects that were included in the 2013–17 access arrangement forecast. However, this reduced expenditure has been offset by APA incurring significantly more capex on other projects that were included in the 2013–17 access arrangement forecast than was contemplated, and several corporate IT and business management projects that were not included in the 2013–17 access arrangement forecast.

6.1.2 Conforming capex for the 2018–22 access arrangement period

We approve \$215.0 million (\$2017) of APA's proposed \$256.1 million (\$2017) total net capex for the 2018–22 access arrangement period as conforming capex.⁷ This is \$41.1 million, or 16 per cent, less than that proposed by APA. This is shown by capex category in Table 6.2.

⁶ NGR, r. 79(1).

⁷ NGR, r. 79(1).

Table 6.2 AER approved capex, 2018–22 (\$million, 2017)

Category	2018	2019	2020	2021	2022	Total
Augmentation	44.4	46.8	59.8	-	-	151.0
Replacement and Upgrade	12.5	6.5	9.3	10.2	8.6	47.1
Non-System	4.2	3.6	3.3	3.6	2.3	16.9
TOTAL CAPEX	61.1	56.9	72.3	13.7	10.9	215.0

Source: AER analysis.

Totals may not add due to rounding.

There are five main reasons why our draft decision differs from the capex proposed by APA.

Firstly, APA’s proposed forecast capex overestimates the costs of the Warragul lateral expansion by around 105 per cent. Secondly, APA has not shown it to be cost-beneficial to modify short sections of pipelines to support pigging. Thirdly, undertaking all APA’s proposed slabbing program in 2018 and 2019 is not justified, as the information available to us indicates significant economic efficiencies from deferring the slabbing program along many sections of the three pipelines until closer to the time when urban development is actually likely to proceed. Fourthly, we consider that some items APA has proposed are opex (not capex), including overhaul of the Wollert Compressor Station Turbine. Fifthly, the proposed decommissioning of the Coogee pipeline is premature, as the future of the Laverton methanol plant that it supports has not yet been decided.

Further, we have included forecast expenditure related to the Western Outer Ring Main (WORM) project on the basis of the information provided by APA in its amended proposal and its submission of 21 April 2017. We also took into account the views of stakeholders who were able to provide comment in the short time available. All stakeholders will have the opportunity to comment on our draft decision and APA’s revised proposal. We encourage stakeholder feedback on the proposed WORM which we will take into account in preparing our final decision.

6.2 APA’s proposal

6.2.1 Capex over the 2013–17 access arrangement period

APA incurred total past capex of \$408.3 million (\$2017) during the 2013–17 access arrangement period. This is \$244.6 million (nominal) above the forecast that we approved in the 2013–17 access arrangement period. This is shown by capex category in Table 6.3 below.

Table 6.3 APA incurred capex 2013–17 (\$million, 2017)

Category	2013	2014	2015	2016	2017 ^(f)	Total
Augmentation	12.3	112.4	74.6	92.1	52.3	343.8
Refurbishment and Upgrade	1.6	7.5	14.2	10.5	8.1	41.9
Non-system	1.7	4.2	5.7	2.4	8.6	22.6
TOTAL CAPEX	15.6	124.2	94.5	105.0	69.0	408.3

Source: APA May 2017 Victorian Transmission System Supplementary Capex Submission.
Totals may not add due to rounding.

The reason for this large overspend is primarily due to a single project. APA submitted that due to changes in the gas market, including increased demand for the northern flow of gas from Victoria, it undertook additional expenditure to augment the Gas to Culcairn Project (now referred to as the Victorian Northern Interconnect Expansion - VNIE). APA also incurred more capex on non-system (corporate IT and business) projects than was included in the 2013–17 access arrangement forecast, and incurred less refurbishment and upgrade capex, on the basis that it was no longer necessary.⁸

Our reasons and analysis of the capex APA incurred during the 2013–17 access arrangement period is set out at section 6.4.1 below.

6.2.2 Proposed capex for the 2018–22 access arrangement period

APA has proposed total forecast net capex of \$256.1 million (\$2017) for the 2018–22 access arrangement period (which includes the proposed WORM project).⁹ Other than the WORM, this largely consists of replacement and upgrade capex and completing augmentation projects that were delayed in the 2013–17 access arrangement period. This is shown by capex category in Table 6.4.

⁸ APA, *APA VTS Access Arrangement Revision Proposal Submission 2018-2022*, 3 January 2017 (APA Access Arrangement Revision Proposal Submission).

⁹ APA, *APA VTS Supplementary Access Arrangement Submission revised for Western Outer Ring Main (WORM)*, 15 May 2017, p. 29 (APA Revised Access Arrangement Submission (WORM)).

Table 6.4 APA's proposed capex, 2018–22 (\$million, 2017)

Category	2018	2019	2020	2021	2022	Total
Augmentation	44.4	49.7	60.9	-	-	155.1
Refurbishment and Upgrade	29.1	18.6	9.5	14.2	12.6	84.1
Non-system	4.2	3.6	3.3	3.6	2.3	16.9
TOTAL CAPEX	77.7	71.9	73.7	17.8	14.9	256.1

Source: APA May 2017 Victorian Transmission System *Supplementary Capex Submission*.
Totals may not add due to rounding.

6.3 Assessment approach

We must make two decisions regarding APA's capex. First, we are required to assess past capex and determine whether it is conforming capex to be added to the opening capital base.¹⁰ Secondly, we are required to assess APA's forecast of required capex for the 2018–22 access arrangement period to determine whether it is conforming capex. Capex will be 'conforming' if it meets the requirements of the new capex criteria under the NGR.¹¹ We have limited discretion when deciding whether capex conforms with the new capex criteria.¹² This means that we must approve the capex if we are satisfied it complies with the applicable requirements of the NGR and NGL and is consistent with the criteria set out in the NGR or NGL.¹³

The following sections set out our approach, and the tools and techniques, we employ in addressing these decision criteria. We also need to take into account timing issues associated with the lag between actual capex data being available in the last year of the 2013–17 access arrangement period and the need to forecast an opening capital base for the 2018–22 access arrangement period. This is explained in the next section.

6.3.1 Capex in the 2013–17 Access Arrangement period

We reviewed APA's submission and supporting material to assess its proposed capex for the 2013–17 access arrangement period. This included information on APA's reasoning and, where relevant, business cases, responses to information requests and other relevant information. We used this information to identify whether capex over the 2013–17 access arrangement period was conforming capex and, in turn, whether that capex should be included in the opening capital base.¹⁴

¹⁰ NGR, r. 77(2)(b).

¹¹ NGR, r. 79.

¹² NGR, r. 79(6).

¹³ NGR, r. 40(2).

¹⁴ NGR, r. 77(2)(b).

We consider the following when determining the opening capital base for 2018–22:

- 2013–16 capex— since we have actual capex data for these years, we have assessed whether this is conforming capex under the NGR.¹⁵ We have included conforming capex in the capital base roll forward.¹⁶
- 2017 capex—for this access arrangement review, we do not yet have actual capex for 2017 and so must rely on a forecast. For this decision, we have assessed whether this forecast is conforming capex under the NGR. When we receive the 2023–27 access arrangement proposal, we will assess whether APA’s actual capex for 2017 is conforming capex under the NGR, and adjust for any differences between actual and estimated capex.¹⁷

6.3.2 Capex for the 2018–22 access arrangement period

We have assessed the key drivers of forecast capex to consider whether APA's proposed capex complies with the capex criteria.¹⁸ In doing so, we relied on information, including:

- the access arrangement submission and access arrangement information, which outline APA’s capex program and the main drivers of the projects
- APA's *Gas pipeline asset management plan, Pipeline integrity management plan* and associated appendices and reports which provide specific expenditure or technical detail
- business cases that detail the expenditure requirements for specific projects
- APA’s RIN template response
- APA’s capex forecast model
- net present value (NPV) analyses of the incremental revenue associated with augmentation projects
- engineering advice we commissioned from Sleeman Consulting.¹⁹

For each category of capex we considered the scope, timing and cost of the proposed capex in order to form a view on whether it complies with the new capex criteria. We also considered whether cost forecasts were arrived at on a reasonable basis and represent the best forecast possible in the circumstances.²⁰

¹⁵ NGR, rr. 77(2)(b), 79.

¹⁶ NGR, r. 77(2)(b).

¹⁷ NGR, rr. 77(2)(a), 79.

¹⁸ NGR, r. 79(1).

¹⁹ Sleeman Consulting, *Review of Forecast Capex for Selected Projects*, 27 April 2017 (Sleeman Consulting Review).

²⁰ NGR, r. 74(2).

6.3.3 Interrelationships

There is a link between proposed augmentation capex and the demand forecast, which is assessed in Chapter 13. We are not currently satisfied that all APA proposed demand forecasts comply with rule 74(2) of the NGR.

Forecast annual demand for gas exports from Victoria remains steady. Over the 2013-2017 access arrangement period, NSW increased its demand and 3 LNG plants were commissioned in Queensland. The VNIE is a response to these changes. Over the 2018-2022 access arrangement period, forecast annual volume is to remain at the 2017 level. The continual demand for the VNIE impacts the assessment of the project as conforming capex.

By contrast, the main impetus for the WORM and other augmentation projects such as Warragul lateral is system security.

Forecast customer numbers and volumes by customer class over the 2018-22 access arrangement period are flat.²¹ Forecast demand for the VTS over the period shows a slight decline.²² Population growth is being offset by improving appliance efficiency and insulation in Victorian households. There is also declining industrial demand due to reduced economic activity.

Finally, there are some projects which APA has characterised as capex that we consider are better characterised as opex. These matters are discussed in section 6.4.2.2 of this draft determination.

6.4 Reasons for draft decision

6.4.1 Capital expenditure over the 2013–17 access arrangement period

We approve net conforming capex of \$402.3 million (\$2017) for the 2013–17 access arrangement period to be included into the opening capital base. This is \$6.0 million (\$2017), or 1.5 per cent, less than the \$408.3 million (\$2017) proposed by APA. This is shown by capex category in Table 6.1. Our reasons are set out below.

6.4.1.1 Augmentation Capex

Augmentation capex is required to expand the capacity of the pipeline to meet forecast demand within and beyond the access arrangement period under review. APA incurred \$343.8 million (\$2017) in augmentation capex during the 2013–17 access arrangement period. This is in excess of 200 per cent more than the \$98.7 million (\$2012) that we included in the 2013–17 access arrangement forecast. Further, this includes the VNIE

²¹ APA, *APA VTS Access Arrangement Information*, 3 January 2017, p. 14 (APA VTS Access Arrangement Information).

²² APA VTS Access Arrangement Information, p. 21.

and South West Pipeline (SWP) to Anglesea Pipeline projects, but not the Warragul Lateral Expansion project, all of which were included in the 2013–17 access arrangement forecast. APA has included the Warragul Lateral Expansion project again as part of its proposed forecast for the 2018–22 access arrangement period.

Our position in this draft decision is that all \$343.8 million of the augmentation capex APA incurred during the 2013–17 access arrangement period is conforming capex.

The following discussion outlines the issues and our considerations on the proposed augmentation projects.

Victorian Northern Interconnector Expansion

The initial proposal for the Gas to Culcairn project (later renamed the Victorian Northern Interconnector Expansion - VNIE) involved increasing the capacity of the Wollert to Barnawartha Pipeline to support additional capacity for withdrawals at Culcairn. This included a 35.4 km looping of the pipeline between Wollert and Clonbinane and the installation of a Centaur 50 compressor on the SWP to increase injections at Wollert. We included forecast capex of \$85.3 million for the VNIE as part of the approved allowance for the 2013–17 access arrangement.

APA submitted that after the 2013–17 access arrangement was finalised, significant changes in the east coast gas market resulted in increased demand for the northern flow of gas from Victoria.²³ To meet this demand for increased gas withdrawals at Culcairn, APA spent \$339.2 million (\$2017) to loop the full length of the pipeline between Wollert and Barnawartha (290 km) and installed a Taurus 60 compressor at Winchelsea (instead of the Centaur 50 compressor) to increase capacity for injections from the SWP.²⁴ Overall, this is expected to increase the capacity for withdrawals at Culcairn by 149TJ/day (to 201 TJ/day) from 2017. The 2013–17 access arrangement proposal only anticipated a 30TJ/day increase in withdrawal capacity (to 85 TJ/day).²⁵

The VNIE principally supports increased withdrawals from the VTS for NSW shippers. Injections into the VTS from NSW have only increased by about 5 per cent. This is the key concern of the Consumer Challenge Panel (CCP11) - whether Victorian consumers ought to bear that cost when the VNIE benefits the companies shipping gas through the VTS to NSW and QLD.²⁶ APA submitted that the increased gas flow will reduce the overheads borne by Victorian consumers by approximately \$5 million per year. Further, APA's proposed 33 per cent increase in the withdrawal tariffs at Culcairn is designed to ensure that the cost of the VNIE is recovered from NSW shippers. The

²³ APA Access Arrangement Revision Proposal Submission, p. 63.

²⁴ APA Access Arrangement Revision Proposal Submission, p. 64.

²⁵ AER, *APA GasNet Access Arrangement 2013-17 Final Decision*, 2012.

²⁶ Consumer Challenge Panel Sub-Panel CCP11, *Response to proposal from APA VTS for a revenue reset/access arrangement for the period 2018 to 2022*, 3 March 2017, p. 28 (CCP11 Submission).

tariff setting and pricing arrangements for the VNIE are discussed in detail in attachment 10.²⁷

The relevant capex criterion here is whether the present value of the incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure.²⁸ APA submitted an NPV analysis, based on a straight line demand forecast, which results in a positive return over the VNIE's 55 year life.²⁹ According to APA, this is a conservative forecast based on the pipeline operating at 40 per cent capacity.³⁰ The question that then arises is whether this is a forecast that has been arrived at on a reasonable basis.³¹

By itself, a straight-line demand forecast might not appear to be reasonable given the expected changes in gas supply in Victoria over the short and long term. In the Victorian Gas Supply Planning Report 2017, AEMO has forecast a large decline in Victorian gas production over the next five years. Annual production at Gippsland is forecast to reduce by 34 per cent and at Port Campbell by 81 per cent, due to some offshore fields ceasing production.³² Further, the Victorian government has enacted a moratorium on unconventional gas exploration and on-shore conventional gas exploration. However, judging a straight line demand forecast solely on the prospect of reduced supply is not enough in these circumstances.

Firstly, significant changes in the east coast gas market in recent years have led to increased demand for gas to flow north from Victoria. APA has identified that it has contracts with NSW shippers reflecting this increased demand.³³ Whilst the Victorian moratorium and AEMO's declining forecasts may mitigate the increased demand of recent years, APA has submitted that there are substantial known Bass Strait gas reserves, including at the Gippsland and Otway Basins that are not developed.³⁴ Should declining supply continue, conceivably these reserves may become economically viable and come online to alleviate shortfalls in meeting demand. Secondly, given current market dynamics APA has found that few customers are contracting for pipeline capacity long term as they are unable to secure long term gas supply arrangements. The limited long term contracting at Culcairn is therefore not a reflection of the intent of shippers not to use the VNI in the future.³⁵

In these circumstances, we consider that applying a straight line forecast based on the pipeline operating at 40 per cent capacity in an NPV analysis is reasonable and is the

²⁷ See, Australian Energy Regulator, *APA VTS Draft decision - Attachment 10 - Reference Tariff Setting*, p. 14, 24-25.

²⁸ NGR, rr. 79(1)(a), 79(2)(b) and 79(4).

²⁹ NGR, r. 79(2)(b).

³⁰ APA Access Arrangement Revision Proposal Submission, p. 64.

³¹ NGR, r. 74(2).

³² AEMO, *Victorian Gas Planning Report: Declared Transmission System Planning for Victoria*, March 2017, p.3.

³³ APA, Response to Information Request AER APA VTS 007, 3 April 2017, p.2 (APA Response to AER Information Request 007).

³⁴ APA Response to AER Information Request 007, p.3.

³⁵ APA Response to AER Information Request 007, p.2.

best forecast possible in the circumstances.³⁶ APA's NPV analysis therefore justifies the VNIE on the ground that the present value of the incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure.³⁷

Sleeman Consulting has advised that the \$339.2 million is reasonable based on the length of the pipeline, the challenging terrain, class of pipe used, and increased capacity of the compressor.³⁸ Taking this advice into account, we are satisfied that the \$339.2 million is prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.³⁹

Our position in this draft decision is that the \$339.2 million incurred by APA for the VNIE during the 2013–17 access arrangement period is conforming capex.

SWP to Anglesea Pipeline

The SWP to Anglesea Pipeline (previously named the Anglesea Pipeline Extension) involved laying 15 km of 250 mm pipeline to connect the SWP to the Anglesea Pipeline to improve security to the distribution system serving Geelong, the Surf Coast and Queenscliff by providing a second source of supply.⁴⁰ Forecast expenditure of \$13.7 million (\$nominal) was included in the 2013–17 access arrangement forecast for this extension.

APA submitted that this connection is now expected to cost \$26.8 million because of delays by AusNet Services in installing and changing the location of a custody transfer meter for the Geelong distribution system. The location change also requires a longer 20 km pipeline.⁴¹ Expenditure of \$9.3 million is expected to be incurred in 2017 and \$17.5 million is forecast for 2018.

The delay and longer pipeline appears to have been outside APA's control. Given these factors, we are satisfied APA's decision to proceed with this project, at the higher cost of \$26.8 million, was prudent and in accordance with good industry practice.⁴² Further, by providing a second supply source, this extension will improve the security of supply to customers in Geelong, the Surf Coast and Queenscliff, and is therefore justified on the ground of maintaining the integrity of services.⁴³

Our position in this draft decision is that the \$9.3 million estimated to be incurred in 2017 and the \$17.5 million forecast for 2018 is conforming capex.

³⁶ NGR, r. 74(2).

³⁷ NGR, rr. 79(1)(b), 79(2)(b).

³⁸ Sleeman Consulting Review, p.17.

³⁹ NGR, r. 79(1).

⁴⁰ APA Access Arrangement Revision Proposal Submission, p. 68.

⁴¹ APA Access Arrangement Revision Proposal Submission, pp. 68-69.

⁴² NGR, r. 79(1).

⁴³ NGR, rr. 79(1)(b), 79(2)(c)(ii), APA Access Arrangement Revision Proposal Submission, p. 68.

6.4.1.2 Replacement and Upgrade Capex

Replacement and upgrade capex is required to maintain the safety and integrity of the pipeline. APA has incurred \$41.9 million (\$nominal) of replacement capex during the 2013–17 access arrangement period. We included \$56.6 million (\$nominal) in the 2013–17 access arrangement forecast for replacement and upgrade projects, many of which APA did not undertake.⁴⁴ Those that APA undertook experienced delays and significant cost increases.

We accept expenditure on the Dandenong City Gate Regulator Upgrade (\$11.7 million), Brooklyn Compressor Station Units 10 and 11 cooler upgrades (\$9.2 million) and Brooklyn Compressor Station isolation and loading valve replacement (\$1.8 million), is conforming capex. We are satisfied, despite the cost overruns on these projects, that the expenditure is prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.⁴⁵ We also agree the projects are justified on the ground that they will maintain and improve the safety and integrity of services.⁴⁶

However, we are not satisfied that all of the expenditure on the Inline Inspection program is conforming capex. We consider that some components of this program would not be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice.⁴⁷ Our reasoning for this decision is detailed below.

Overall, our position in this draft decision is that \$35.9 million of the \$41.9 million is conforming capex.

Inline inspection

APA identified actual expenditure of \$11.6 million on inline inspection works, including \$6.8 million for pig trap installation on 7 pipelines and other related works, as well as \$4.8 million for pigging on 6 pipelines.⁴⁸

The capex model included with the 2018–2022 access arrangement submission indicates that as of 2016, pig trap installation works were complete on only one of the pipelines (PL 124) and had commenced on another pipeline (PL129). APA forecast that a further \$1.5 million is required to complete the pig trap installation works on this pipeline (PL129), taking the total cost to more than triple the initial forecast. Work is scheduled for completion on another pipeline (PL 238) in 2017, with the cost of this

⁴⁴ Projects that were included in the approved 2013-17 access arrangement but did not proceed, include: Gooding CS valve replacement; security upgrades; Dandenong CG facilities integration; Laverton North CG heater upgrade; actuation of mainline valve Dandenong to West Melbourne pipeline; emergency equipment.

⁴⁵ NGR, r. 79(1)(a).

⁴⁶ NGR, rr. 79(1)(b), 79(2)(c)(i) and 79(2)(c)(ii).

⁴⁷ NGR, r. 79(1)(a).

⁴⁸ APA GasNet Australia, *Business Case- BC166- Unpiggable pipelines*, January 2012.

APA GasNet Australia, *Business Case - BC027-BC037 - Pigging Program*, January 2012.

work also substantially higher than the initial estimates. The capex model indicates that work had not commenced, and is not planned to be undertaken in the 2013–17 access arrangement, on 4 other pipelines (PL 36, PL 67, PL 68 and PL162).

For the pigging program, at the end of 2016, work was complete on three of the pipelines (PL74, PL 56 and PL 92). The pigging program on the T1 pipeline is scheduled to commence later in 2017 at a forecast cost of \$3 million, almost 6 times the initial budget. APA has not explained why the forecast costs for 2017 are higher than the initial budget. Work has not commenced and is not scheduled for 2017 on two other pipelines (T57 and T59/71).

Our draft decision is to include only the forecast expenditure on the pig trap installation works and the pigging program that had actually been expended between 2013 and 2016. We have not included the forecast expenditure in 2017 for pig trap installation on PL129 and PL 238 (\$1.5 million each) or the pigging program for pipeline T1 (\$3 million) for inclusion in the opening capital base. The forecast expenditure is far in excess of the initial budget for this work included in APA's 2013–2017 access arrangement proposal and does not appear consistent with the cost of similar works on the other pipelines.

We consider this forecast expenditure for works in 2017 has not been arrived at on a reasonable basis. Therefore, it does not meet the requirement under rule 74. We are not satisfied that it would be expenditure incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice.⁴⁹

Our position in this draft decision is that \$5.6 million of the amount APA has incurred for the inline inspection program (\$3.8 million for completed pig trap installation and other related works and \$1.8 million for the pigging program) is conforming capex.⁵⁰

6.4.1.3 Non-system Capex

APA has incurred \$22.6 million (nominal) on non-system capital expenditure, which includes: corporate IT projects (\$13.4 million), the redevelopment of its Dandenong administration buildings (\$5.1 million), as well as technical equipment purchases, other building and related works (\$4.0 million).

Our position in this draft decision is that this expenditure is conforming capex.

Corporate IT projects

APA identified 56 non-system corporate capex projects, 44 of which were not included in the 2013–2017 access arrangement forecast. Many of these projects were

⁴⁹ NGR r. 79(1)(a).

⁵⁰ We do not accept the forecast 2017 expenditure for the inline inspection program as conforming capex in this access arrangement, as we do not consider APA's forecast to be reasonable under Rule 74. However, we note actual 2017 expenditure is re-assessed ex-post in the subsequent access arrangement reset (2023-27).

undertaken to align the VTS IT systems with APA's corporate IT systems for efficiency and reliability reasons across APA.⁵¹

On the information before us, we are satisfied that the \$13.4 million APA incurred is prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.⁵² We also agree that upgrading the VTS IT systems to align with APA's corporate IT systems is justified on the ground that it will maintain the integrity of services.⁵³

Our position in this draft decision is that the \$13.4 million APA incurred on corporate IT systems is conforming capex.

Dandenong Redevelopment and Southbank Lease

APA submitted that it has incurred \$5.1 million (\$nominal) in redeveloping and constructing a new building at its Dandenong site to accommodate administrative and operational staff.⁵⁴ We included \$9.5 million (\$nominal) for this project in the 2013–17 access arrangement forecast.⁵⁵ The \$5.1 million followed APA's decision to lease a site at Southbank to accommodate its staff (other than its Dandenong South Operations Group staff).

The cost savings realised by leasing the Southbank site is prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services in light of the alternatives available to APA.⁵⁶ We also consider that this expenditure is justified on the ground that its overall economic value is positive, with benefits to the service provider and end users.⁵⁷

Our position in this draft decision is that the \$5.1 million APA incurred to redevelop its Dandenong site is conforming capex.

6.4.2 Capital expenditure over the 2018–22 access arrangement period

We approve conforming net capex of \$215.0 million (\$2017) for the 2018–22 access arrangement period. This is \$41.1 million, or 16 per cent, less than what was proposed by APA. This is summarised in Table 6.2. Our analysis of APA's proposed capex by category is set out below.

⁵¹ APA Access Arrangement Revision Proposal Submission, pp. 82 - 83.

⁵² NGR, r. 79(1)(a).

⁵³ NGR, r. 79(2)(c)(ii).

⁵⁴ APA Access Arrangement Revision Proposal Submission, p.86.

⁵⁵ APA Access Arrangement Revision Proposal Submission, p.86.

⁵⁶ NGR, r. 79(1)(a).

⁵⁷ NGR, r. 79(3).

6.4.2.1 Augmentation Capex

APA has proposed augmentation capex of \$155.1 million (\$2017).⁵⁸ Of this, our position in this draft decision is that \$151.0 million is conforming capex for the reasons that follow.

Warragul Lateral Expansion

APA has proposed \$7.4 million (\$2017) of forecast capex to expand the Warragul lateral to accommodate increasing demand. This involves looping and adding approximately 4.8 km of 150 mm pipeline to the existing easement. APA submitted that this is justified on the grounds of maintaining the safety and integrity of services and its capacity to meet demand.⁵⁹

A breach in the minimum delivery pressure requirements on Warragul lateral in July 2014, due to low overnight temperatures and a Tariff-D site exceeding its MHQ, led to APA increasing the Morwell backup regulator to its maximum pressure and reducing the minimum connection pressure at Warragul to avoid interrupting supply.⁶⁰ However, increasing pressure on the Morwell backup regulator reduces the declared capacity of the Longford to Melbourne pipeline. APA submitted that this is not ideal because the capacity impact on the Longford to Melbourne pipeline is not enough to maintain the required pressure by winter 2020 based on expected growth in demand on the distribution system.⁶¹ This is consistent with AEMO's submission that a capacity breach is likely if a peak day occurs during winter 2019, which will involve curtailing a Tariff-D customer, and its system security notice of March 2017.⁶² It is also consistent with Sleeman Consulting's advice that expanding the Warragul lateral is necessary to maintain the safety and integrity of service.⁶³

APA has previously proposed expanding the Warragul lateral as part of its 2008–12 and 2013–17 access arrangement proposals. This continued deferral of expanding the Warragul lateral means it is now urgent and necessary to maintain the integrity of service and APA's ability to meet demand.⁶⁴

Notably, the proposed \$7.4 million is a significant increase over the \$2.4 million we included in the 2013–17 access arrangement forecast.⁶⁵ Further information received from APA reveals that its proposal exceeds that which would be incurred by a prudent operator by \$4.6 million. Specifically.⁶⁶

⁵⁸ APA Revised Access Arrangement Submission (WORM), p. 29.

⁵⁹ APA, *Business Case Number 501 - Warragul Looping*; NGR, rr. 79(1)(b), 79(2)(c)(i), 79(2)(c)(ii) and 79(2)(c)(iv).

⁶⁰ APA Access Arrangement Revision Proposal Submission, p. 88.

⁶¹ APA Access Arrangement Revision Proposal Submission, p. 88.

⁶² AEMO, *Notice of a Threat to System Security – Seeking a Market Response*, 10 March 2017.

⁶³ Sleeman Consulting Review, p.10.

⁶⁴ NGR, rr. 79(1)(b), 79(2)(c)(ii) and 79(2)(c)(iv).

⁶⁵ APA GasNet Australia, *Business Case - BC172 Warragul Looping*, January 2012, p.4.

⁶⁶ APA Response to AER Information Request 007, p.11.

- APA's project management and commissioning costs have increased from \$138,000 to \$1.96 million. This is over 25 per cent of the total project costs and, as a percentage, exceeds APA's own handbook figure, which suggests 15 per cent.⁶⁷
- In looping an existing pipeline, we would expect the new pipeline to parallel the existing pipeline easement or built along the verge of a major access road. Yet APA has included \$1.2 million (more than six times the \$183,800, included in the 2013–17 access arrangement forecast) for land acquisition costs, due to land rezoning from rural to urban.⁶⁸
- APA submitted that the increase in construction costs from \$1.4 million to \$3.2 million is due to using 'budget quotes' and not the previous 'desk-top' assessment.⁶⁹ However, it did not otherwise substantiate or identify any change in circumstance that would justify this increase.

We consider more acceptable costs for these items to be:

- Project management and commissioning costs of \$0.8 million, which is consistent with APA's handbook figure of 15 per cent for the average costs of project management and commissioning of projects. APA has not presented any evidence to justify a departure from applying the average project management and commissioning costs for this project.
- Land access costs of \$183,800. We do not consider it appropriate for APA to use residential subdivision land value for the pipeline easement. This suggests the pipeline route would need to cut through residential blocks in the subdivisions, which does not reflect its land use practice correctly. As the pipeline route has not changed from that proposed in the 2013-17 business case, we expect land access costs are likely to be similar.
- Construction costs of \$1.4 million. APA has not provided justification as to why a 'budget quote' would differ to a substantial degree from its initial 'desk-top' assessment. We accept budget quotes may involve a more detailed analysis. However, our internal technical advice is that APA has not provided sufficient evidence to explain the 250 per cent increase in cost. Also, there is no indication the budget quote has been market tested.

Therefore, we consider that capex of \$3.5 million (\$2017) would be prudent and accords with good industry practice, achieving the lowest sustainable cost for this work.⁷⁰

⁶⁷ APA Response to AER Information Request 007, p.11.

⁶⁸ APA Response to AER Information Request 007, p.11.

⁶⁹ APA Response to AER Information Request 007, p.11.

⁷⁰ NGR, r. 79(1)(a).

Westbound Expansion of the South West Pipeline

APA has proposed \$3.5 million (\$2017) of forecast capex to increase the capacity of the SWP to match the refill capacity at the Iona Underground Storage (Iona UGS) facility.⁷¹ The project involves \$2.0 million to reconfigure the BCS to allow the Brooklyn Corio Pipeline and the Brooklyn Lara Pipeline to be concurrently compressed at different pressures. This will reduce compression to Geelong but increase the withdrawal capacity of the SWP at Iona from 102 TJ/day to 132 TJ/day.⁷² It also involves \$1.5 million (2017) to make the Winchelsea compressor bidirectional, delivering an additional 15 TJ/day capacity. This will bring the total SWP withdrawal capacity at Iona to 147 TJ/day.⁷³ Overall, this work increases the capacity of the SWP to match the refill capacity of the Iona UGS facility.

AEMO supports this expansion on the basis that if it does not proceed, the Iona UGS facility is unlikely to be refilled before winter 2019, which in turn may result in gas supply shortfalls in Victoria and be a threat to system security.⁷⁴ AEMO also suggested that, for the purposes of providing greater certainty in ensuring the Iona UGS facility is refilled prior to each winter, APA should consider increasing the westbound capacity of the SWP to approximately 180 TJ/day by utilising BCS unit 10. AEMO observed that it appears APA only makes unit 10 available when units 11 and 12 are unavailable.⁷⁵ Submissions from Lochard Energy and the Consortium of Gas Market Participants also drew attention to increasing the westbound flows of the SWP to respond to increasing demand on the Iona UGS facility due to falling production from the Otway Basin and Gippsland Basin.⁷⁶

In our view, this expansion will enable the Iona UGS facility to be refilled before the 2019 winter season. Sleeman Consulting has also advised that this expansion represents the optimal means for achieving the required capacity increase at the lowest cost.⁷⁷ Taking that advice into account, we are satisfied that the proposed \$3.5 million (\$2017) is prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.⁷⁸ Further, as APA submitted, this expenditure is justified on the grounds that it will maintain and improve the safety and integrity of services.⁷⁹

Our position in this draft decision is that the proposed \$3.5 million for the westbound expansion of the SWP is conforming capex.

⁷¹ APA Access Arrangement Revision Proposal Submission, p. 94.

⁷² APA Access Arrangement Revision Proposal Submission, pp. 93-94.

⁷³ APA Access Arrangement Revision Proposal Submission, p. 94.

⁷⁴ AEMO Submission, pp.2-3.

⁷⁵ AEMO Submission, pp.2-3.

⁷⁶ Lochard Energy, *APA Victorian Transmission System- Access Arrangement 2018-22 Submission*, Consortium of Gas Market Participants, *Submission to the Australian Energy Regulator re APA VTS Access Arrangement 2018-22*.

⁷⁷ Sleeman Consulting Review, p.17.

⁷⁸ NGR, r. 79(1)(a).

⁷⁹ NGR, rr. 79(1)(b), 79(2)(c)(i) and 79(2)(c)(ii).

Western Outer Ring Main (WORM)

APA included \$26.7 million (\$2017) to purchase easements for the WORM project in its January proposal.⁸⁰ Due to the forecast of rapid urban development along the route of the WORM, APA submitted that it is necessary to purchase land for 18.4 km of the remaining 34.5 km of the easement.⁸¹

Submissions on APA's proposal from users of the VTS and the Australian Energy Market Operator (AEMO)—the operator of the VTS—suggested that additional capex would be necessary to address system security concerns. These views were supported by AEMO's Victorian Gas Planning Report and Gas Statement of Opportunities (both released in late March 2017),⁸² and in its system security notices.⁸³ In response, APA provided additional information on the capex required to address the tightening of the supply/demand balance in the VTS forecast by AEMO in March 2017. Specifically, APA proposed to bring forward the planned construction of the Western Outer Ring Main (WORM), and amended its access arrangement proposal to include \$126.7 million (\$2017) to undertake the entire WORM project during the 2018–22 access arrangement period.⁸⁴ Our draft decision considers this updated information together with the other capex items included in APA's January proposal.

Our draft decision to approve APA's forecast of expenditure on the WORM takes into account both the updated information from APA and stakeholder submissions. To inform our assessment, we also sought targeted advice from AEMO and CCP11. We invite further submissions from all stakeholders on this aspect of our draft decision (as well as other issues raised by us) and APA's revised proposal.

APA submitted that the WORM is necessary to increase capacity to and from Port Campbell and that of the SWP to support the refill of the Iona UGS by providing a bypass of the Laverton North power station.⁸⁵ This removes the uncertainty around refilling the Iona UGS facility prior to winter and meeting peak GPG requirements. It will also provide the VTS enough flexibility should any of the market scheduled gas trains at Longford, Port Campbell or Pakenham fail.⁸⁶ Gas would flow interchangeably between east and west and create additional storage/buffer through the capacity to balance linepack across the West, North and East systems, allowing the VTS to be

⁸⁰ APA Access Arrangement Revision Proposal Submission, p. 97.

⁸¹ APA, *Business Case 504 - Western Outer Ring Main (WORM) - Easement*, January 2017, pp. 9–11.

⁸² AEMO, *Victorian Gas Planning Report: Declared Transmission System Planning for Victoria*, March 2017.

AEMO, *Gas Statement of Opportunities: For Eastern and South-Eastern Australia*, March 2017.

⁸³ AEMO, *Notice of a Threat to System Security – Seeking a Market Response*, 10 March 2017 <<https://www.aemo.com.au/-/media/Files/Gas/DWGM/2017/Threat-to-System-Security-Notice---SWP-to-Port-Campbell-constraint.pdf>>, AEMO, *Notice of a Threat to System Security*, 10 March 2017 <<https://www.aemo.com.au/-/media/Files/Gas/DWGM/2017/Threat-to-System-Security-Notice---Warragul.pdf>>

⁸⁴ APA Revised Access Arrangement Submission (WORM).

APA, *Business Case 506 - Western Outer Ring Main (WORM) Project*, 21 April 2017

⁸⁵ APA Revised Access Arrangement Submission (WORM), p. 22.

⁸⁶ AEMO issued a Notice of Threat to System Security, with a risk of curtailment of supply in the north and east of Victoria, as a result of a 6 hour outage at the Longford Gas Plant: APA Revised Access Arrangement Submission (WORM), p.23, APA, APA, *Business Case 506*, p. 1.

better managed and the proposed off-take points and future connection provisions would support the future growth of the VTS as western Melbourne's population expands.⁸⁷ APA also submitted that the WORM would have mitigated the system security event of October 2016.

AEMO supports the WORM.⁸⁸ The WORM will allow AEMO to better manage the increasing variable demand that is forecast during the 2018–22 access arrangement period. It provides additional linepack closer to Melbourne, supports increased gas supply to the Iona UGS and addresses changing Victorian gas demand profiles. Steeply decreasing gas supply from the Otway basin (Port Campbell) is increasing reliance on the Iona UGS.⁸⁹ AEMO also submitted that there is the potential for gas shortfalls and load curtailments in Melbourne if the Iona UGS is not sufficiently refilled over the summer and shoulder period prior to the end of the winter peak period.

Similarly, CCP11 submitted that the key reason APA has proposed the WORM is to refill the Iona UGS before winter and that it is justified on the grounds of maintaining system integrity and APA's capacity to meet demand.⁹⁰ However, they also raised concerns about the extent to which the WORM is directed at augmenting the Iona storage facility and meeting the demands of consumers other than Victorian consumers.⁹¹ These concerns are premised on the view that the forecast decline of Port Campbell and Gippsland gas production is exacerbated by increased demand from NSW shippers through the VNI and South Australia shippers through the SEA Gas pipeline.⁹² We note the concerns raised by CCP11. However, we agree with the reasoning set out in APA's proposal and AEMO's submission as to the benefits of the WORM for better management of the VTS by enabling high pressure gas flow between the east and west systems, and providing linepack storage capacity close to Melbourne to balance peaking residential and GPG demand. We consider the expenditure is justified on this basis and any benefit to non-Victorian consumers does not detract from this justification.

In our final decision on APA's 2013-17 access arrangement proposal we did not approve the WORM, as the proposed security of supply benefits did not justify the cost of the WORM at the time. We considered that the expenditure would not have been incurred by a prudent service provider, and was not consistent with acting efficiently to achieve the lowest sustainable cost of providing services.⁹³ However, we did note that the WORM ...*appears to have merit from a technical perspective and in the future*

⁸⁷ APA Revised Access Arrangement Submission (WORM), p. 23.

⁸⁸ AEMO, *APA VTS Access Arrangement 2018–2022 - WORM supplementary submission*, 16 May 2017, p. 1 (AEMO Supplementary Submission (WORM)).

⁸⁹ In particular, steady industrial demand being replaced by variable residential and commercial demand, as well as highly variable (peaky) GPG demand: AEMO Supplementary Submission (WORM)), p.1.

⁹⁰ Consumer Challenge Panel Sub-Panel CCP 11, *Response to APA proposal to complete the WORM in the 2018-22 access arrangement period*, 23 May 2017, p. 3 (CCP11 WORM Submission).

⁹¹ CCP11 WORM Submission, p. 4.

⁹² CCP11 WORM Submission, p. 5.

⁹³ Australian Energy Regulator, *2013-17 APA GasNet Final Decision - Part 2*, p.41.

*prove to be a prudent response to the augmentation needs of the VTS in the long term.*⁹⁴ APA accepted and adopted our decision on the WORM in its revised access arrangement submission.⁹⁵

Our 2013-17 access arrangement final decision was noted in APA's VTS 2018-22 access arrangement submission. APA proposed to pre-purchase the WORM easement, but noted that ... *Currently, APA VTS does not believe the benefits are yet sufficient to warrant constructing of the Western Outer Ring Main.*⁹⁶

In the past six months, there has been substantial change in the gas market, as discussed above. These changes support APA's decision to bring forward the construction of the WORM into the 2018-22 access arrangement period. Our position in this draft decision is that the WORM is justified on the grounds of maintaining the integrity of services and APA's capacity to meet demand.⁹⁷ The question to then be answered is whether the proposed \$126.7 million would be incurred by a prudent service provider acting efficiently in accordance with good industry practice. Notably, APA's proposal is 30 per cent more than what it proposed in 2012 as part of its 2013–17 access arrangement revision proposal.⁹⁸

Sleeman Consulting, which was previously engaged to assess the WORM project as proposed by APA for the purposes of the 2013–17 access arrangement, has advised that APA's proposed \$126.7 million is reasonable.⁹⁹ Sleeman Consulting also advised that the 30 per cent increase in cost can be explained by changes in the Australian exchange rate, increase in land acquisition costs and that a detailed assessment of conditions along the relevant route has now identified the need for directional boring, waterway crossings and numerous basalt outcrops.¹⁰⁰ All of this points to the proposed \$126.7 million (\$2017) being prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.¹⁰¹

Based on the information before us, our position in this draft decision is that the proposed \$126.7 million (\$2017) is conforming capex. However, this is subject to further stakeholder consultation, recognising that not all stakeholders have had the opportunity to review and provide comment on the business case for the WORM and APA's supplementary submission.

⁹⁴ AER, *APA GasNet Access Arrangement 2013-17 Final Decision*, 2012. p.56.

⁹⁵ APA GasNet, *Revised access arrangement submission*, November 2012, p. 27.

⁹⁶ APA Access Arrangement Revision Proposal Submission, p .96.

⁹⁷ NGR, rr. 79(1), 79(2)(c)(ii) and 79(2)(c)(iv).

⁹⁸ AER, *APA GasNet Access Arrangement 2013-17 Final Decision*, 2012.

⁹⁹ Sleeman Consulting, *Western Outer Ring Main Project Capex Related Considerations*, May 2017, p. 3 (Sleeman Consulting WORM Report).

¹⁰⁰ Sleeman Consulting WORM Report, p. 9. In particular, the A\$/US\$ exchange rate rose over 30 per cent impacting on the cost of overseas sourced material (i.e. the Wollert compressor, steel pipes and fittings). Forecast land easement acquisition costs have increased 60 per cent.

¹⁰¹ NGR, r. 79(1)(a).

6.4.2.2 Replacement and Upgrade Capex

APA has proposed replacement and upgrade capex of \$96.5 million (\$2017). This was subsequently revised to \$84.1 million (\$2017) to address a number of inconsistencies that we identified.¹⁰² This is \$30.2 million (\$2017) more than the 2013–17 access arrangement forecast and \$44.2 million more than what APA incurred during the 2013–17 access arrangement period. Of this, our position in this draft decision is that \$47.1 million (\$2017) is conforming capex.

We have assessed APA's proposal in two parts.

Firstly, over 40 projects in APA's proposal, with a total value of \$21.7 million (\$2017), concern minor asset replacements or refurbishments. Our assessment of these minor projects is that they are prudent, in accordance with good industry practice and justified on the grounds that they will maintain and improve the safety and integrity of services.¹⁰³ Our position in this draft decision is that the proposed \$21.7 million (\$2017) is conforming capex.

Secondly, the balance of APA's proposal constitutes more significant replacement and refurbishment projects, namely:

- pipeline integrity management activities
- safety management high consequence areas
- Brooklyn Compressor Station upgrade
- Wollert and Gooding turbine overhauls
- Decommissioning of the Coogee pipeline.

Our consideration of these projects is set out below.

Pipeline integrity management activities

Pipeline integrity management activities include inline inspections (pigging) and direct assessments to identify faults in a pipeline.¹⁰⁴ Direct assessments are undertaken where an inline inspection cannot be undertaken.

APA has proposed \$22.2 million (\$2017) of forecast capex for these activities. This comprises \$14.2 million to undertake an inline inspection schedule for 950 km of pipelines, \$6.2 million to modify pipelines at James Street, Tyres to Maryvale and Truganina to Plumpton to enable inline inspection, \$1.1 million for repair of the

¹⁰² APA Access Arrangement Revision Proposal Submission, p. 87, APA, *Response to information request AER APA VTS 002*, 23 February 2017, p.2 and the revised capex model.

¹⁰³ NGR, rr. 79(1), 79(2)(c)(i) and 79(2)(c)(ii).

¹⁰⁴ APA Access Arrangement Revision Proposal Submission, p. 75.

Morwell-Dandenong pipeline following pigging and \$0.6 million for the direct assessment of seven sections of pipeline.¹⁰⁵

A threshold question, which follows from a submission of the Consumer Challenge Panel,¹⁰⁶ is whether the expenditure of APA's proposed inline inspection schedule and direct assessments is capex or opex.¹⁰⁷ Relevantly, the proposed schedule and assessments are consistent with APA's Metal Loss Pigging Frequency Policy that sets a maximum of 10 years between inline inspections unless an engineering assessment suggests otherwise.¹⁰⁸ This suggests that pigging is an ongoing maintenance activity, and arguably opex and not capex. Several other observations point to this conclusion, including the CCP11's submission that APA's treatment of pigging as capex for regulatory purposes and opex for tax purposes is contradictory.¹⁰⁹

We accept APA's classification of pigging as capex for the reasons set out in its proposal. However, we recognise there is a degree of uncertainty about whether pigging is properly characterised as capex. Given it appears to be a primarily ongoing maintenance activity, based on the definitions of capex and opex in the NGR,¹¹⁰ Tribunal findings¹¹¹, and the observations of CCP11, there are reasons why pigging might be characterised as opex. Nevertheless, we note that the difference between treating pigging as opex or capex, once it is approved, is not likely to be material, as all expenditure in the building block model is treated symmetrically. Therefore, the overall difference between treating expenditure as capex or opex should be NPV neutral.

As to APA's proposal to modify pipelines to enable inline inspections, Sleeman Consulting has advised that direct assessment techniques should continue instead.¹¹² This is because the decision to undertake such pipeline modifications generally requires a cost benefit analysis, to justify the expenditure over the alternative, i.e. continuing to apply direct assessment techniques.¹¹³ APA did not submit such an analysis. APA justifies the proposed pipeline modification on the grounds that it will maintain and improve the safety and integrity of services, which we accept. However, its proposal does not make any distinction that would justify modifying the pipeline instead of undertaking direct assessment techniques. Regarding the pig trap

¹⁰⁵ APA, *Pipeline Integrity Business Case Number 257, 258 and 259*. APA Access Arrangement Revision Proposal Submission, pp. 98-100.

¹⁰⁶ CCP11 Submission, pp. 25- 26.

¹⁰⁷ NGR, r. 69.

¹⁰⁸ APA, *Pipeline Integrity Business Case Number 257, 258 and 259*, p. 2, APA Access Arrangement Revision Proposal Submission, p. 76.

¹⁰⁹ CCP11 Submission, pp. 25- 26, see also the Victorian Pipeline Regulations (2007) and the Australian Standard (AS2885.3:2012), which also treat pigging is an ongoing maintenance activity, requiring that: 'periodic inspections shall be a carried out to identify actual and potential problems that could affect the integrity of the pipeline'. APA classifies pigging as an operational expense for tax purposes: APA Access Arrangement Revision Proposal Submission, p.213.

¹¹⁰ NGR, r. 69.

¹¹¹ Australian Competition Tribunal, *Application by Jemena Gas Networks (NSW) Ltd (No 3) [2011] ACompT 6*.

¹¹² Sleeman Consulting Review, p.9.

¹¹³ Sleeman Consulting Review, p.9.

installation on Truganina to Plumpton pipeline, APA state the capex is necessary in the absence of the WORM augmentation. This capex needs to be reconsidered in light of APA's revised submission, which brings forward the construction of the WORM to the 2018-22 access arrangement period.

We agree with Sleeman Consulting's assessment that the pipeline modification to support pigging on short sections of pipeline may not be cost-beneficial. We consider that APA has not made the case to justify this expenditure as prudent and efficient.

APA's proposed \$14.2 million (\$2017) for its proposed inline inspection schedule, \$1.1 million for repair of the Morwell-Dandenong pipeline following pigging and \$0.6 million (\$2017) for direct assessments is prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.¹¹⁴ Further, as APA submitted, this expenditure is justified on the grounds that it will maintain and improve the safety and integrity of services.¹¹⁵ However, this is not the case for the proposed \$6.2 million (\$2017) to modify the pipelines at James Street, Tyres to Maryvale and Truganina to Plumpton to enable inline inspection.

Our position in this draft decision is that \$16.0 million (\$2017) for APA's proposed inline inspection schedule and direct assessments is conforming capex.

Safety Management - High Consequence Areas

APA has proposed \$24.2 million (\$2017) to reduce the risk of rupture due to urban encroachment and the expansion of the Melbourne metropolitan boundary in 2012 along three pipelines.¹¹⁶ Namely, 9 km of the Brooklyn-Corio pipeline, 13.8 km of the Wollert-Wodonga pipeline and 16.6 km of the Brooklyn-Lara pipeline. As urban encroachment progresses, these risks arise particularly from excavators used in land development, and can be addressed by reducing pressure or slabbing (a physical barrier above the pipeline). APA's proposal aims to reduce the risk to 'low' or 'as low as reasonably possible' (ALARP) immediately in 2018 and 2019 by undertaking slabbing.

APA recognises that it is responsible for reducing this risk. Developers are not responsible for protecting pipelines when developing land and planning authorities do not account for the proximity of existing pipelines when approving the development of new facilities such as schools.¹¹⁷ AEMO supports APA's proposal to proceed with slabbing and not reducing pressure, which would affect the capacity of the pipelines to meet system demand requirements.¹¹⁸ CCP11 submitted that APA's proposal would be in the long term interests of consumers if it was based on a reasonable risk assessment.¹¹⁹

¹¹⁴ NGR, r. 79(1)(a).

¹¹⁵ NGR, rr. 79(1)(b), 79(2)(c)(i) and 79(2)(c)(ii).

¹¹⁶ APA Access Arrangement Revision Proposal Submission, p. 104.

¹¹⁷ APA, *Response to information request AER APA VTS 007*, 3 April 2017, p.12

¹¹⁸ AEMO Submission, p. 14.

¹¹⁹ CCP11 Submission, pp.23-24.

Sleeman Consulting advised that APA must implement measures to mitigate such risks to comply with its regulatory obligations.¹²⁰ Sleeman Consulting concluded that the most cost effective option for the Brooklyn-Corio and Brooklyn-Lara pipelines is slabbing, but more information is required to determine whether this is also the case for the Wollert-Wodonga pipeline.¹²¹

In its business case, APA referred to the Victoria Planning Authority's precinct structure plans (PSP) to identify the areas where new urban development will encroach on the existing pipeline routes.¹²² The PSP shows a progressive land development and population growth from 2011 to 2037. It is therefore reasonable to conclude that urban encroachment along the path of the three pipelines identified by APA will occur over the next 20 years, if not longer. APA also referred to the AS2885 requirement that the 'Location Class analysis of an existing pipeline shall take full account of current land use and authorised developments along the pipeline route'.¹²³ Finally, APA also submitted that there are lower unit costs or economies of scale to realise by undertaking all slabbing at the same time.¹²⁴

In our view it is neither prudent nor good industry practice to proceed with the full slabbing program in 2018 and 2019. We recognise that some slabbing is necessary in the 2018-22 access arrangement period, particularly along sections of the pipeline where land development is imminent.¹²⁵ However, deferring the slabbing activities along other sections of the three proposed pipelines until a time closer to actual land development is likely to yield significant efficiencies, particularly when the timing of the work can occur in parallel with other development works such as road and other essential infrastructure works. These efficiencies are likely to exceed the benefits of any economies of scale that may be realised by concentrating the slabbing works in 2018 and 2019.

On the information before us, we do not accept that it is prudent or efficient to slab all 9 km of the Brooklyn-Corio pipeline, 13.8 km of the Wollert-Wodonga pipeline and 16.6 km of the Brooklyn-Lara pipeline in 2018 and 2019. However, we are not in position to identify which sections of the three pipelines should or should not be slabbed in the 2018-22 access arrangement period.

Therefore, our position in this draft decision is that the proposed \$24.2 million (\$2017) for slabbing is not conforming capex. However, we invite APA to respond with an alternative slabbing program that is more consistent with the rate of urban development along the three pipelines over the next 20 years.

¹²⁰ Sleeman Consulting Review p. 3.

¹²¹ Sleeman Consulting Review p. 7.

¹²² APA, *Encroachment High Consequence Business Case Number 230*, pp.4-5.

¹²³ APA Response to AER Information Request 007, p.15.

¹²⁴ APA Response to AER Information Request 007, p.16. Assuming a discount rate of 7.5 per cent, deferring one year on \$24.3 million saves of \$1.82 million to consumers.

¹²⁵ NGR, r. 79(1)(a).

Brooklyn Compressor Station Upgrade

APA has proposed \$7.1 million (\$2017) to upgrade several components of the BCS.¹²⁶ This includes upgrades to the safety system, process control system, unit control system, ventilation system, fuel gas system and exhaust stack to maintain the life of the BCS and the units past 2022.¹²⁷

Australian Standard 3814-2015 requires that where an appliance is modified or relocated it must be upgraded to meet the Standard current at the time of modification or relocation.¹²⁸

APA's proposal will extend the life of the BCS and enable it to meet the requirements of AS 3814-2015. For these reasons, it appears prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.¹²⁹ It is also justified on the ground of maintaining the integrity of services.¹³⁰

Our position in this draft decision is that the proposed \$7.1 million (\$2017) to upgrade the BCS is conforming capex.

Wollert Compressor Station Turbine Overhauls

APA proposed \$4.8 million (\$2017) to overhaul units 4 and 5 at the Wollert compressor station and the turbines of unit 3 at the Gooding compressor station.¹³¹ APA submitted this is a routine maintenance activity to avoid turbine failure. The manufacturer recommends the engines be overhauled every 32,000 hours which equates to every 8 to 10 years on current patterns of usage.¹³² These overhauls, as characterised by APA, are a routine maintenance activity.¹³³ Accordingly, on the basis of APA's information, they are opex and not capex.¹³⁴

Our position in this draft decision is that the proposed \$4.8 million to overhaul the turbines at the Wollert and Gooding compressor stations is not conforming capex.

If APA were to propose the turbine overhauls as opex, they would not necessarily qualify for a step change under our opex assessment framework. We consider base opex, trended forward by the forecast rate of change, is sufficient for APA to continue to meet its existing regulatory obligations. APA have many assets requiring maintenance and there can be lumpiness in scheduling of maintenance on individual assets. However, APA should be able to coordinate the scheduling of maintenance activities across their total asset base, such that total opex is broadly consistent from

¹²⁶ APA Access Arrangement Revision Proposal Submission, p.107.

¹²⁷ APA Access Arrangement Revision Proposal Submission, p.104.

¹²⁸ APA Access Arrangement Revision Proposal Submission, p.104.

¹²⁹ NGR, r. 79(1)(a).

¹³⁰ NGR, rr. 79(1)(b) and 79(2)(c)(ii).

¹³¹ APA Access Arrangement Revision Proposal Submission, p.109.

¹³² APA Access Arrangement Revision Proposal Submission, pp.107-108, Table 5-24.

¹³³ APA Access Arrangement Revision Proposal Submission, p. 107.

¹³⁴ NGR, r. 69.

year-to-year. We consider these overhaul costs are a 'business-as-usual' expense that APA can prioritise within its existing base opex forecast. Therefore, an opex forecast based on revealed costs will provide sufficient total opex for APA to undertake prudent recurrent projects in an efficient manner over the access arrangement period.

Coogee decommissioning

APA has proposed \$1.8 million (\$2017) to decommission the Laverton North City Gate and pipeline connection to the closed Laverton methanol plant (Coogee pipeline).¹³⁵ APA initially scheduled the decommissioning of the pipeline in 2018 and subsequently revised it to 2021.¹³⁶

There is much uncertainty about whether the Laverton methanol plant may restart production. APA has noted that although the methanol plant has is not currently operating, ... *the Metering Services Variation Agreement between the client and APA is being negotiated ... with ... a likely outcome is to maintain the pipeline for a maximum period of five years (2021) which will allow the owners of the plant to find a long term solution.*¹³⁷ Given this, scheduling the decommissioning of the Coogee pipeline in the 2018-2022 access arrangement appears premature.

We are not satisfied that the scheduled decommissioning of the pipeline, before a decision of the future of the methanol plant is known, is prudent or accords with good industry practice.¹³⁸

Based on this consideration, our position in this draft decision is that the proposed \$1.8 million to decommission the Laverton North City Gate and Coogee pipeline is not conforming capex.

6.4.2.3 Non-system Capex

Non-system capex relates to replacing or refurbishing non-system assets such as business and technology, buildings and physical security.

APA has proposed non-system capex of \$16.9 million (\$2017). This is \$5.7 million less than what APA actually incurred in the 2013–17 access arrangement period. The main categories of non-system capex— business and technology, buildings and security — are discussed below.¹³⁹ Our position in this draft decision is that the \$16.9 million (\$2017) is conforming capex for the following reasons.

¹³⁵ APA Access Arrangement Revision Proposal Submission, p. 110.

¹³⁶ APA Response to AER Information Request 007, p.11

¹³⁷ APA, *Coogee Decommissioning Business Case Number 268*, p. 1,

¹³⁸ NGR, r. 79(1)(a).

¹³⁹ APA noted that the projects make up 80 per cent of the total non-system capital expenditure forecast.

Business and Technology projects

APA has proposed \$7.3 million (\$2017) for IT capex.¹⁴⁰ This includes applications renewal, eForm digitisation, infrastructure renewal, business intelligence - transmission dashboard and enterprise pilot and PPM refresh.¹⁴¹ Notably, the applications renewal project is estimated to cost \$4 million and is a national project, part of which was approved for the Amadeus Gas Pipeline.¹⁴² The estimated cost of the infrastructure upgrade project is \$482,000.¹⁴³ Both APA's infrastructure and telephony infrastructure will be due for replacement during the 2018-22 access arrangement period.¹⁴⁴

APA uses an industry standard project methodology to develop its project plans that derives resource costs estimates from historical figures.¹⁴⁵ On this basis, we are satisfied that APA's estimate of business and technology capex costs have been arrived at on a reasonable basis.¹⁴⁶ APA's proposal appears to be prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.¹⁴⁷ It is also justified on the grounds of maintaining and improving the integrity of services.¹⁴⁸

Our position in this draft decision is that the proposed \$7.3 million (\$2017) for IT capex is conforming capex.

Storage Shed- Dandenong, Wollert & Springhurst

APA has proposed \$1.9 million (\$2017) to construct additional storage facilities at Dandenong, Springhurst and Wollert.¹⁴⁹ APA's proposal will address the lack of appropriate storage and reduce the risk of damage or theft of its equipment. In our view, APA's proposal is prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.¹⁵⁰ It is also justified on the grounds of maintaining and improving the safety and integrity of services.¹⁵¹

Our position in this draft decision is that the proposed \$1.9 million (\$2017) to construct additional storage facilities is conforming capex.

¹⁴⁰ APA Access Arrangement Revision Proposal Submission, p. 115.

¹⁴¹ APA, APA Access Arrangement Revision Proposal Submission, p.114- 115.

¹⁴² APA, *Application Renewal Business Case IT VTS01*, May 2016, APA, APA Access Arrangement Revision Proposal Submission pp. 113-114, AER, *Draft Decision Amadeus Gas Pipeline Access Arrangement 2016-2021*, Attachment 6 – Capital Expenditure, November, pp. 6–32.

¹⁴³ APA, *Infrastructure Renewal Business Case IT VTS02*, May 2016. p. 4.

¹⁴⁴ APA, *Infrastructure Renewal Business Case IT VTS02*, May 2016, pp. 4- 5.

¹⁴⁵ APA, *Application Renewal Business Case IT VTS01*, May 2016, APA, *Infrastructure Renewal Business Case IT VTS02*, May 2016.

¹⁴⁶ NGR, r. 74(2).

¹⁴⁷ NGR, r. 79(1)(a).

¹⁴⁸ NGR, rr. 79(1)(b) and 79(2)(c)(ii).

¹⁴⁹ APA, *Access Arrangement Revision Proposal Submission*, January 2017, pp. 115-116.

¹⁵⁰ NGR, r. 79(1)(a).

¹⁵¹ NGR, rr. 79(1)(b), 79(2)(c)(i) and 79(2)(c)(ii).

Security-Physical

APA has proposed \$1.7 million (\$2017) to upgrade security in accordance with the *Emergency Management Act 2013* (Vic). APA's proposal will address a number of safety issues and appears to be prudent, in accordance with good industry practice and achieves the lowest sustainable cost of providing services.¹⁵² It is also justified on the grounds of maintaining and improving the safety and integrity of services.¹⁵³

Our position in this draft decision is that the proposed \$1.7 million (\$2017) to upgrade security in accordance with the *Emergency Management Act 2013* (Vic) is conforming capex.

6.5 Revisions

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

Revision 6.1:	Make all necessary amendments to reflect our draft decision on conforming capex for 2013–17, as set out in Table 6.1.
Revision 6.2:	Make all necessary amendments to reflect our draft decision on conforming capex for 2018–22, as set out in Table 6.2.

¹⁵² NGR, r. 79(1)(a).

¹⁵³ NGR, rr. 79(1)(b), 79(2)(c)(i) and 79(2)(c)(ii).