Final Decision

APA Victorian Transmission System (VTS)

Access Arrangement 2023 to 2027

(1 January 2023 to 31 December 2027)

Attachment 5
Capital Expenditure

December 2022

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's final decision on the access arrangement that will apply to APA's Victorian Transmission System (VTS) for the 2023–27 access arrangement period. It should be read with all other parts of the final decision.

As a number of issues were settled at the draft decision stage or required only minor updates, we have not prepared all attachments. The final decision attachments have been numbered consistently with the equivalent attachments to our draft decision. In these circumstances, our draft decision reasons form part of this final decision.

The final decision includes the following attachments:

Overview

Attachment 2 – Capital base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

Attachment 7 – Corporate income tax

Attachment 8 – Operating expenditure incentive mechanism

Attachment 10 – Reference tariff variation mechanism

Attachment 12 – Demand

Contents

5 Capital expenditure 5

5.1 Final decision 5

5.2 APA's revised proposal 9

5.3 Assessment approach 11

5.4 Reasons for the final decision 13

5.5 South West Pipeline expansion projects – advanced determination under Rule 80 50

A Shortened forms 52

5 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.

This attachment outlines our assessment of APA's proposed conforming capex for the Victorian Transmission System (VTS) for 2017 and 2018–21 of the current access arrangement period (2018–22 period), which forms part of its opening capital base.[2] It also outlines our assessment of forecast capex for the 2023–27 access arrangement period (2023–27 period), which forms part of its projected capital base.[3]

5.1 Final decision

We approve $233.7 million ($2022) of total net capex for the 2017–2021 regulatory years.[4]

We approve $233.2 million ($2022) of total net capex for the 2023–27 period as conforming capex under the National Gas Rules (NGR).[5] Our decision is 16.6 percent lower than APA's revised proposal forecast of $279.6 million.[6] A summary of the reasons for our decision is at section 5.1.2, while a detailed assessment of the capex drivers is at section 5.4.2.

5.1.1 Conforming capex for 2017 and the 2018–22 period

Our final decision indicates whether we approve APA's revised access arrangement proposal, based on the information that we have available at the time.[7]

We approve $167.6 million ($2022) of total net capex for APA for the 2018–21 period as conforming capex under rule 79(1) of the NGR.

We also approve APA's actual capex of $66.1 million ($2022) in 2017 as conforming capex for the purpose of establishing the opening capital base for the 2018–22 period.[8]

Table 5.1 sets out our approved capital expenditure by category over the 2017–21 period.

1 NGR, r. 69.
2 NGR, r. 77.
3 NGR, r. 78(b).
4 NGR, r. 79.
5 NGR, r. 71 or r. 79.
6 APA VTS, *APA VTS – APA VTS 2023–27 AA Revised Proposal – Capex model, 10 August 2022.*
7 NGR, r. 59(2).
8 NGR, r. 77(2).

Table 5.1 AER approved capital expenditure by category over the 2017–22 period ($2022, millions)

Category	2017	2018	2019	2020	2021	2022[(a)]	Total (2018-22)
Expansion	50.1	12.6	16.7	10.5	24.3	130.7	194.8
Replacement	8.2	4.3	13.1	13.1	26.0	24.9	81.4
Non-System	7.8	7.6	13.2	8.5	7.2	5.7	42.2
Network Overheads	-	1.7	3.2	1.6	4.7	10.8	21.9
Gross Total Capital Expenditure	66.1	26.2	46.1	33.6	62.2	172.2	340.3
Contributions	-	-	-	-	-	-	-
Asset Disposals	-	0.5	-	0.0	-	-	0.5
Net Total Capital Expenditure	66.1	25.8	46.1	33.6	62.2	172.2	339.8

Source: AER analysis
Note: (a) We have not assessed the 2022 amount as approved capex under this decision. This is because these values are estimates. We undertake an assessment of whether the 2022 is conforming capex as part of our next access arrangement decision.
(b) Numbers may not add up to total due to rounding. Amounts of '0.0' and '–0.0' represent small amount and '–' represents zero.

We reviewed APA's overview of its revised proposal and supporting material to assess its proposed capex for the 2023–27 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 2017–21 period was conforming capex and, in turn, whether that capex should be included in the opening capital base.[9] Generally, we use the same approach to assess whether both historical and forecast or estimated capex conforms with the new capex criteria. We have set out this approach in more detail in section 5.3 below. We consider the following when determining the opening capital base for the 2023–27 period:

- 2017 capex — given that the 2017 year was a forecast at the time we made our 2018–22 final decision, we have assessed whether this is conforming capex.[10] We have included conforming capex in the opening capital base for the 2018–22 period.[11]
- 2018 to 2021 capex — since we have actual capex for these years, we have assessed whether this is conforming capex.[12] We have included conforming capex in the opening capital base for the 2023–27 period. [13]
- 2022 capex — since we do not yet have actual capex for 2022, we must include an estimate in the opening capital base. We have not assessed APA's estimate of capex for 2022. We will assess whether APA's actual capex for 2022 is conforming capex under the NGR in the subsequent (2028–32) access arrangement period and adjust for any differences between actual and estimated capex.[14]

9 NGR, r. 77(2)(b).
10 Ibid.
11 Ibid.
12 Ibid.
13 Ibid.
14 NGR, rr. 77(2)(b), 79.

5.1.2 Conforming capex for the 2023–27 period

We approve $233.2 million ($2022) of APA's proposed $279.6 million ($2022) total net capex for the VTS for the 2023–27 access arrangement period as conforming capex under the NGR.[15] This is 16.6 percent less than APA's proposed capex.

Table 5.2 shows approved capex for the 2023–27 period by category.

Table 5.2 AER approved capital expenditure by category over the 2023–27 period ($2022, millions)

Category	2023	2024	2025	2026	2027	Total (2023-27)
Expansion	103.7	0.9	-	-	-	104.7
Replacement	17.7	34.6	17.3	15.5	15.7	100.8
Non-System	-	-	-	-	-	-
Other	-	-	-	-	-	-
Network Overheads	8.4	2.5	1.2	1.1	1.1	14.2
Shared Corporate Assets	4.4	3.6	2.0	1.0	2.5	13.6
Gross Total Capital Expenditure	134.3	41.7	20.5	17.5	19.2	233.2
Contributions	-	-	-	-	-	-
Asset disposals	-	-	-	-	-	-
Net Total Capital Expenditure	134.3	41.7	20.5	17.5	19.2	233.2

Source: AER analysis
Note: Numbers may not add up to total due to rounding. Amounts of '0.0' and '–0.0' represent small amount and '–' represents zero.

Table 5.3 below shows APA's proposed capex compared with our alternative capex estimate for each category. In coming to our final decision, we assessed APA's forecast capex compared with our alternative capex estimate, taking into account the available evidence and submissions from stakeholders.

Our assessment revealed that much of APA's proposal is conforming capex and we included this expenditure in our alternative estimate. That is, the proposed expenditure is justified and would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services.

In contrast, we found that other aspects of APA's proposal is not conforming capex and we have not included this expenditure in our alternative estimate.

[15] NGR, r. 79.

Table 5.3 AER's final decision and APA's revised proposal for capex over the 2023–27 access arrangement period ($2022, millions)

Category	APA's Revised Proposal	AER's Final Decision	Difference	Percentage Difference
Expansion	106.6	104.7	-1.9	-1.8%
Replacement	102.3	100.8	-1.6	-1.5%
Non-System	-	-	-	
Other	34.3	-	-34.3	-100.0%
Network Overheads	17.5	14.2	-3.3	-18.9%
Shared Corporate Assets	18.9	13.6	-5.3	-28.1%
Gross Total Capital Expenditure	279.6	233.2	-46.4	-16.6%
Contributions	-	-	-	
Asset disposals	-	-	-	
Net Total Capital Expenditure	279.6	233.2	-46.4	-16.6%

Source: AER analysis.
Note: Numbers may not add up to total due to rounding. Amounts of '0.0' and '–0.0' represent small amount and '–' represents zero.

As shown in Table 5.3, the main differences between APA's proposed capex and our alternative capex estimate for the 2023–27 period concern the following capex drivers:

- Other — Our final decision is to include $0 million of other capex in our alternative capex estimate. This is 100 percent lower than APA's forecast capex of $34.3 million ($2022). APA did not demonstrate that its Hydrogen Safety and Integrity and Security of Critical Infrastructure (SoCI) projects are prudent at this time. We note it is open for APA to return to the AER for further consideration of this issue if circumstances change. We also rejected APA's proposed capex for Access Arrangement Costs on the basis that this is business as usual expenditure which we consider should be funded from the existing base opex. We have set out in section 5.4.2.3 the information we require to be able to assess these projects.
- Non-network/Shared corporate assets — APA makes an allocation of APA Group assets to the VTS. APA records this as 'non-network' and 'other'[16] capex. For transparency and consistency of reporting across access arrangements, we are reporting this allocation as shared corporate assets. Our final decision is to include $13.6 million ($2022, excluding overheads) of capex for shared corporate assets in our alternative capex estimate. This is 28.1 percent less than APA's forecast, reflecting that we have not included some of APA's proposed information and operational technology expenditure. This is because APA did not provide sufficient information to demonstrated that this expenditure was prudent and efficient (see 5.4.2.3).
- Replacement — Our final decision is to include $100.8 million ($2022, excluding overheads) of replacement capex in our alternative capex estimate (see 5.4.2.2). This is 1.5 percent less than APA's forecast capex of $102.3 million. We have not approved APA's revised proposal of decommissioning studies for Wollert Compressor Station A

[16] APA includes SoCI cyber and program as 'other' capex. These are APA Group allocations to the VTS.

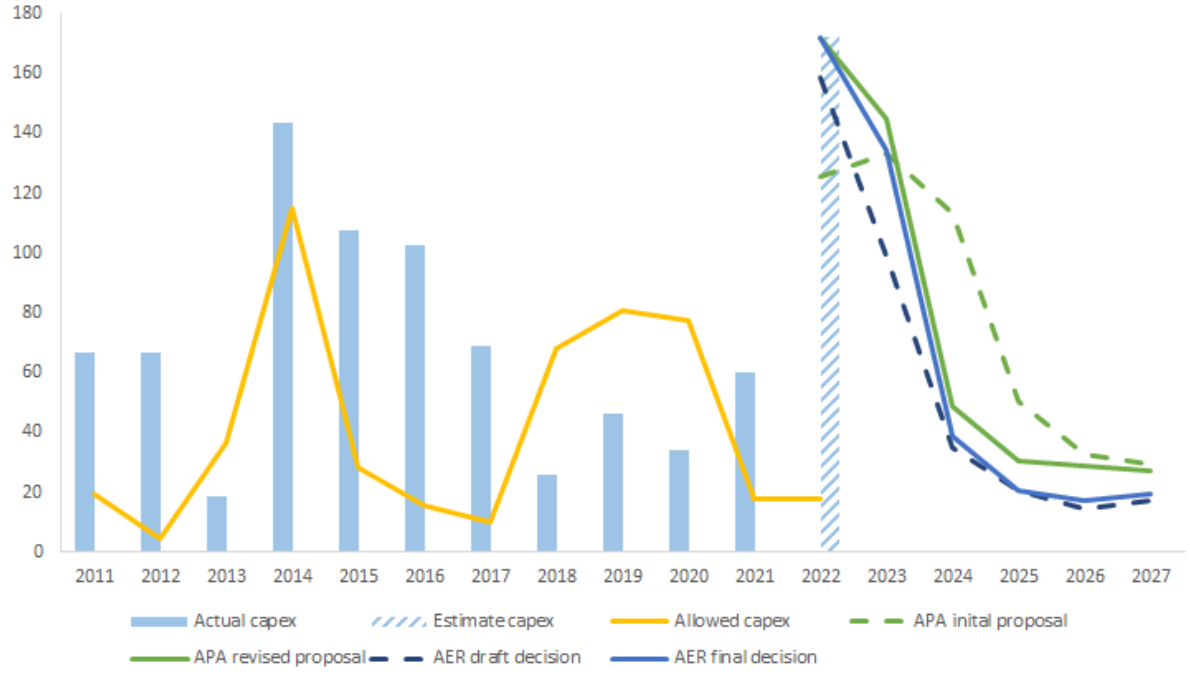
and some compressor units at the Brooklyn Compressor Station. We consider that these studies should be completed as part of business as usual network planning and should not be funded via a separate, additional, capex project.

- Network overheads — APA applies an overhead rate of 6.91 percent to all capex business cases. As we have a lower alternative forecast for expansion and replacement capex, a lower amount of network overheads is calculated (see 5.4.2.4).

5.2 APA's revised proposal

5.2.1 Capex over the 2017 and 2018–22 period

Figure 5.1 APA's capex trends – net capital expenditure ($2022, millions)



Source: AER analysis

In its revised proposal APA proposed total conforming net capex of $339.8 million ($2022) for the VTS for the 2018–22 period, where capex in 2022 is an estimate (see Table 5.4).[17] This is equal to the AER's approved forecast for the 2018–22 period.[18] Without the estimate of capex for 2022, APA has proposed $167.6 million ($2022) as conforming capex (or $233.7 million ($2022) including the 2017 year). We accept $233.7 million ($2022) as conforming capex for the 2017 to 2021 years. We will assess whether capex incurred in 2022 is conforming at the next (2028–32) access arrangement review.

17 APA, *APA VTS – APA VTS 2023–27 AA Revised Proposal - RFM - August 2022 – Public.xlsx*.

18 AER, *AER Final Decision – APA VTS 2023–27 Capex Model - December 2022 – Public.xlsx*.

Table 5.4 APA's proposed capex by category over the 2017–22 access arrangement period ($2022, millions)

Category	2017	2018	2019	2020	2021	2022[a]	Total 2018-2022
Expansion	50.1	12.6	16.7	10.5	24.3	130.7	194.8
Replacement	8.2	4.3	13.2	13.2	26.1	24.7	81.6
Non-System	7.8	7.3	12.6	8.2	6.6	5.6	40.2
Other capital expenditure	–	–	–	–	–	–	–
Network overheads [b]	–	2.0	3.6	1.8	5.1	11.1	23.7
Corporate overheads	–	–	–	–	–	–	–
Gross total	66.1	26.2	46.1	33.6	62.2	172.2	340.3
Contributions	–	–	–	–	–	–	–
Asset Disposals	–	0.5	–	0.0	0.0	–	0.5
Net total	66.1	25.8	46.1	33.6	62.2	172.2	339.8

Source: AER analysis; VTS – VTS 2023–27 – Reset RIN – Workbook 2 – Historical expenditure – Dec 2021–Public.xlm; 2017 capex driver category expenditure is from VTS (APA GasNet) 2013–19 – Historical Annual Reporting – RIN Response – Consolidated – 30 April 2021 – PUBLIC.xlsx; APA VTS – APA VTS 2023–27 AA Revised Proposal – RFM – August 2022 – Public.xlsx; APA VTS – APA VTS 2023-27 Capex model AA Revised Proposal - August 2022 – Public.xlsx.

Note: (a) 2022 is contains estimates, not actuals.
(b) APA did not report network overheads separately. For purposes of comparison, the AER has removed them from the other capex categories and presented them separately.
(c) Numbers may not add up to total due to rounding. Amounts of '0.0' and '–0.0' represent small amount and '–' represents zero.

5.2.2 Capex over the 2023–27 access arrangement period

In its revised proposal, for the 2023–27 period, APA forecast a total net capex of $279.6 million ($2022) (see Table 5.5), which is $93.3 million ($2022) higher than our draft decision and $72.4 million ($2022) lower than its initial proposal.[19] It is 17.7 per cent below APA's actual capex for the 2018–22 period.[20]

Figure 5.1 in section 5.2.1 above shows actual and estimated capex for the 2013–17 and 2018–22 access arrangement periods compared to the forecast.

19 APA, APA VTS - APA VTS 2023-27 AA Revised Proposal - PTRM - August 2022 – Public.xlsx.

20 APA's capex for 2022 is an estimate only.

Table 5.5 APA's proposed capex by category over the 2023–27 access arrangement period ($2022, millions)

Asset Category	2023	2024	2025	2026	2027	Total
Expansion	105.6	0.9	–	–	–	106.6
Replacement	17.6	32.2	19.2	17.9	15.3	102.3
Non-System	–	–	–	–	–	–
Other	6.4	6.5	6.5	7.5	7.4	34.3
Network overheads	9.2	3.0	1.9	1.8	1.6	17.5
Shared corporate assets	6.1	5.9	2.7	1.4	2.7	18.9
Gross Total	145.0	48.6	30.3	28.6	27.1	279.6
Contributions	–	–	–	–	–	–
Asset disposals	–	–	–	–	–	–
Net Total	145.0	48.6	30.3	28.6	27.1	279.6

Source: AER analysis; APA VTS - APA VTS 2023-27 Capex model AA Revised Proposal - August 2022 - Public.xlsx.
Note: Numbers may not add up to total due to rounding. Amounts of '0.0' and '–0.0' represent small amount and '–' represents zero.

The major components of APA's forecast gross total capex over the 2023–27 period are expansion (38.1 per cent), replacement (36.6 percent) and other (12.3 percent).

5.3 Assessment approach

We must make two decisions regarding APA's capex for the VTS.

First, we are required to assess past capex and determine whether it is conforming capex that we should add to the opening capital base.[21]

Second, we are required to assess APA's forecast of required capex for the VTS for the 2023–27 period to determine whether, if incurred in accordance with the proposal, it is conforming capex. Capex will be 'conforming' if it meets the NGR's new capex criteria.[22]

The following sections set out our approach and the tools and techniques we employ in forming a view on these two issues. 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 2018–22 period and the need to forecast the opening capital base for the 2023–27 period. We explain this in the next section.

5.3.1 Capex in the 2018–22 period

We reviewed APA's submission and supporting material to assess its proposed capex for the VTS for the 2018–22 period. This included information on APA's reasoning and, where relevant, business cases, responses to information requests and other relevant information.

21 NGR, r. 77(2)(b).

22 NGR, r. 79.

We used this information to identify whether capex over the 2018–22 period was conforming capex and, in turn, whether that capex should be included in the opening capital base.[23]

Generally, we use the same approach to assess whether both historical and forecast or estimated capex conforms with the new capex criteria. We have set out this approach in more detail in section 5.3.2 below.

For the purpose of our final decision, we have focused our resources on specific areas where there are significant increases in proposed expenditure compared with the initial proposal. Significant increases in expenditure for the South West Pipeline / Winchelsea compressor and Western Outer Ring Main were forecast by APA. Our consultants, Zincara reviewed these increases, providing an opinion on the prudency and efficiency of these expenditures.

5.3.2 Capex in the 2023–27 period

We have assessed the key drivers of forecast capex to consider whether APA's proposed capex for the VTS complies with the new capex criteria.[24] In doing so, we relied on the following information:

- the revised access arrangement submission and access arrangement information, which outline APA's capex program and the main drivers of those programs
- revised business cases that detail the expenditure requirements for specific projects
- APA's Regulatory Information Notice (RIN) responses
- APA's capex forecast model
- responses to information requests
- engineering advice we commissioned from Zincara to help us assess the prudency and efficiency of selected projects
- submissions from interested parties.

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.[25]

Our assessment results in an alternative estimate of the business's total capex requirements in the forecast period. If we are satisfied the business's total forecast meets the NGR requirements, we accept the forecast. If we are not satisfied, we substitute the business's forecast with our alternative estimate. In making this decision, we take into account the reasons for the difference between our alternative estimate and the business's forecast, and the materiality of that difference. We also take into consideration the interrelationships between the capex forecast and other constituent components of our decision such that our decision is likely to contribute to the achievement of the National Gas Objective.[26]

23 NGR, r. 77(2)(b).

24 NGR, r. 79(1).

25 NGR, r. 74(2).

26 NGL, s. 28(1).

5.3.3 Interrelationships

In assessing APA's total forecast capex for the VTS, we took into account other components of its access arrangement proposal, including:

- possible trade-offs between capex and operating expenditure (opex)
- any differences between capitalisation policies applied in the 2018–22 and 2023–27 periods.

5.4 Reasons for the final decision

5.4.1 Conforming capex for 2017 and for the 2018–22 period

Conforming capex for 2017

APA proposed net capex of $66.1 million ($2022) for the 2017 year.[27] We accept $66.1 million ($2022) as conforming capex for 2017.

Conforming capex for the 2018–22 access arrangement period

APA has proposed net capex of $339.8 million for the 2018–22 period ($2022), where capex in 2022 is an estimate.

Without the estimate of capex for 2022, APA has proposed $167.6 million ($2022) as conforming capex.

We accept $339.8 million ($2022) as conforming capex for 2018–22, subject to our assessment of whether the capex incurred in 2022 is conforming in APA's next access arrangement (2028–32). As such, APA's proposed 2022 expenditure is considered to be a place holder.

5.4.2 Conforming capex for the 2023–27 period

As noted earlier, we have accepted net capex of $233.2 million ($2022) as conforming for the 2023–27 period, $46.4 million (16.6 percent) lower than APA's revised proposal.

Set out below are the reasons underpinning our alternative capex forecast. Our discussion of particular projects is under the capex driver category (expansion, replacement, non-system, other) for which APA proposed the capex.

5.4.2.1 Expansion

Expansion capex is investment that is required to expand the capacity of the pipeline to meet forecast demand both within and beyond the access arrangement period.

Expansion capex is directed at increasing the capacity of the existing network to meet the demand of existing and future customers. It may also be required to maintain gas pressure and minimise the risk of outages, thereby maintaining the security and integrity of the network.

[27] APA, APA VTS - APA VTS 2023-27 AA Revised Proposal - RFM - August 2022 – Public.xlsx, August 2022, tab 'RFM input'.

In its initial proposal APA forecast $140.0 million ($2022, excluding overheads) of expansion capex in the 2023–27 period. This expenditure consisted of two projects: the South West Pipeline (SWP) and the Western Outer Ring Main (WORM). APA also proposed the application of a fixed principle which set out that the redundancy provisions would not apply to the proposed SWP and WORM capex.

For our draft decision we proposed a placeholder, alternative capex forecast of $71.8 million ($2022, excluding overheads) comprised of the following:

- $22.8 million ($2022, excluding overheads) for the SWP, reflecting our assessment that only one compressor is prudent at this time given the Australian Energy Market Operator's (AEMO) 2022 Gas Statement of Opportunities (GSOO) demand forecasts. We indicated that this was a placeholder amount due to insufficient information to be able to assess the efficiency of the SWP expenditure.[28] In particular, there were significant increases in the project management capex (up 65 percent on APA's initial proposal) and the land and approvals costs.
- $49.0 million ($2022, excluding overheads) for the WORM project, on the basis that it will provide benefits including increased gas supply and faster gas flow between the east and west systems, increased line pack storage capacity close to Melbourne to balance peaking residential and GPG demand, and reduced operating costs.

We did not approve APA's proposed fixed principle as it represented a departure from the AER's current practice of pooling assets with similar economic lives for depreciating assets, rather than depreciating on a project by project basis.[29]

In its revised proposal APA proposed $106.6 million ($2022, excluding overheads) for expansion capex, a 23.9 percent decrease from its initial proposal. APA did not provide the information we requested in our draft decision in relation to the cost efficiency of the SWP.

In our final decision we have included an alternative capex forecast of $104.7 million ($2022, excluding overheads) comprised of the following:

- $27.9 million ($2022, excluding overheads) for the SWP, where we accepted APA's proposed capex
- $76.8 million ($2022, excluding overheads) for the WORM project, reflecting a total project cost of $216.8 million ($2022, excluding overheads), with $140.0 million ($2022, excluding overheads) included in the 2018–22 period. This is a 14.3 percent increase in the forecast total project cost from $184.8 million ($2022, excluding overheads) in APA's initial proposal. The amount we have approved reflects the total amount in the business case, which is $1.9 million less than was included in APA's capex model.

South West Pipeline

APA initially proposed capex of $90.9 million ($2022, excluding overheads) for the installation of two compressors on the SWP – one at Stonehaven in 2024 and another at

[28] Zincara, Capital Expenditure Review: Western Outer Ring Main, South West Pipeline, Addendum, 8 June 2022, p.7.

[29] AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure*, June 2022, pp. 16–17.

Pirron in 2025. The objective of this capex was to avert shortfalls forecast by AEMO in the 2021 GSOO and to increase the capacity of the SWP from 468 terajoules per day (TJ/day)[30] to 570 TJ/day. This expansion would match the output of the Iona storage facility. APA submitted that the capex was justified in order to maintain the integrity of services and to maintain the capacity to meet existing levels of demand for services.

In making our assessment of APA's initial proposal we considered stakeholder views, including AEMO's, and the opinion of our consultant, Zincara.

After discussions with our stakeholders we considered that a staged approach would best balance the trade-offs between the forecast uncertainty (in the magnitude and location of the forecast supply shortfalls), the augmentation cost (carrying out a lesser cost augmentation to meet the likely short-term location of the supply constraint), and the avoidance of redundant investment (preserving flexibility to locate future augmentation where it is required based on future demand and supply developments).

AEMO suggested that a less expensive, faster short-term solution compared to the Stonehaven/Pirron projects proposed by APA, would be to commission a second compressor at Winchelsea. A second compressor:

- Would increase the SWP to a capacity of approximately 520 TJ
- Is cost effective because it is a brownfield site with existing supporting infrastructure
- Provides about two years to consider demand and supply developments.

Our consultant, Zincara, considered that a single compressor would provide an adequate increase in capacity on the SWP. They advised that a compressor located at either Winchelsea or Stonehaven would provide similar capacity increases. They recommended that an allowance of $45 million would be efficient for the commissioning of the compressor.[31]

Given this advice, we formed the view that the prudent amount of expenditure to be invested in expanding the SWP capacity, given the forecast uncertainties, was $45 million ($2022, excluding overheads), with the location and timing to be decided by APA.

On 29 March 2022, AEMO released its 2022 GSOO, providing updated forecasts for gas demand and supply over the 2022–26 period.

In response to the GSOO forecasts, APA held discussions with the AER, AEMO and the Victorian Government (Department of Environment, Land, Water and Planning). APA advised that it could secure a second compressor for Winchelsea in order to address the forecast 2023 shortfalls. It provided the AER with an updated business case on 17 May 2022, proposing the installation of the second compressor for Winchelsea.

APA proposed capex of $60.0 million ($37.2 million to be incurred in 2022 and $22.8 million in 2023) for commissioning a second Taurus 60 compressor at Winchelsea in series

30 This is post completion of the WORM.

31 Zincara, Capital Expenditure Review: Western Outer Ring Main, South West Pipeline, 8 June 2022, p.31.

configuration before winter 2023. The compressor provides for an additional 41 TJ/day, which APA submitted will mitigate the shortfall from winter 2023 to winter 2025[32].

On 25 May 2022 APA announced that it had reached final investment decision for stage 2 of the east coast gas grid expansion. This provides for an increase in the MSP pipeline capacity by 90 TJ/day. This provision for greater supply from the north of the VTS (via Culcairn) together with Dandenong LNG mitigate the risk of 1-in-20 forecast shortfalls in 2024 through to 2026.[33]

In our draft decision, we considered that it was prudent to approve a second compressor to enable AEMO to manage the security risks associated with supply constraints on the VTS, in particular given the 1-in-20 forecast shortfall for Winter 2023[34] and other complicating factors.[35]

In assessing the efficiency of APA's proposed capex, Zincara provided advice that the design, procurement, construction, commissioning and handover cost estimates were efficient but recommended that we should seek further information from APA regarding the cost estimates for project management and land and approvals.[36]

After considering Zincara's advice, we made a placeholder forecast of $24.4 million ($2022, excluding overheads) for the commissioning of the second Winchelsea compressor by winter 2023. In our draft decision, we stated that we expected APA to provide information in its revised proposal on:[37]

- the 65 percent increase in project management capex in the revised proposal ($3.3 million) compared with APA's initial proposal.[38]
- the increase in land and approvals cost in the revised proposal.

APA's revised proposal

APA proposed $60.1 million ($2022) for the second Taurus 60 (5.6 MW) compressor at Winchelsea, with $37.2 million forecast to be incurred in 2022 and $22.8 million in 2023.[39] APA stated that this will increase Iona's injection capacity to 517 TJ/d, providing an additional

32 APA based its proposal on the supply and demand forecasts set out in AEMO's 'progressive' scenario.

33 Factoring in the Dandenong LNG capacity but not factoring in the 90 TJ provided by stage 2 of the ECG expansion, for the 1-in20 peak day forecasts, in 2024 shortfalls are forecast for two days (7 and 21 TJ), none in 2025, and three in 2026 (16, 58 and 100 TJ). Therefore the addition of stage 2 of the ECG expansion mitigates shortfalls for all but one day in 2026.

34 AEMO, *Victorian Gas Planning Report Update*, 29 March 2022, p.3

35 AEMO, GSOO, 29 March 2022, p.62.

36 Zincara, Capital Expenditure Review: Western Outer Ring Main, South West Pipeline, 8 June 2022, p.31.

37 Zincara, Capital Expenditure Review: Western Outer Ring Main, South West Pipeline, Addendum, 8 June 2022, p.7.

38 The initial business case estimated $4.96 million covering two compressor stations sites and works at Brooklyn city gate and upgrades at Winchelsea.

39 APA, *APA Victorian Transmission System 2023-27 access arrangement. Revised proposal*, August 10, 2022, p.54. In its capex model APA proposed $64.2 million including overheads (6.91%) - $34.4 million in 2022 and $29.8 million in 2023. APA, APA VTS - APA VTS 2023-27 Capex model AA Revised Proposal - August 2022 - Public REV.xlsx, 16 August 2022.

41 TJ/d (from post WORM 476 TJ/d) of gas supply capacity to the VTS during the winter peak period.[40]

APA accepted our draft decision to not allow APA's proposed fixed principle in response to stakeholder feedback, where APA reported that there was no stakeholder support for the fixed principle.[41]

APA proposed to retain a pre-approved capex pass through mechanism to allow for further expansion, if required, to proceed under a Rule 80 application.[42] We have not approved this pre-approved capex pass through. Our decision in relation to this is discussed in Attachment 10 to this final decision.

Submissions

In its submission on APA's revised proposal, AGL stated that it supports the duplication of the Winchelsea compressor as a timely and lower cost solution.[43]

Red Energy and Lumo Energy submitted that they support the AER's decision to reject APA's proposal to include a fixed principle in the Access Arrangement that would mean the redundancy provisions in the National Gas Rules do not apply to the SWP or the WORM. It considered that the SWP and the WORM would be assets that could provide value in both the short term and the longer term.[44]

Our assessment

APA did not provide the information that we requested in the draft decision. In response to our further request for this information APA provided a revised cost breakdown, which it stated reflected refined expenditure for project activities (sub-categories) with better information.[45]

This breakdown showed a reduction in cost in the two categories that we queried, which were offset by increased costs in the procurement, construction, and commissioning categories (see Table 5.6).

4040 APA, *APA Victorian Transmission System 2023-27 access arrangement. Revised proposal*, August 10, 2022, p.54.

4141 APA, *APA Victorian Transmission System 2023-27 access arrangement. Revised proposal*, August 10, 2022, p.53.

4242 APA, *APA Victorian Transmission System 2023-27 access arrangement. Revised proposal*, August 10, 2022, p.56.

43 AGL, Draft Decision: APA Victorian Transmission System (VTS) Access Arrangement 2023-27 (1 January 2023 to 31 December 2027), 6 September 2022, p.1.

44 Red Energy, Draft decision for APA Victorian Transmission System access arrangement 2023–27, 14 September 2022, p.2.

45 APA, Response to AER Information Request #024, received 2 September 2022, p.2.

Table 5.6 Revised South West Pipeline direct cost build-up ($2022, millions)

Cost Category	Pre-draft decision costs			Post-draft decision costs			
	2022	2023	Total	2022	2023	Total	Variance
Project Management	4.28	3.93	8.21	1.34	1.90	3.25	-4.96
Land & Approvals	2.45	0.53	2.98	0.13	0.03	0.16	-2.82
Design	4.39	1.23	5.62	2.85	1.73	4.59	-1.03
Procurement	17.12	2.56	19.69	19.76	2.79	22.56	2.87
Construction	8.57	13.91	22.48	7.85	20.16	28.01	5.53
Commissioning	0.39	0.64	1.03	0.19	1.25	1.44	0.41
Total costs, excluding o/heads	**37.20**	**22.81**	**60.01**	**32.13**	**27.87**	**60.00**	**-0.01**

Source: APA VTS, *Business Case AA6 - SWP Expansion Winchelsea 2nd unit – Final*, Table 7.1, p.14; APA VTS, Information Request 24, 2 September 2022, pp. 2–3.
Note: Numbers may not add up to total due to rounding.

Zincara reviewed APA's costs and stated that it considered the revised costs for project management, land & approvals to be efficient. This was on the basis that the project management costs now accounted for 5 per cent of the total project costs, and that the revised land & approvals cost was more reflective of the fact that APA owns the site.[46]

Given the increase in costs, we sought additional information (for example contractual evidence) to support the increased level of expenditure for the procurement, construction and commissioning cost categories.

Zincara noted that the procurement costs had increased by 15 percent to $22.3 million ($2022) and compared this to the same category costs presented by APA in its initial proposal: Stonehaven was $17.3 million, Pirron was $18.3 million, and in the initial business case, Winchelsea was $19.7 million. Zincara reviewed APA's list of purchase orders and description of its uncommitted costs. It formed the view that these costs were developed using the best information available and it therefore considered the costs to be efficient in the circumstances.[47]

APA submitted that the increase in the construction costs by 25 percent to $28.0 million is attributable to post-covid supply labour and material shortages, and higher rates and manning due to the compressed project timeline.[48] Zincara reviewed APA's list of purchase orders and description of its uncommitted costs. It formed the view that while the cost increase of 25 percent is significant, the impact of market volatility and tight timeframe for

46 Zincara, *Capital Expenditure Review: Western Outer Ring Main and South West Pipeline*, November 2022, p.11.
47 Zincara, *Capital Expenditure Review: Western Outer Ring Main and South West Pipeline*, November 2022, p.11.
48 APA, Response to AER Information Request #024, received 2 September 2022, p.3.

construction activities can be expected to drive costs higher. It assessed that the costs were reasonable in the circumstances.[49]

Zincara concluded that at two percent of the total project cost, it considered the commissioning cost to be efficient.[50]

Taking Zincara's advice into consideration, we assess that APA's proposed costs are efficient and have included $27.9 million ($2022, excluding overheads) in the alternative capex forecast for 2023, and $32.1 million ($2022, excluding overheads) in the current period capex for 2022.

Western Outer Ring Main

In its initial proposal APA included $49.0 million ($2022, excluding overheads) for the WORM in the 2023–27 period. This, together with $135.8 million ($2022, excluding overheads) for the current period[51], yielded a revised total cost of $184.8 million ($2022).[52] This was higher than the $139.7 million ($2022, including overheads)[53] estimated in APA's 2018–22 Access Arrangement. APA submitted that the cost increases were attributable to changes to the route selection, increased horizontal directional drilling and rock disposal requirements, the requirement to carry out an environmental study and additional EES conditions, Department of Transport requirements, land access and approval costs, and higher materials costs (including higher steel prices).[54]

APA sought to apply a fixed principle that the capital redundancy provisions shall not be applied to the WORM expenditure for the current and forecast periods. It justified this on the basis that it foresees a reduction in natural gas demand due to decarbonisation initiatives (e.g. electrification) and the introduction of hydrogen into the Victorian distribution networks. APA stated that accordingly it is concerned that the augmentation of the WORM may become a redundant asset.

In our draft decision we considered that the capex proposed for completing the WORM project was prudent and efficient and included APA's proposed amount of $49.0 million ($2022, excluding overheads) for the WORM in our capex forecast for 2023–27.

This was based on advice provided by Zincara that the WORM would increase system security in managing changing gas demand patterns and flow paths, provide significant fuel gas and compressor operating savings, increase security of supply in the event of an outage, provide operational benefits, reduce reliance on the aged and congested Brooklyn Compressor station site, and provide future growth and optionality.[55] AEMO submitted that the benefits of the WORM that it identified in its submission to the AER in 2017 still exist

49 Zincara, *Capital Expenditure Review: Western Outer Ring Main and South West Pipeline*, November 2022, p.11.

50 Zincara, *Capital Expenditure Review: Western Outer Ring Main and South West Pipeline*, November 2022, p.11.

51 The majority of the expenditure was in 2021 ($31.0 million) and 2022 ($97.3 million).

52 APA, APA VTS - Business Case WORM project 2022 Update – PUBLIC.pdf, 18 March 2022, p.20.

53 $126.7 million ($2017) was approved in the 2018-22 Access Arrangement.

54 APA, *A look at plans for Victorian Transmission System*, December 1, 2021, p. 33.

55 Zincara, *Capital Expenditure Review: Western Outer Ring Main and South West Pipeline – Public*, 8 June 2022, pp.33-34.

currently, and have become more critical.[56] AEMO advised the AER that although alternative solutions exist to the WORM, more than one solution would be required and it would be more expensive than the current proposal.

Zincara assessed the WORM's cost increases and APA's reasons for the increases. It formed the view that APA's procurement processes, particularly relating to competitive tender processes, would ensure that costs are as efficient as can be expected in the circumstances.[57]

We did not approve APA's proposed application of a fixed principle as we consider that the WORM will not be a short lived asset. This was on the basis that the WORM completes the "backbone" from the South West Pipeline / Brooklyn-Lara Pipeline to Wollert and provides additional capacity and an alternative way for gas to be moved into Melbourne. We considered that the WORM therefore has a central role in providing system security and integrity for the VTS.

APA's revised proposal

In its revised proposal APA included $60.5 million ($2022, excluding overheads) for the 2023–27 period, with the total project cost revised up to $216.8 million ($2022, excluding overheads).[58] This is a $32.0 million increase in total costs over APA's initial proposal and a change in the expenditure profile (see Table 5.7).

Table 5.7 APA's proposed initial and revised WORM expenditure ($2022, excluding overheads, millions)

	2018	2019	2020	2021	2022	2023	2024	Total
Initial proposal	0.9	7.0	8.9	28.0	91.0	46.3	2.8	184.8
Revised proposal	0.8	6.7	8.7	22.3	117.8	59.5	1.0	216.8
RIN expenditure	0.98	7.29	9.28					
Variance	-0.1	-0.3	-0.2	-5.7	26.8	13.2	-1.8	32.0

Source: APA, APA VTS - Business Case WORM project 2022 Update – PUBLIC.pdf, 18 March 2022, p.20; APA, APA VTS - 2023-27 AA revised proposal - Updated costs of WORM - August 2022 – Public.pdf, 24 August 2022, p.4.

APA submitted that the capex in the initial proposal was 'based on the best available information at the time with the caveat that APA was preparing to go to market for pipeline and facilities construction'.[59] APA stated that in undertaking the procurement process for construction and other services it is finding that the tight labour market and global supply chain backlogs is leading to increased prices. In particular, it attributes the increase in cost to

56 AEMO, *Submission on APA VTS Gas Access Arrangement Proposal 2023-2027*, 18 February 2022, p.8.

57 Zincara, *Capital Expenditure Review: Western Outer Ring Main and South West Pipeline – Public*, 8 June 2022, p.37.

58 APA, *APA VTS - 2023-27 AA revised proposal - Updated costs of WORM - August 2022 – Public*.pdf, 24 August 2022, p.4.

59 APA, *VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public*, 10 August 2022, p.60.

increases in construction costs for trenching, mitigating rock risk for a 21 km area, welding costs, street works, facilities construction, construction supervision, Department of Transport requirements and diesel costs.[60]

APA stated that it accepts the AER's decision to not allow APA to apply a fixed principle for the WORM project due to concerns raised by stakeholders.[61]

Submissions

In its submission on APA's revised proposal, AGL stated that it fully supports the completion of the WORM in a timely and cost effective manner, noting that the project is significantly delayed. AGL submitted that its completion will assist in maintaining reliability and security of supply and that it is critical that it is in place by for winter 2023.[62]

Our assessment

We compared APA's initial and revised capex by cost category (see Table 5.8). This showed that the cost increases were in construction (26 percent) and land & approvals, and the reporting of a new category, 'Other'.

Table 5.8 APA's proposed WORM capex by cost category ($2022, excluding overheads, millions)

Cost category	Initial proposal January 2022	Revised proposal August 2022	Variance
Project management	8.2	6.9	-1.3
Design	10.3	9.8	-0.5
Commissioning	3.5	3.3	-0.2
Sub-total	**22.0**	**20.0**	**-2.0**
Land & approvals/Other[(a)(b)]	48.1	57.5	9.4
Procurement	35.1	34.5	-0.6
Construction	83.2	104.8	21.6
Total	**188.4**	**216.8**	**28.4**

Source: APA, Response to AER Information Request#029, received 13 October 2022, p.20; APA, APA VTS Response to AER Information Request #006, received 18 February 2022: VTS - Attach - IR006 - WORM Financial Summary Jan 2022 - CONFIDENTIAL.xls; APA, APA VTS - 2023-27 AA revised proposal - Updated costs of WORM - August 2022 – Public.pdf, 24 August 2022, pp.3-4.

Note: (a) APA did not provide the 'Other' category in the cost build-up provided in AER Information Request #006. (b) 'Land & approvals' and 'Other' category of costs are aggregated due to APA's confidentiality claims.

APA submitted that the increase in construction costs was due to pipeline construction cost increases (including trenching costs in rock, multiple tie-ins, extra lengths of horizontal

60 APA, *VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public*, 10 August 2022, p.61.

61 APA, *VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public*, 10 August 2022, p.61.

62 AGL, Draft Decision: APA Victorian Transmission System (VTS) Access Arrangement 2023-27 (1 January 2023 to 31 December 2027), 6 September 2022, p.1.

directional drilling due to geological and topographical constraints, street works in urban developments, extra Department of Transport depth & backfill requirements), increased facilities construction and increased construction supervision.[63]

It stated that the increase in land & approvals costs were caused by additional labour, consultant and legal costs in undertaking the Environmental Effects Study, the legal costs associated with compulsory land acquisition, higher Net Gain Offsets, preparation of the Cultural Heritage Management Plan and Salvage, and higher land access costs.[64]

In response to our request for additional information to support the increased level of expenditure for the construction and land & approvals cost categories, APA provided a list of purchase orders. APA stated that these were contractual evidence of costs.[65] Zincara reviewed these costs. Zincara observed that there have been reports of market volatility both within Australia and overseas which are causing significant impact on availability and cost of labour. Zincara stated that 'while the cost increase of 26% is significant, market volatility is such that such increases are being regularly reported'. Zincara considered that APA's competitive tendering processes could be expected to ensure the most effective cost outcomes for the works, and so considered that the costs are prudent and efficient in the circumstances.[66]

Taking into account the view of Zincara, we have included an alternative forecast of $76.8 million ($2022, excluding overheads) in our capex forecast for 2023–27 (and $140.0 million ($2022, excluding overheads) in the 2018–22 period, with a total project amount of $216.8 million ($2022, excluding overheads)).

APA included a different expenditure profile in its business case than in its capex model. The expenditure profile over the 2018–21 period in the business case was lower than the actuals reported in the Regulatory Information Notices submitted by APA. The 2022 expenditure was significantly lower and the 2023 expenditure was significantly higher in the capex model compared to the business case. The overall expenditure in the capex model was higher than the business case by $1.9 million. We scaled the 2023 and 2024 expenditure, on the basis that it is yet to be incurred, so that the total project expenditure equalled $216.8 million ($2022, excluding overheads).[67]

5.4.2.2 Replacement

Replacement capex is required to maintain the safety and integrity of the pipeline. This category includes the refurbishment and replacement of:

- instrumentation, including metering, telemetry and remote terminal units
- pipeline hardware, including pipes, meters, valves, regulators and fittings

63 APA, APA VTS - 2023-27 AA revised proposal - Updated costs of WORM - August 2022 – Public.pdf, 24 August 2022, p.3.

64 APA, APA VTS - 2023-27 AA revised proposal - Updated costs of WORM - August 2022 – Public.pdf, 24 August 2022, p.4.

65 APA, Response to AER Information Request#029, received 13 October 2022, p.8.

66 Zincara, *Capital Expenditure Review: Western Outer Ring Main and South West Pipeline*, November 2022, p.7.

67 See AER, AER Final Decision - APA VTS 2023-27 Capex Model - December 2022 – Confidential.xlsx, tab 'WORM calcs'.

- site capital improvements, such as fencing and security
- specialised major spares.

In its initial proposal APA proposed replacement capex of $122.9 million ($2022, excluding overheads) for the 2023–27 period. This was an increase of $41.4 million (50.7 percent) from APA's actual and estimated replacement capex for the 2018–22 period.

For our draft decision, we assessed APA's replacement projects by considering the requirement for the proposed works, the scope and timing of the proposed works, and whether the input cost of each project represents the efficient, lowest sustainable cost.

We also investigated the relative increase in the estimated 2021 and 2022 forecast capex compared with the 2018–2020 period. We asked APA to provide information which would demonstrate their committed expenditure and capability to deliver the step up in capex over these two years.

We included $100.8 million ($2022, excluding overheads) in our alternative forecast for replacement capex for the 2023–27 period. Of the 31 projects proposed by APA, we approved 18, provided replacement forecasts for three and did not approve capex for 10 of these projects (see Table 5.9).

APA's revised proposal

In its revised proposal APA proposed $102.3 million ($2022, excluding overheads) in replacement capex for 2023–27.

APA stated that it met with AEMO to discuss its submission to the AER and in response revised the scope of some of its projects.[68]

Of the 13 projects we did not accept in our draft decision, APA accepted the AER draft decision in relation to nine projects, reproposed two projects with submission of further supporting evidence, and modified the proposal associated with two projects. APA also added a new project for Pipeline Fracture Resistance Assessment (see Table 5.9).[69]

[68] APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public, p.37.

[69] APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public, p.39.

Table 5.9 Replacement capex ($2022, excluding overheads, millions) – APA's initial and revised proposals compared with AER draft and final decisions

Business case number	Project name	APA initial proposal	AER draft decision	APA revised proposal	AER final decision
BC203	WCS A Process Safety	1.3	0	0.75	0
BC204	Brooklyn CS upgrade	10.3	0	0.75	0
BC211	Iona CS Aftercooler Upgrade	3.2	0	Accepted AER DD	
BC212	Battery Charger Upgrades	1.0	0	1.0	1.0
BC216	Wollert CG & T74/T119 PRS Instrument Air	1.6	0	Accepted AER DD	
BC224	Dandenong City Gate Gas Quality	1.4	0	Accepted AER DD	
BC239	Emergency Response Equipment	7.6	6.1	Accepted AER DD	
BC242	BCS Unregulated Bypass Upgrade	0.3	0	Accepted AER DD	
BC260	Liquids Management	0.6	0.3	Accepted AER DD	
BC267	BCS Unit 12 Inlet Filter Upgrade	0.6	0	Accepted AER DD	
BC275	VTS Mainline Isolation Valve Upgrade	3.7	2.6	Accepted AER DD	
BC307	Reliability Centred Maintenance	2.3	0	Accepted AER DD	
BC328	VTS Waterbath Integrity	2.0	0	2.0	2.0
BC331	Pipeline Fracture Resistance Assessment			1.4	1.4

Our assessment

For our final decision we have included $100.8 million ($2022, excluding overheads) in our alternative capex forecast. We consider this amount is sufficient for APA to maintain the safety, reliability and integrity of the VTS, and is prudent and efficient.[70]

We accepted the two reproposed projects and the new Pipeline Fracture Resistance Assessment project. We did not approve the two modified projects. The reasons for our final decision are set out for each of these programs below.

Wollert Compressor Station A (WCS A) Process Safety (Business Case 203)

In its initial proposal APA proposed capex to be undertaken on the Wollert Compressor Station A, including conversion of unit isolation valves from fail-last to fail-safe configuration,

[70] NGR, rr. 79(1) and 79(2)(c).

retrofitting of check valves to prevent reverse flow and compressor reversal related failures, and conversion from instrument gas to instrument air.[71]

For our draft decision we did not consider that this expenditure would be incurred by a prudent service provider and made a replacement forecast of $0. This was on the basis of AEMO's view that when the WORM project is complete, the Wollert A compressors will effectively be redundant, and it expects minimal future investment to be needed, and indicated that future decommissioning planning should be undertaken.[72]

In its revised proposal APA proposed expenditure to undertake a post-WORM system utilisation study, assess and scope the impacts of the study, and execute the scope.[73]

In its submission on the revised proposal AEMO stated that it supports the development of an end-of-life plan for the Wollert A compressor station, including potential decommissioning within the 2023–2027 access arrangement period. AEMO indicated that this would allow AEMO and APA to fully understand the longer-term Wollert operational modes and to confirm that the forecast of post-WORM system operation eventuates.[74]

We sought further information from APA on why it is necessary to decommission these assets rather than leave them in situ and why the utilisation study and the assessment and scoping of impacts were being proposed as project capex instead of business as usual opex.[75]

We consider that these are normal planning and asset management functions that are carried out in the normal course of business. For this reason, we assess that these costs should already be included in the base opex allowance and should not be included as additional capex.

Furthermore, APA did not provide sufficient evidence that the appropriate future action for this compressor is to decommission it. Understanding the future requirements for this compressor and the most appropriate future action is within the scope of the system review which is yet to commence.

There is also significant timing and scope uncertainty regarding any decommissioning works. We consider that it is likely that this expenditure could be deferred until the subsequent access arrangement period.

We assess that the proposed capex is not prudent and efficient. On this basis, we have made an alternative forecast of $0 for this project.

Brooklyn CS upgrade (Business Case 204)

In its initial proposal APA proposed the replacement of specific components of Units 8, 9, 10 and 11 of the Brooklyn Compression Station (BCS). This is to maintain the capability of the

71 APA, VTS - BC203 AA23-27 WCS A Process Safety - December 2021 – Public.pdf. p.1.

72 AEMO, Submission on APA VTS GAAR 2023-27 Proposal, 18 February 2022, pp.2-3.

73 APA, VTS - BC203 AA23-27 WCS A Decommissioning - August 2022 – Public, p.6.

74 AEMO, AEMO - APA VTS Gas Access Arrangement Revised Proposal 2023-2027 - September 2022, 6 September 2022, p.2.

75 AER, Information Request #20, Q.1-4, sent 19 August 2022.

BCS to compress gas coming out of the Melbourne system for transmission to western Victoria and the Iona storage facility. APA submitted that if there is a failure of the compression facilities (either in part or in full) it will reduce the ability to fill the Iona storage facility and thus may impact the ability to meet winter loads in Melbourne.[76]

In our draft decision we rejected the proposed expenditure and made a replacement forecast of $0. We assessed that at this stage it appears there is no need for any upgrade of BCS. This was also the view of AEMO. We considered that a prudent service provider would not carry out this project.[77]

In its revised proposal APA stated that it had met with AEMO, and based on this discussion, proposed capex for the development of an end-of-life plan and decommissioning of units 8, 9 and 10. APA submitted that it would defer upgrades for Unit 11 to the 2028–32 access arrangement period.[78]

In its submission on APA's revised proposal, AEMO stated that it supports the development of an end-of-life plan for the Brooklyn 8, 9 and 10 compressor units, including potential decommissioning within the 2023–2027 period. It submitted that developing an end-of-life plan once the WORM Project is complete is prudent to ensure forecast operations are consistent with the future operational reality.[79]

We sought further information from APA on why it is necessary to decommission these assets, rather than leave them in situ, and the expected timing of decommissioning.[80]

We consider that these are normal planning and asset management functions that are carried out in the normal course of business. For this reason, we assess that these costs should already be included in the base opex allowance and should not be included as additional capex.

Furthermore, APA did not provide sufficient evidence that the appropriate future actions for these compressors is to decommission them. Understanding the future requirements of these compressors and the most appropriate future actions is within the scope of the system review which is yet to commence.

There is also significant timing and scope uncertainty regarding any decommissioning works. We consider that it is likely that the decommissioning expenditure could be deferred until the subsequent access arrangement period.

We assess that the proposed capex is not prudent and efficient. On this basis, we have made an alternative forecast of $0 for this project.

76 APA, VTS - BC204 AA23-27 BCS 8,9,10,11 Upgrade - December 2021 – Public.pdf, p.1.

77 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure*, June 2022, pp. 30–32.

78 APA, VTS - BC204 AA23-27 BCS 8,9 & 10 Decommissioning & 11 Upgrade - August 2022 – Public.pdf, p.8.

79 AEMO, AEMO - APA VTS Gas Access Arrangement Revised Proposal 2023-2027 - September 2022, 6 September 2022, p.3.

80 AER, Information Request #20, Q.5-7, sent 19 August 2022.

Battery Charger Upgrades (Business Case 212)

In its initial proposal APA included capex for the replacement of the older, poor integrity battery chargers with the latest design that has inbuilt redundancy at Euroa CS, Springhurst CS, Winchelsea CS, Wandong PRS and Newport.[81]

However, APA did not provide any information on the need for the identified battery chargers to be changed. The age of the battery chargers and the current condition were not provided. We sought this information from APA, who responded that the age of the battery chargers and latest condition inspection report is not readily available. It submitted that historically, battery chargers were not replaced until failure, and this has caused several fail-to-supply issues which is why APA has been conducting a battery charger program. APA outlined that the problem with charger failure is that even if there are no AC power outages, the site is powered by batteries that are fed by the chargers. This means communication and controls are lost until the charger is replaced. [82]

In our draft decision, we considered that without data on the current condition of the battery chargers and equipment we cannot assess the prudency and efficiency of this project. We therefore made an alternative capex forecast of $0.[83]

In its revised proposal APA provided information on the type of battery charger and the date of installation at each of the stations scheduled for upgrades.[84]

On the basis of the further information provided by APA on the battery chargers to be replaced, including the age information we requested, we now assess that it is prudent and efficient to undertake this capex. We have therefore included the $1.0 million ($2022, excluding overheads) proposed by APA in our alternative forecast.

VTS Waterbath Integrity (Business Case 328)

In its initial proposal, APA included $2.0 million ($2022, excluding overheads) in its capex forecast for periodic inspection of waterbath heaters. This was previously classified as opex but was being proposed as capex.[85]

In our draft decision we considered that the inspection of waterbaths using a Risk Based Inspection schedule is prudent. On the basis that APA use an external contractor to do most of the work and that APA's cost estimates were based on the average cost for previous work, we assessed that the costs were efficient. However, we considered that this project should not be capex as it is a maintenance activity and should instead remain as opex. We noted that this expenditure is captured in the base opex and that if it were to remain in capex then

81 APA, VTS - BC212 AA23-27 Battery Chargers - December 2021 – Public.pdf, p.3.

82 APA, VTS - Response to AER IR015 - Followup capex - 2202 03 17 – CONFIDENTIAL.pdf, 17 March 2022, p.11.

83 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure*, June 2022, p. 32.

84 APA, VTS - BC212 AA23-27 Battery Chargers - August 2022 – Public.pdf, p.5.

85 APA, VTS - BC328 AA23-27 Waterbath Heater Integrity - December 2021 – Public.pdf, p.1.

there should be a commensurate reduction in the base opex. We therefore assessed that this project is not conforming capex and made a replacement forecast of $0.[86]

In its revised proposal APA provided further information on the scope of the works involved and has classified the activity as broader than inspection, such that it is to be considered as 'refurbishment'. Given this, APA has provided accounting standards and internal accounting policies to demonstrate that this work can appropriately be treated as capex.[87]

We accept this proposed expenditure as capex and accept the proposal is prudent and efficient. However, we have adjusted the base year opex to remove the $245,004 which was spent on Waterbath Heater Integrity. We have included $2.0 million ($2022, excluding overheads) in our alternative forecast of capex.

Pipeline Fracture Resistance Assessment (Business Case 331)

In its revised proposal APA included expenditure for a pipeline fracture resistance assessment. It stated that it is required to meet the latest revision of AS2885.1 Fracture Resistance Assessment. APA contend that the next version of Part 3 of AS2885, which comes into effect in 2023, will require it to carry out Fracture Resistance Assessments retrospectively, where these weren't required under the previous version of AS2885. For those pipelines in High Consequence Areas that do not have original material certification, material samples need to be obtained from these pipelines via Hot Tapping and cut out of abandoned sections. In addition to these, Fracture Testing of stored samples is required to confirm and validate pipeline properties and ensure compliance with the Fracture Control Plans.[88]

We consider that the proposed capex is justified, as complying with AS2885 is a regulatory obligation. We also assess that this is good industry practice and so is prudent. The proposed work is likely to be efficient given it will be tended to experienced external contractors. On the basis that this capex is justified and prudent and efficient we have included $1.4 million ($2022, excluding overheads) in our alternative capex forecast.

5.4.2.3 Other

Hydrogen safety and integrity

In its initial proposal APA included $37.9 million ($2022, excluding overheads) in capex to undertake a technical assessment of the VTS network's ability to withstand exposure to hydrogen blended natural gas. It proposed surveying 39 of the 51 pipelines that make up the VTS (phase I).[89] The proposed assessment included materials testing and facilities screening along the pipelines. The work was proposed to take place evenly over the five-year access arrangement period. The proposed capex did not include any mitigation costs.

86 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure*, June 2022, p. 37.

87 APA, VTS - BC328 AA23-27 Waterbath Heater Integrity - August 2022 – Public.pdf, pp.5-7; APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public.pdf, pp.47-50.

88 APA, VTS - BC331 AA23-27 Pipeline Fracture Resistance Assessment - August 2022 – Public.pdf, pp.1-6.

89 APA stated that the residual interstate import/export pipelines lines are expected to remain as natural gas for the next access arrangement period.

APA justified the program on the basis that it is required to maintain the safety and integrity of the VTS pipelines. APA submitted that there is a risk that hydrogen injected either upstream or downstream by another gas infrastructure owner/operator could leak into the VTS network. It stated that the impact on the integrity of the pipelines if such a leak were to occur is unknown. When hydrogen is absorbed into the steel of pipelines the ductility, toughness and fatigue life of the steel is reduced. APA submitted that this may lead to premature degradation or failure of pipeline or facilities' elements which poses a risk to the safety and integrity of the pipeline.[90]

In our draft decision we did not approve APA's proposed capex and instead made a replacement forecast of $0.[91]

We set out that we considered that the prospect of carrying hydrogen[92] in transmission pipelines poses two possibilities:

- The need to maintain safety of the gas mains if there is hydrogen ingress.
- Converting transmission lines that are dedicated to carrying natural gas to carrying hydrogen.

With respect to the first instance, APA did not provide the information that we need to assess the prudency and efficiency of its proposal in maintaining the safety and integrity of the VTS pipeline. Additionally, APA has not established with sufficient certainty that there is a risk of hydrogen leaks compromising the safety and integrity of the VTS pipelines and facilities in the next access arrangement period, such that they need to carry out the testing work in this period.

In our decision we set out that for a project proposed on safety or integrity grounds, we would expect that the risk posed to the network would be well defined. We stated that our assessment in these instances consists of a review of the risk, the proportionality of the proposed mitigation measures and the proposed timing.

APA did not provide a risk assessment in its initial proposal or outline what alternative risk mitigation strategies could be applied. In response to an information request, APA provided the risk assessment underpinning its proposal.[93] This was a generic, high level assessment, which did not identify the specific risks to the VTS network. We sought evidence of a commitment that a party will be carrying hydrogen to the interface of the VTS network pipelines. APA did not provide this. APA did not identify the likely timing of hydrogen interfacing with the VTS, the amount of hydrogen that could potentially be leaked, the frequency of any leaks, and whether the amount of hydrogen potentially leaked poses a risk of damage such that mitigation would be required.

With respect to the second instance, we stated that we considered that the hydrogen readiness testing is motivated by a change in business model rather than from a maintenance of safety perspective. We indicated that if the business chooses to convert

90 APA, VTS - BC200 AA23-27. Hydrogen safety and integrity - December 2021 – Public.pdf, p.1.

91 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure*, June 2022, pp. 37–40.

92 In whatever concentration that evolves.

93 APA, VTS - Response to AER IR014 - Appendix A VTS H2 Risk Register v2 – CONFIDENTIAL, 1 March 2022.

transmission lines that are dedicated to carrying natural gas to carrying hydrogen, then in order to recover the cost from customers, it would need to demonstrate that the expected benefit should be at least as great as the cost under NGR r.79(2)(a)[94] or r.79(2)(b)[95].

APA had not carried out any economic value assessment.

APA's revised proposal

In its revised proposal APA included $18.9 million ($2022, excluding overheads) in its 2023–27 capex forecast. This reflects APA's decision to undertake the hydrogen study over two access arrangement periods (commencing in 2023) instead of only over the 2023–27 period. It also proposed depreciating the study over the life of pipelines (either 30 years or 55 years, depending on whether the AER accepted APA's proposal for accelerating depreciation) instead of over the five-year regulatory period.[96]

APA provided an updated, though still high level, risk assessment, maps of its proposed hydrogen network, and letters of support for the hydrogen study from AGIG, AGL, APGA, AusNet, Boral, CO2CRC Limited, ENA, Fortescue Future Industries, NERA, Victorian Hydrogen & Ammonia Industries Limited, Wellington Shire Council and another three stakeholders.[97]

Submissions

In its submission on the Revised Proposal AEMO stated that it supports APA's proposed hydrogen study. It stated that:[98]

> *AEMO's 2022 Integrated System Plan (ISP) … indicated that the optimal timing of all scenarios, including the Hydrogen Superpower scenario, is as soon as possible. Postponement of actionability would reduce the net-market benefits associated with the Hydrogen Superpower scenario and increase worst regret costs of up to $200 million.*
>
> *AEMO looks forward to providing input to APA's prioritisation of pipelines to be assessed during the hydrogen safety and integrity study.*

AGL stated that in its submission in response to APA's initial proposal it was reluctant for the significant cost of the hydrogen study to be included in this Access Arrangement period. However, given the reduced impact on customers via spreading the cost over ten years and

94 Under NGR r.79(2)(a) it would need to be shown that the overall economic value of the expenditure is positive.

95 Under NGR r.79(2)(b) it would need to be shown that the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure.

96 APA, *VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public*, 10 August 2022, p.76.

97 APA, *VTS - 2023-27 AA Revised Proposal - Hydrogen Safety Study & Support Letters - August 2022 - Public V4*, August 2022, pp.26, 58-69, 71-73, 74.

98 AEMO, AEMO - APA VTS Gas Access Arrangement Revised Proposal 2023-2027 - September 2022, 6 September 2022, p.2.

depreciate the study over the life of pipelines, it now supports the hydrogen safety and integrity assessment.[99]

The Brotherhood of St Laurence (BSL) stated that it welcomed the AER's draft decision and does not support funding APA's revised proposal for hydrogen. BSL also submitted that the full costs of the blending proposal, and the validity of assumed benefits, have not been adequately assessed or demonstrated.[100]

The Energy Users Association of Australia submitted that it does not support APA's revised proposal for the hydrogen study. It stated that Energy Safe Victoria has not made reference to who should pay for the safety inspection. It submits that the study costs should be paid either by APA or potential hydrogen producers, and that gas consumers should not be required to subsidise the business case development for a new product. It also stated that the Government does not have a specific legislative policy on renewable gas.[101]

Our assessment

In making our assessment of APA's revised proposal for its hydrogen and integrity study, we considered whether the expenditure was justified under the rules and whether it is prudent to undertake the study in the 2023–27 period.

The current Rules do not provide for the carriage of hydrogen, nor do they provide for the inclusion into the regulated asset base (RAB) of expenditure proposed by a network service provider to enable the change from carrying only natural gas in its network to carrying any covered gas (e.g. any amounts of natural gas, hydrogen, or renewable gases).

However, on 8 September 2022 the Australian Energy Market Commission (AEMC) released draft rules for consultation.[102] [103] The draft rules change the reference to 'natural gas' to 'any covered gas', such that the National Gas Rules will include the carriage of hydrogen.

With respect to hydrogen-related capex (under Part 9 of the NGR), the draft rules set out two scenarios:[104]

- A Government mandates a pipeline to transition from transporting natural gas to another covered gas
- A service provider voluntarily transitions a pipeline from carrying natural gas to another covered gas.

99 AGL, Draft Decision: APA Victorian Transmission System (VTS) Access Arrangement 2023-27 (1 January 2023 to 31 December 2027), 6 September 2022, p.2.

100 Brotherhood of St Laurence, 2023-2028 Victorian Gas Transmission System (VTS) Access Arrangement: Submission from BSL to the AER's Draft Determination and APA's Revised Proposal, September 2022, p.11.

101 EUAA, Submission: APA Gas Transmission Access Arrangements, 7 September 2022, p.3.

102 Final initial draft rules will be provided to Energy Ministers by 24 November 2022. It is not currently known when the draft rules will be enacted.

103 AEMC, Review into extending the regulatory frameworks to hydrogen and renewable gases - Final Report, September 2022, p. iii. accessed <https://www.aemc.gov.au/market-reviews-advice/review-extending-regulatory-frameworks-hydrogen-and-renewable-gases>.

104 AEMC, Review into extending the regulatory frameworks to hydrogen and renewable gases - Final Report, September 2022 pp.26-28.

The AEMC was satisfied that for both scenarios, the current Part 9 Rules are fit for purpose and do not require any changes.

The AEMC's interpretation is that where a Government has mandated that a pipeline transitions to hydrogen, it is deemed under the Rules to be a regulatory obligation or requirement (NGL s.6). The current capex Rules to be applied in assessing whether capex is able to be included into the RAB are:

- the capex required to meet the regulatory obligation or requirement is justified under the current NGR provisions (r.79(2)(c)(iii)), and
- the prudent and efficient cost of complying with the obligation or requirement is able to be recovered by the service provider net of any applicable customer contribution.

The AEMC submit that where the service provider elects to transition from carrying natural gas to another covered gas, the AER would need to consider whether the proposed capex:[105]

- satisfies the prudent and efficient test
- is justifiable on the grounds that either the overall economic value of the expenditure is positive, or the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the expenditure.

Importantly, the AEMC states in a footnote to the second point that:[106]

> *Note rule 79(2)(c) also provides for capital expenditure to be justifiable if it is necessary to maintain and improve the safety of services, maintain the integrity of services, comply with a regulatory obligation or requirement, or maintain the service provider's capacity to meet levels of demand for services existing at the time of the capital expenditure. A voluntary transition to another gas is not expected to be justifiable on any of these grounds.*

We are guided by the AEMC's draft rules in assessing APA's proposed hydrogen expenditure. As noted above, in the absence of a government mandate, the draft rules propose a cost-benefit assessment of hydrogen spending, requiring the two limbs of the rules to be satisfied:

- the proposed investment must be prudent and efficient
- it must be justifiable on the grounds that either the overall economic value of the expenditure is positive, or the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the expenditure.

With respect to the capex being justified, there is no government hydrogen mandate, and APA has not undertaken a cost-benefit assessment of the proposed expenditure. Although we raised this as an expectation in our draft decision, APA did not provide any evaluation in

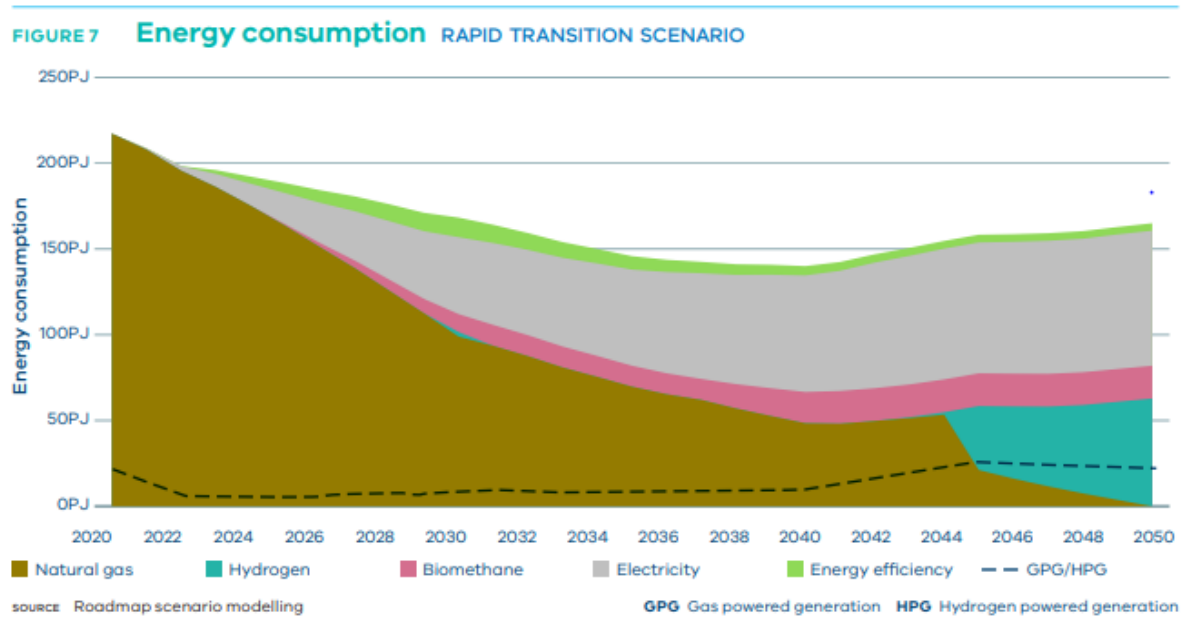
105 AEMC, Review into extending the regulatory frameworks to hydrogen and renewable gases - Final Report, September 2022 p.29.

106 AEMC, Review into extending the regulatory frameworks to hydrogen and renewable gases - Final Report, September 2022 p.29.

its revised proposal. We therefore assess that APA has not justified the capex it has proposed for the hydrogen safety and integrity study.

With respect to the prudency of the proposed timing of the study, we note that the Victorian Gas Substitution Roadmap showed that all three modelling scenarios (Rapid Transition (significant electrification), Electrified Future[107] (assumptions favouring electrification), Zero Carbon Fuels Future[108] (assumptions that are more favourable to zero carbon gases)) produced the outcome that biomethane and hydrogen are important for industrial users, with biomethane being preferred and the supply taken up fully. In the modelled scenarios hydrogen supplies the residual demand, with the switch to hydrogen occurring in the 2040s (Rapid Transition – 2045 (see Figure 5.2), Electrified Future – 2046, Zero Carbon Fuels – 2040).[109]

Figure 5.2 Hydrogen uptake under the Victorian Government' Rapid Transition Scenario



Source: Victorian State Government, *Gas Substitution Roadmap*, July 2022, p.59.

We also observe that APA's proposal to undertake its program over ten years, rather than five, indicates:

- It is not critical that testing is completed in the 2023–27 period
- The testing could be completed, as initially proposed, over a five-year period, but in the 2028–32 regulatory period. We consider that this delay would allow APA to be able to develop a firmer proposition for either an assessment of the risk of hydrogen entering the VTS (if a government mandates hydrogen) or the development of the economic

107 Assumes that electric appliances will have higher efficiency and lower cost than under a Rapid Transition scenario.

108 Assumes very low long-term hydrogen prices.

109 Victorian State Government, Gas Substitution Roadmap, July 2022, pp.58-60.

case (from a VTS consumers' perspective) for the carriage of hydrogen (where APA is electing to transition the network to carrying hydrogen).

For these reasons we conclude that APA's revised proposal does not meet the test for prudent and efficient expenditure at this time. We have made a replacement forecast of $0 in our alternative capex forecast.

While we have not approved this expenditure in this access arrangement review, we note that the National Gas Rules provide pathways for Network Service Providers to make investment decisions outside of access arrangement review periods. Because of these pathways there is scope for APA to seek cost recovery at any point. Under rule 65(1), a Network Service Provider may submit a proposal for variation of the applicable access arrangement (an access arrangement variation proposal) for the AER's approval outside of the period when an access arrangement review is being carried out. This option was presented to APA in the AER's draft decision.[110]

Under rule 80, APA is able to seek an advanced determination from the AER in relation to whether proposed future capex meets the new capex criteria. This option was presented to APA in the AER's draft decision.[111]

It is open to APA to come back to the AER via either of these mechanisms if circumstances change or if APA undertakes a cost-benefit assessment. We will work with APA and other stakeholders as part of any such process.

Security of critical infrastructure

In its revised proposal, APA proposed capex of $19.8 million ($2022) to comply with obligations from the Security of Critical Infrastructure Act 2018 (SoCI Act).[112] As we noted in our draft decision, the original Bill to amend the SoCI Act was split into two parts:[113]

1. Security Legislation Amendment (Critical Infrastructure) Act 2021 (SLACI Act), which came into effect in December 2021, and introduced positive security obligations for relevant assets, enhanced cyber security obligations and government assistance powers. [114]
2. *Security Legislation Amendment (Critical Infrastructure Protection) Act 2022 (SLACIP Act),* which came into effect in April 2022, and amongst other things, establishing a framework of Enhanced Cyber Security Obligations and introduced a requirement for

110 Capex attachment section under the Rule 80 capex entitled 'Application for approval of projects outside of the Access Arrangement Review timeframe', p.56.

111 Capex attachment section under the Rule 80 capex entitled 'Application for approval of projects outside of the Access Arrangement Review timeframe', p.57.

112 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, 10 August 2022, p. 74.

113 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) Attachment 5 – Capital Expenditure,* June 2022, pp. 40–41.

114 Australian Government, *Security Legislation Amendment (Critical Infrastructure) Act 2021,* December 2021.

owners and operators of critical infrastructure assets to establish, maintain, and comply with a risk management program (RMP).[115]

The RMP is a written program on the entities' critical infrastructure assets, and at its base, is intended to uplift core security practices that relate to the management of critical infrastructure assets.[116] The new SoCI rules[117] will specify the matters to be contained in the RMP. However, these rules have not been made yet. The Minister for Home Affairs may choose to make these rules once stakeholders have been consulted.[118] Consequently, there is some uncertainty at this point around the timing of implementation.

The RMP requires responsible entities to identify, and as far as is reasonably practicable, take steps to minimise or eliminate material risks that could have a relevant impact on the critical infrastructure asset.[119] The RMP fact sheet further specifies that there is no expectation that entities pursue risk mitigation measures that are disproportionate relative to the likelihood and consequences of a particular risk.[120] The intent of the RMP is for responsible entities to seek to minimise or eliminate material risk where it is reasonably able to do so, in order to secure their critical infrastructure asset.[121]

In its revised proposal, APA included $19.8 million ($2022)[122] of capex to meet compliance requirements from the SoCI Act. [123] APA anticipates this will increase its capability to mitigate or minimise the potential risk events from occurring, and thus appropriately increase its security and resilience.[124]

We described our assessment of the prudency and efficiency of APA's proposal in our draft decision.[125] Our draft decision accepted $3.1 million ($2022) of APA's initial proposal for the cyber security component, as we considered the proposal was a prudent and efficient response to the new requirements.[126]

115 Australian Government, *Security Legislation Amendment (Critical Infrastructure Protection) Act 2022,* April 2022. Part 6A. and Australian Government Department of Home Affairs – Cyber and Infrastructure Security Centre, *Security Amendment (Critical Infrastructure Protection) Act 2022,* March 2022, p. 1.

116 Australian Government Department of Home Affairs – Cyber and Infrastructure Security Centre, *Risk Management Program,* August 2022, p. 1.

117 Security of Critical Infrastructure (Critical infrastructure risk management program) Rules (LIN 22/018) 2022

118 Consultation on these rules was opened on 5 October 2022 and ended on 18 November 2022.

119 Australian Government Department of Home Affairs – Cyber and Infrastructure Security Centre, *Risk Management Program,* August 2022, p. 1.

120 Australian Government Department of Home Affairs – Cyber and Infrastructure Security Centre, *Risk Management Program,* August 2022, p. 2.

121 Australian Government Department of Home Affairs – Cyber and Infrastructure Security Centre, *Risk Management Program,* August 2022, p. 2.

122 APA VTS, *2023–27 access arrangement revised proposal, capex model – Confidential, August 2022*; Note: APA confirmed its approval in publishing the total SoCI proposed cost on 9 November 2022.

123 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, 10 August 2022, p. 74.

124 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, 10 August 2022, p. 74.

125 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure,* June 2022, p. 42.

126 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure,* June 2022, p. 42.

However, we did not accept $11.9 million ($2022) for physical security and $1.1 million ($2022) for the program component as we did not consider that the proposed projects were prudent.[127] Specifically, we considered that the obligations arising from the amended SoCI Act, or the SLACIP Act, applied to material risk. We further considered that the supporting information and fact sheets reinforce our view that material circumstances are contemplated by the legislation.[128] We highlighted that the Act requires a balance in risk and cost that accord with prudency and economic efficiency principles required by the NGR, and that the intent is not to materially add to the existing standards of risk management, where those standards are appropriate to manage the current level of risk. [129]

APA Revised Proposal

In response to our draft decision, APA submitted a confidential business case and additional information, including site-specific risk assessment, to support its proposed SoCI capex.[130] APA provided this information on a confidential basis, and therefore we have set out our reason for our final decision in Confidential Appendix A.

Our assessment

As per our draft decision, we accept APA's proposed cyber security capex.[131] Our technical advisory group reviewed APA's revised proposal and provided advice to us. On the basis of their advice, we have not accepted APA's residual proposed SoCI capex, as we do not consider it was a prudent and required response the SoCI Act or SLACIP Act. We have included $0 in our alternative forecast for these other SoCI projects.

Information Technology Portfolio

In its initial proposal, APA proposed $10.6 million ($2022) of capex for the VTS share of APA Group's Information Technology (IT) Portfolio project. APA submitted that these are part of the corporate overhead allocation. The VTS allocation consisted of $6.6 million ($2022) for Enterprise Program Management Office (EPMO), $3.8 million for the Operational Technology (OT) projects and $0.3 million ($2022) for the Information Technology projects.

In our draft decision we rejected APA's forecast and made an alternative forecast of $0 for the Information Technology Portfolio. This was because APA did not provide information to substantiate the need for the proposed investment and the benefits of the proposed investment. It did not provide a basis for the cost estimates. We were therefore unable to conclude that the proposed capex was prudent and efficient.

127 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure,* June 2022, pp. 42–44.

128 Australian Government Department of Home Affairs – Cyber and Infrastructure Security Centre, *Risk Management Program Rules,* 26 November 2021, p. 6 and Australian Government Department of Home Affairs – Cyber and Infrastructure Security Centre, *Security of Critical Infrastructure Act 2018 Reforms – Draft Risk Management Program Guidance,* 30 September 2022, p. 12..

129 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure,* June 2022, p. 43.

130 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, 10 August 2022, p. 74. and APA VTS, *Information request 26 – Confidential*, 15 September 2022.

131 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure,* June 2022, p. 42.

APA's revised proposal

APA proposed $10.1 million ($2022, excluding overheads)[132] for information and operational technology in its revised proposal.[133]

This consists of $5.6 million ($2022, excluding overheads) [134] for information technology programs: Field Mobility, GRID Solutions Application, Enterprise Resource Planning Application, Technology Enablement, and Maximo Application Upgrade.[135]

The residual $4.5 million ($2022, excluding overheads) [136] was proposed for operational technology programs: Lifecycle Management ($1.2 million), Lifecycle – SCADA and HMI ($1.2 million), Unlock grid constraints ($0.3 million), OT Services Uplift ($0.4 million), Alarm Excellence ($0.2 million), Facilities Engineering Data Uplift ($0.2 million), OT Lifecycle ($0.2 million), Integrity data ($0.09 million), Versiondog Expansion and Uplift ($0.05 million), VTS AEMO Serial to IP connections uplift ($0.2 million), OT Cyber ($0.3 million), and Remote site connectivity uplift ($0.1 million).[137]

AER's assessment

In assessing the prudency of APA's proposed IT and OT, we reviewed APA's revised IT and OT revised proposal documents, met with APA staff and requested further information from APA.

Information Technology

At an APA Group level five programs are forecast for the 2023–27 access arrangement period for IT. The VTS is allocated 8.21 percent of total APA Group shared corporate assets. Hence, the $5.6 million ($2022, excluding overheads) included in APA's capex forecast for IT is an 8.21 percent allocation of the total APA Group IT project costs, except for the Grid Support Solutions program where 5.5 percent of total costs were allocated to the VTS.[138]

APA submitted that the key drivers for investment in its Information Technology program are the replacement of obsolete legacy systems and routine upgrades and maintenance.[139]

With respect to the field mobility program, APA stated that its front-line field operations workers are overburdened with manual systems, excessive paperwork, and lack of access to information when it is needed. The proposed mobile works manager (Maximo Mobile) is expected to provide field workers with improved access to secure data residing in the core

132 Including overheads (applied at 6.91 percent) APA proposed $10.8 million for total IOT.

133 APA VTS - APA VTS 2023-27 Capex model AA Revised proposal - August 2022 - Confidential V2.xls

134 Including overheads (applied at 6.91 percent) APA proposed $6.0 million for IT.

135 APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public.pdf, p.66.

136 Including overheads (applied at 6.91 percent) APA proposed $4.8 million for OT.

137 APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public.pdf, p.69.

138 APA, VTS - 2023-27 AA Revised Proposal – Information Technology - August 2022 – Public.pdf, p.7.

139 APA, VTS - 2023-27 AA Revised Proposal - Information Technology - August 2022 – Public.pdf, p.10.

asset management platform, thereby facilitating better management and maintenance of APA's assets.[140]

APA submitted that its current APA Grid suite of programs, which were developed 13 years ago, can no longer deliver the requirements of its grid customer management, billing and operations systems. APA has proposed replacing its APA Grid with Energy Components (EC) Grid Solutions.[141]

APA stated that its current Enterprise Resource Planning (ERP) Oracle based platform is aging, lacks process and data maturity, incapable of scaling to APA's needs and presents operational risks. APA states that the proposed Workday's cloud offering (Workday Core, Adaptive Planning, Prism) and implementation of Workday processes for Finance, Procurement and PSC functions (costed for 10 years) will provide efficiency improvements in its Finance, Procurement and People Safety and Culture functions.[142]

With respect to the Technology Enablement Program, APA stated that its core business systems of APA, Grid, Oracle ERP and Maximo are currently supported by its integration and data warehouse solutions which rely on aging 'on premise' technology. APA has proposed transitioning from on premise to a hybrid multi cloud architecture. The TEP is to provide the cloud, network, data and integration capabilities for APA's EPMO Programs.[143]

The Maximo Upgrade expenditure is for upgrading versions of IBM Maximo, Oracle Databases, Microsoft Windows Server and IBM WebSphere. APA submits that the upgrades will manage the risks of software obsolescence, loss of system integration, security, and functionality.[144]

We consider that as APA's proposed expenditure seeks to address issues of obsolescence and proposes increased efficiencies, the proposed expenditure is reasonable and is therefore prudent. We note that APA identified that it expects to realise, at an APA Group level, $26.1 million ($2022) in avoided costs for the TEP program and $16.7 million ($2022) for the ERP program.[145] We would expect to see these cost savings reflected in the next access arrangement proposal.

APA did not provide information to substantiate the efficiency of its costs in its revised proposal. In response to an information request, APA provided a cost build-up for its proposed IT programs.[146] We have assessed that the proposed capex is justified on the basis that it addresses the reasonable need of replacing obsolete systems and transitioning to cloud-based services due to the lack of ongoing vendor support. We are reasonably satisfied that this capex is prudent.

140 APA, VTS - 2023-27 AA Revised Proposal - Information Technology - August 2022 – Public.pdf, p.12.

141 APA, VTS - 2023-27 AA Revised Proposal - Information Technology - August 2022 – Public.pdf, pp.17-18.

142 APA, VTS - 2023-27 AA Revised Proposal - Information Technology - August 2022 – Public.pdf, pp.20-21.

143 APA, VTS - 2023-27 AA Revised Proposal - Information Technology - August 2022 – Public.pdf, pp.22-24.

144 APA, VTS - 2023-27 AA Revised Proposal - Information Technology - August 2022 – Public.pdf, pp.25-26.

145 APA, VTS - 2023-27 AA Revised Proposal - Information Technology - August 2022 – Public.pdf, pp.22; APA, Response to , received 6 October 2022, VTS AA – AER IR27 IT OT – capex opex – CONFIDENTIAL.xlsx, tab 'Q5 Financial benefits'.

146 APA, Response to Information Request #27, Q.2, received 30 September 2022; APA, Response to Information Request #30, received.

In assessing the efficiency of APA's proposed capex, we do not accept some aspects of APA's forecast based on the cost build-ups provided for the IT programs.

The IT program cost build-ups included contingency amounts.[147] APA only described the contingency amount for the Technology Enhancement Program (TEP) as:[148]

> *Business Case estimations are high level at Initiation Phase and based on a +20% variance driven primarily by (a) current potential cost variability within the Data Warehouse Migration estimates (b) reliance on high level requirements and schedules for key EPMO programs such as ERP and GSP (c) TEP core team under-resourcing to date which led to schedule and quality impacts (accepted). To reduce variance, Business Case estimates will be refined during next phase in consultation with key EPMO Programs such as GSP and ERP. Contingency will be incrementally released over three years.*

APA did not provide calculations or information to substantiate the 20 percent contingency amount forecast for the TEP or any other program.

We have not included the proposed contingency in our forecast on the basis that we expect variances in this IT program to be symmetrical over the portfolio of projects. That is, we expect some projects to be over budget and others to be under budget, essentially balancing out at a total capex level. We also note that a significant proportion of the expenditure is to be undertaken by mid-2024. APA's cost build-ups showed that 61 percent of the total program expenditure presented is forecast to be incurred by the end of the financial year 2023, and 88 percent of the total program expenditure by the end of the financial year 2024. APA stated that the costs were based on business case information at June/July 2022. APA stated that it has already entered into most of the works contracts for the ERP program and that these are fixed price contracts.[149] Due to the inclusion of the contingency, we consider that the forecast has not been arrived at on a reasonable basis as required by r. 74(2)(a) of the NGR. We have therefore removed the contingency amounts from APA's forecast.

APA provided cost build-up tables from business cases, which were referenced but not provided to the AER. The cost build ups had project time spans which varied between FY2023–26, FY2022–28, and FY2022–32. We removed expenditure forecast for years which were not supported by the cost-build up provided from the respective business case. For the Grid Solutions Project, APA provided a table from the business case, which set out approval of the total costs for the four years from FY2023–26. APA, in its forecast, included expenditure for FY2027, however as APA did not provide the basis for the FY2027 costs, we have not included them in our alternative forecast.

For the Enterprise Resource Planning project allocation, APA included $4.6 million ($2022) for FY2022 in its allocation of APA Group costs to FY2023 and FY2024. The VTS is allocated 8.21 percent of this APA Group cost. We excluded the FY2022 APA Group allocation of costs to the VTS from our alternative forecast as there was no basis upon which to include these costs in the FY2023 and FY2024 forecasts for the VTS. We note that $1.0

147 APA, Response to Information Request #27, VTS AA - AER IR27 IT & OT - capex & opex – CONFIDENTIAL.xlsx.

148 APA, Response to Information Request #27, Q.2, received 30 September 2022.

149 APA, Response to Information Request #27, Q.2, received 30 September 2022, pp.11-14

million is already included in the 2021 and 2022 years in the capex model for the ERP program in the current period.[150]

In its capex model APA applied its network overhead rate of 6.91 percent to the IT programs. We have removed this as these are allocations of shared corporate assets, not direct VTS assets. The calculation of overheads provided by APA stated that the corporate overhead is allocated to its subsidiaries in accordance with the subsidiary's share of direct expenditure on business case projects specifically for the subsidiary. To then allocate the calculated network overhead rate to a costs other than the direct expenditure on business case projects for the subsidiary would lead to an over-recovery of network overheads.

After making these adjustments we calculated an alternative forecast for IT of $4.5 million ($2022).

Operational Technology

Operational Technology (OT) provides the connection between site equipment and a controlling facility. OT enables:[151]

- automatic control of equipment on site, digital lock-outs on site to ensure field staff can safely perform maintenance, field staff to take control of a site if required, and remote staff to operate the site
- metering of customer' connections and provision of data to the commercial systems to ensure customers are billed correctly
- collection of data to facilitate decision making by operators and engineers with respect to equipment servicing, plant operating irregularities and APA-wide asset management.

At an APA Group level twelve programs are forecast for the 2023–27 access arrangement period for OT. The VTS is allocated 8.21 % of total APA Group corporate costs. Hence, the $4.5 million ($2022, excluding overheads) included in the capex forecast is the 8.21 percent allocation of the total APA Group OT project costs.[152]

We have assessed that five of the twelve programs proposed by APA are justified on the basis that there is an ongoing need to update and replace SCADA, and to undertake cyber-related upgrades with respect to communications between central operations and assets which are located remotely. We have included capex for the Lifecycle Management, Lifecycle - SCADA and HMI Systems, OT Lifecycle, VTS AEMO Serial to IP connections uplift, OT Cyber and Remote Sites Connectivity Uplift programs.

The Lifecycle Management (SCADA WAN Hardware) program ($1.2 million) is continued from the 2018–22 period, where $0.7 million was spent.[153] It has a planned implementation target of FY2022/23.[154] It is driven by third-party communications technology obsolescence

150 This is reported as 'Corporate - Finance – ERP' in APA, APA VTS - APA VTS 2023-27 Capex model AA Revised Proposal - August 2022 - Public REV.xlsx, tab '2.0 Input | Historic Capex', row 314.

151 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.3.

152 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.3.

153 APA, Response to Information Request #30, received 26 October 2022, p.3. In the capex model for the 2018-22 period this is capex project no. 163 - WAN upgrade (satellite project).

154 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.10.

(ADSL services decommissioning under the NBN rollout schedule, Skywire satellite gateways end of life and is in extended support, and Telstra 3G decommissioning in June 2024) and is needed to prevent service interruption to SCADA WAN.[155]

APA stated that the Lifecycle - SCADA and HMI Systems program ($1.2 million) is the continuation of the HMI upgrade to CLEAR SCADA program that commenced in 2020.[156] APA stated that it expects to upgrade 52 legacy asset locations, with 22 site locations completed and two sites in progress as at June 2022.[157]

The OT Cyber program is supported by the current requirements to upgrade security.[158]

The other three programs are justified on the ongoing need to replace or upgrade SCADA connections and equipment.[159]

We assessed that the capex proposed for the other six programs was not justified. The Alarm Excellence program is proposed to improve alarm monitoring capability. However, this appears to relate to an internal change of engineering practice at APA ,and its prudency is not supported by the information provided.[160] The corporate SCADA programs (Unlock Grid Constraints, OT Services Uplift, Facilities Engineering Data Uplift, Integrity Data and Version Dog Expansion and Uplift) mostly relates to the management and utilisation of SCADA and related asset data within APA's business operations. APA has provided no substantive information to demonstrate the need for or the efficiency of these programs.[161] We are therefore unable to conclude that these proposed capex items are prudent or efficient.

In assessing the efficiency of the forecast costs we found the following:

- For the Lifecycle Management (SCADA WAN Hardware) program, APA stated that 'the methodology for estimating the project cost is based on a combination of market-based costs and past costs for similar work', and identified that it could provide a cost build-up. However, it did not provide this, despite the AER requesting the build-up in an information request.[162] As we do not have sufficient information to assess the efficiency of the costs, we are unable to conclude that the project is efficient from a cost build-up.
- With respect to the Lifecycle - SCADA and HMI Systems program, APA has allocated seventy percent of the total APA program costs to the VTS (rather than an 8.21 percent

155 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.10.

156 APA, Response to Information Request #30, received 26 October 2022, p.5. VTS AA - AER IR27 & IR30 IT & OT - Q1 2 3 - 26.10.22 .xlsx The response shows the capex model for the 2018-22 period and references the capex projects no. 60 HMI upgrade to CLEAR SCADA at BCS, SCS and WCS & CG, Longford and 70 Lara SWP SCADA HM as OT Lifecycle/SCADA.

157 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.14.

158 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.20; APA, Response to Information Request #30, received 26 October 2022, pp.16-17.

159 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, pp.17-18, 20, 21.

160 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.16; APA, Response to Information Request #30, 26 October 2022, p.7.

161 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.15,16, 17, 18, 19-20.

162 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.1l; APA, Response to AER Information Request #30, received 1 November 2022: VTS Access Arrangement - OT - Table - AER IR30 Q4 – CONFIDENTIAL.xlsx.

allocation) on the basis of the assets required to be upgraded.[163] APA stated that 'the total cost of this option is based on prior year internal labour used to perform the upgrade work', identified that it could provide a site priority list and detailed costs for the first site, but it did not provide this in response to the AER's request for it.[164] We reviewed the business case (no. 264) for HMI Upgrade to ClearSCADA at BCS, BCG, SCS, WCS, WCG, ECS and Longford from the 2018–22 access arrangement.[165] But for the sites referenced, the business case is identical to the business case (also no. 264) proposed by APA for this 2023–27 access arrangement as a replacement project. The updated business case references the same locations for completion as mentioned in APA's information request response.[166] We approved the replacement project in our draft decision and APA accepted this in its revised proposal.[167] APA confirmed that this proposed OT project subsumes the replacement project. On the basis that this project has already been included in our forecast, we will not include this additional proposed expenditure on the basis that it would not be cost efficient. We have included the additional increment proposed under the OT program in our alternative forecast, [168] that is, $0.5 million ($2022, excluding overheads) for this project.

- With respect to the other ten programs, in response to our request that APA provide a cost build-up for its proposed OT projects, APA provided Initiative Proposals for five of these programs.[169] APA failed to provide the cost build-ups that it identified as available.[170] It did not provide any alternative cost basis for the other five programs. The funding proposed in the Initiative Proposals and then allocated to the VTS using APA's allocators did not match the capex included for the access arrangement.[171] APA did not provide any basis for the cost differences.

163 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.14.

164 APA, VTS - 2023-27 AA Revised Proposal - Operational Technology - August 2022 – Public.pdf, p.14; APA, Response to AER Information Request #30, received 1 November 2022: VTS Access Arrangement - OT - Table - AER IR30 Q4 – CONFIDENTIAL.xlsx.

165 APA Victorian Transmission System - Access Arrangement 2018-22, Supporting information – attachments, APA VTS - 5 - Supporting Material - Capital expenditure Business Cases - Part 3 - January 2017, APA VTS - D23 - BC264 Liquefied Natural Gas upgrade to ClearSCADA - 20170103 – Public.pdf [Note the file is misnamed – the document title is 'HMI Upgrade to ClearSCADA at BCS, BCG, SCS, WCS, WCG, ECS and Longford Business Case Number 264'] https://www.aer.gov.au/system/files/APA%20VTS%20-%20Capex%20Business%20Cases%20-%20Part%203%20-%20Public.zip

166 APA, Response to Information Request #30 Q4 CONFIDENTIAL, received 1 November 2022: VTS Access Arrangement - OT - Table - AER IR30 Q4 – CONFIDENTIAL.xlsx, tab 'notes on submission'.

167 APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public.pdf, pp.36, 39; AER, Draft Decision – APA VTS gas access arrangement 2023–27:Attachment 5 – Capital Expenditure, June 2022, p.29.

168 $1.2 million ($2022) was proposed for the OT program, while the replacement project amount was $0.7 million ($2022).

169 APA, Response to Information Request #30 Q4 CONFIDENTIAL, received 1 November 2022: s5.5 Alarm Excellence - Initiative Proposal FY23 – CONFIDENTIAL.pdf, s5.7 OT Lifecycle Systems and Data - Initiative Proposal – CONFIDENTIAL.pdf, s5.8 OT Pipeline integrity and CP - Initiative Proposal – CONFIDENTIAL.pdf, s5.11 (one part) OT Cyber & Tech-Systems Mgmt FY23 - Initiative Proposal –CONFIDENTIAL.pdf, s5.12 Remote Sites Connectivity Uplift FY22-24 - Initiative Proposal – CONFIDENTIAL.pdf.

170 APA, Response to Information Request #30, received .

171 See AER Final Decision - APA VTS 2023-27 Capex Model - December 2022 – Confidential.xlsx, tab 'Information and operational tec'.

As we were unable to assess the efficiency of APA's cost forecasts in relation to programs that we assessed as prudent, we tested the magnitude of the proposed capex against historical actual expenditure.

We assessed that there are largely three groups of OT expenditure historically: SCADA communications, SCADA systems expenditure, and corporate SCADA. We assessed the average expenditure of each of these groups over the 2013–17 and 2018–22 periods, compared with the forecast 2023–27 expenditure. We found that the capex forecast for the first two groups are largely in line with historical expenditure. With respect to corporate SCADA, we found that APA expended $0.1 million in the current period and $0 million in the 2013–17 period. Given that APA did not provide information to demonstrate the prudency and efficiency of its proposed corporate SCADA capex, we assess that there is no basis to include capex for this group in our alternative estimate.

Based on the above analysis, we have included APA's forecast capex for the Lifecycle Management, Lifecycle - SCADA and HMI Systems, OT Lifecycle, VTS AEMO Serial to IP connections uplift, OT Cyber and Remote Sites Connectivity Uplift programs in our alternative forecast.

APA applied the network overhead rate of 6.91 percent to these costs in the capex model. We did not include the network overheads in our alternative forecast for the same reasons as set out above for the IT programs.

Our alternative forecast for the total OT program is $2.5 million ($2022).

Access arrangement costs

APA's revised proposal

In its revised proposal, APA included $2.0 million ($2022) for the preparation of its 2028–32 access arrangement proposal.[172] These costs were originally proposed as a category specific forecast in its Operational Expenditure (opex) forecast.[173]

We did not accept the proposed opex in our draft opex decision (see below).[174]

In response to our draft decision, APA suggested that as these costs are not part of its base year opex, that these must be explicitly provided elsewhere.[175] In this regard, APA also raised concerns with our comment that although there may be volatility in individual activities on a short term, total opex is generally stable over time. [176] Further, APA argued that this rationale must assume other opex activities are suspended or curtailed to allow for the

172 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, August 2022, pp. 103–104.

173 APA VTS, *APA VTS – Access Arrangement 2023–27 – Forecast Opex Model,* 1 December 2021.

174 AER, *Draft decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 6 Operating Expenditure,* June 2022, p. 31.

175 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, August 2022, p. 103.

176 AER, *Draft decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 6 Operating Expenditure,* June 2022, p. 32 and . 32 and APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, August 2022, p. 103.

incurrence of the lumpy access arrangement preparation costs.[177] APA stated that this assumption does not reflect actual practice, and that it is not practicable to reduce operating and maintenance expenditure to "make room" in the opex allowance for access arrangement preparation costs.[178]

In relation to the efficiency of these costs, APA suggested that although there is uncertainty in estimating these costs, the proposed amount is likely to be an understatement. To support this, APA suggested that costs would significantly increase with future proposals, compared to current levels, due to an expectation of higher levels of consumer engagement. [179] In this regard, APA provided insufficient material that demonstrated the efficiency and reasonableness of the methodology used to estimate its costs, including the input rates nor assumptions.

In support of the reallocation to capex, APA drew from the advice it received from PriceWaterhouseCoopers.[180]

Submissions

In submissions received on APA's revised proposal, TRAC Partners for the Brotherhood of St Laurence states that it supports the removal of these costs from forecast opex and instead making a capital allowance for these.[181] CCP28 advises the AER to verify APA's base year costs are exclusive of access arrangement preparation costs, and determine the basis the forecast amount, including whether it is prudent and efficient. CCP28 also highlights that APA has not engaged with stakeholders on this issue.[182]

We have considered the stakeholder comments in our assessment in making this final decision. We consider the reasons provided below in our assessment address each of these concerns and clarify our decision.

Our Assessment

Our opex draft decision provides details on our reasons for not accepting APA's access arrangement preparation costs.[183] Specifically, we considered these costs to fundamentally directly relate to a business' regulatory obligations to submit a proposal for the subsequent period.[184] Namely, an inherently business-as-usual expense that a prudent network business

177 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, August 2022, p. 103.

178 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, August 2022, p. 103.

179 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, August 2022, pp. 103–104.

180 APA VTS, *APA Victorian Transmission System 2023–27 access arrangement. Revised proposal – Overview of Revised Proposal*, August 2022, p. 103.

181 TRAC Partners – prepared for the Brotherhood of St. Laurence, *Response to AER draft decision & APA Victorian Transmission System (VTS) Revised 2023–27 Access Arrangement Proposal,* September 2022, p. 27.

182 CCP28, *APA: Victorian Gas Transmission System Access Arrangement 2023–27 CCP28 Advice to the AER – Revised Proposal*, 31 August 2022, p. 16.

183 AER, *Draft decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 6 Operating Expenditure,* June 2022, pp. 31–32.

184 AER, *Draft decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 6 Operating Expenditure,* June 2022, p. 32.

will manage within its existing expenditure. In this regard, we have not previously approved such additional preparation costs for other Network Service Providers, and therefore are not satisfied that our opex forecast does not also provide sufficient scope to prudently manage costs for APA.

In terms of these cost not being included in the base year, our base/step/trend opex forecasting approach gives APA discretion to select the preferred base year for its opex forecast proposal. However, due to the interaction with the operating incentive mechanism, this should not have an overall impact on revenue, regardless of the chosen base year. Further, our Explanatory Statement for the Expenditure Forecast Assessment Guideline states that if total opex is not materially lumpy, then a revealed cost forecast (i.e. base/step/trend) is appropriate regardless of whether individual categories are lumpy or not.[185]

Accordingly, we do not consider that the proposed access arrangement capex is prudent or required, and do not approve of the reclassification of these costs from opex to capex. We have included $0 for access arrangement costs in our alternative capex forecast.

5.4.2.4 Overheads

APA's proposal

In its initial proposal APA did not separately identify overheads applied in the 2018–22 period. No corporate or network overheads nor overheads in the replacement, expansion, non-network or other capex categories were reported in the RINs.[186]

With respect to the forecast period, APA submitted that 'we started to split out capitalised overheads (from other capital expenditure) for the next access arrangement period. Up until 2023, APA had been allocating overheads to other asset categories'.[187]

APA forecast $53.2 million ($2022) in capital network overheads and $22.5 million in capital corporate overheads over the 2023–27 period[188], although the amounts reported varied throughout the RINs, capex model, and proposal documents.

AER draft decision

Leading up to our draft decision we sought information from APA on how overheads were forecast. The following sets out what we were able to establish.

Methodology applied to allocate APA Group overheads (parent entity) to VTS (and other subsidiaries)
APA stated that APA Group overheads are only allocated for the purposes of regulatory reporting; they are otherwise not distributed to subsidiaries. APA set out that for regulatory reporting purposes, APA Group overheads are allocated to its subsidiaries, including the

185 AER,I Explanatory Statement Expenditure Forecast Assessment Guideline, November 2013, p. 75.

186 APA, *VTS 2023–27 Access Arrangement*, VTS - VTS 2023-27 - Reset RIN - Workbook 2 - Historical expenditure - Dec 2021-Public.xls, December 2021. This RIN covers the 2016-2020 period. APA, *VTS 2023–27 Access Arrangement*, VTS - VTS 2023-27 - Reset RIN - Workbook 1 - Forecast - Dec 2021 – Public.xls, December 2021. This RIN included 2021 and 2022.

187 APA, VTS - A Look at plans for VTS - APA VTS 2023-2027 AA proposal overview - December 2021 – Public.pdf, p.25.

188 APA, *VTS 2023–27 Access Arrangement*, VTS - VTS 2023-27 - Reset RIN - Workbook 1 - Forecast - Dec 2021 – Public.xls, December 2021, Table E1.1.1

VTS, via three classes of overheads:[189] capitalised overheads (capitalised corporate opex), corporate opex allocated to APA subsidiaries (including the VTS), and corporate assets or shared support assets allocated to APA subsidiaries (including the VTS).

1) Allocation of capitalised overheads

APA stated that capitalised overheads include each 'overhead' department's (human resources, IT and facilities, executive and finance, quality and compliance, procurement, project management and delivery) costs attributed to capital projects. The total cost pool of these overheads is allocated to individual capex projects across all the APA subsidiaries in accordance with the project's share of the total project costs across all the APA subsidiaries. For example, if a particular project's direct costs accounted for 8 percent of the total project direct costs, that project is allocated 8 percent of the total overheads.

APA advised that for forecasting purposes, the percentage overhead allocation is derived by dividing the sum of the total overheads over the six-year period FY2016–21 by the sum of the total capex project costs over the same six-year period. The percentage overhead allocation arrived at is 6.91 percent.[190]

APA applied this rate of 6.91 percent to all VTS capex business case amounts, which yielded a total forecast capitalised overhead amount of $21.6m for the 2023–27 period.

In our draft decision, we set out our concerns about this allocation, which included:

- APA stated that each 'overhead' department determines the amount of their costs attributable to capital projects. [191] However the method of allocation to capital versus opex overheads and the quantum of total overheads allocated at the APA Group level is not apparent.
- The table provided by APA to demonstrate its derivation of the 6.91 percent capitalised overhead rate includes amounts for capitalised overheads and total direct project costs. The amounts provided by APA in the table do not correspond with the total direct project costs (capex) reported to the AER for the 2016–2021 period for the VTS in the capex model nor the updated amounts in the RIN workbook 1 for 2021. We were therefore unable to verify the 6.91 percent allocation.
- The calculation method applies the sum of capitalised overheads over the six-year period divided by the sum of the total direct project costs over the six-year period. This is not an annual average of the overhead rate over six years (yielding 7.24%). It is not clear why APA is applying this method.
- There is considerable variation in the overhead rate from year to year – with the smallest rate being 6.17 percent and the highest being 10.04 percent. Translated to the access arrangement total direct cost proposed by APA of $329 million, this can result in a difference in capitalised overheads being applied over the period of between $20 million and $33 million.

190 APA, Meeting with AER on OH 10 May 2022 PUBLIC.pdf, slide 5 (confidentiality subsequently claimed by APA over this version). Public version available at https://www.aer.gov.au/system/files/APA%20VTS%20-%20Response%20to%20AER%20Information%20Request%20Overheads%20-%2010%20May%202022.pdf , p.5.

191 APA, Meeting with AER on OH 10 May 2022 PUBLIC.pdf, slide 6 (confidentiality subsequently claimed by APA over this version). Public version available at https://www.aer.gov.au/system/files/APA%20VTS%20-%20Response%20to%20AER%20Information%20Request%20Overheads%20-%2010%20May%202022.pdf , p.6.

- The application of a purely ad valorem overhead rate does not reflect our understanding of how overheads scale with changes in the total cost of capex programs. We generally consider that 25 percent of total overhead costs is variable and 75 percent of total overhead costs are fixed. Hence it is the 25 percent proportion of overheads that we expect to scale with a change in the size of the capex program. In applying this methodology APA is assuming that 100 percent of overheads scale with the size of the capex program.
- The overhead rate applied to the VTS is as much a function of the capex program of the other subsidiaries as it is of the VTS capex program. This is borne out by APA's response to our information request: 'APA Group's approach to the allocation of capitalised overheads is attribute them to capital expenditure projects. This means that the amount of capitalised overheads cannot be subject to a meaningful trend analysis, as it will be impacted by the level of capital expenditure activity undertaken across the entire APA portfolio of assets'.
- We requested that APA provide the capitalised overhead percentage applied and implicitly approved at the last access arrangement. APA has not provided this information. We have therefore been unable to assess how the forecast application of the overhead rate has performed against actuals.

2) Allocation of corporate opex

Corporate opex allocated to APA subsidiaries (including the VTS) includes operating expenditure incurred at the APA Group corporate level which support the operations of APA Subsidiaries. The total cost pool of corporate opex is allocated to the APA subsidiaries in accordance with the subsidiary's share of the total revenue of all the APA subsidiaries.[192] For forecasting purposes, the corporate opex allocation in 2020 is used as the base. This consisted of 8.2 percent of the total corporate opex pool, which is $5.8 million ($2020). After applying the base-step-trend approach to opex forecasting, the total amount of corporate opex over the 2023–27 period is $36.5 million.

3) Allocation of corporate assets/shared support assets

APA stated that the expenditure incurred for corporate assets/shared support assets are allocated to APA subsidiaries (including the VTS) as corporate assets are not recorded in the ledgers of the individual APA subsidiaries, but instead they are recorded in the ledger of the APA Group corporate entity. The total cost pool of corporate assets is allocated to the APA subsidiaries in accordance with the subsidiary's share of the total revenue of all the APA subsidiaries. For forecasting purposes, the corporate assets allocation in 2020 (that is, 8.2 percent) is applied to the corporate assets proposed for the forecast period. This resulted in $18.2 million over the 2023–27 period being forecast for corporate assets/shared support assets.

The corporate assets included in APA's proposal are 'share of corporate properties', 'share of corporate motor vehicles', Information Technology Portfolio (Enterprise Program

192 APA, Meeting with AER on OH 10 May 2022 PUBLIC.pdf, slides 14-17 (confidentiality subsequently claimed by APA over this version). Public version available at https://www.aer.gov.au/system/files/APA%20VTS%20-%20Response%20to%20AER%20Information%20Request%20Overheads%20-%2010%20May%202022.pdf , pp.14-17.

Management Office (EPMO), Operational Technology, Information Technology), and the Security of Critical Infrastructure (SoCI cyber and SoCI program). APA allocated this expenditure to the 'non-system', 'non-network' and 'other' capex driver categories in different parts of its proposal.

In relation to the Information Technology Portfolio and the SoCI cyber and program capex, we noted that the network overhead rate was applied to these programs. We stated that we considered that this is inconsistent with the methodology and principle that described that network overheads are allocated to direct costs. As these costs are shared support assets we do not consider that they should have network overheads applied to them.

In our draft decision we expressed concerns about APA's allocation including the averaging method used and the lack of transparency of the APA Group level overhead expenditure and its allocation to its subsidiaries. Due to APA not providing historical overhead expenditure we were unable to assess the efficiency of the forecast capex against historical trends.

In our draft decision we stated that due to the lack of information provided in APA's proposal and the delay in providing subsequent information, we have had insufficient time to be able to seek the further information we require to be satisfied that the overheads are prudent and efficient.

We stated that we expected APA to submit the following information in its the revised proposal:[193]

- Reporting of corporate overheads and shared corporate assets for the VTS on the same basis over the current and forecast access arrangement periods, to enable trend analysis. This should be a consistent set of numbers across the RINs, capex model, business cases, and access arrangement information. We noted that it is not clear to us why this information is not able to be provided when other subsidiaries are reporting this information under their Part 7 or 23 reporting obligations.[194]
- Provision of APA Group level corporate overheads and shared corporate assets and their allocated amounts to subsidiaries over the current and forecast access arrangement periods. Supporting evidence of the approval of the allocation of the overheads to the VTS (e.g. Board minutes, finance sign-off). This is to provide assurance that the appropriate proportion of overheads is being allocated to the VTS compared to other subsidiaries.

In our draft decision we included a placeholder amount for corporate overheads that was mapped to the AER's capex driver category of 'network overheads' of $11.6 million ($2022). This reflected the 6.91 percent overhead rate applied to the direct capex costs approved for expansion and replacement projects. We included a shared corporate asset amount of $6.5

193 AER, *Draft Decision, APA Victorian Transmission System (VTS) Access Arrangement 2023 to 2027 (1 January 2023 to 31 December 2027) – Attachment 5 – Capital Expenditure*, June 2022, p. 51.

194 For example, Central West Pipeline, APA Financial Information Disclosure – Part 7 National Gas Rules, CWP 2022 Part 7 Financial Reporting, https://www.apa.com.au/our-services/gas-transmission/east-coast-grid/central-west-pipeline/; Moomba to Sydney Pipeline, APA Financial Information Disclosure – Part 7 National Gas Rules, MSP 2022 Part 7 Financial Reporting, https://www.apa.com.au/our-services/gas-transmission/east-coast-grid/moomba-sydney-pipeline/; South West Queensland Pipeline, APA Financial Information Disclosure – Part 23 National Gas Rules, SWQP 2022 Part 23 Financial Reporting, https://www.apa.com.au/our-services/gas-transmission/east-coast-grid/south-west-queensland-pipeline/

million ($2022). This included the capex for the SoCI cyber component, and share of corporate properties and motor vehicles. We stated that we expected the overhead and shared corporate asset amounts to change (higher or lower) in our final decision in response to the information that we receive from APA in addressing our information requirements and in providing updated or changed costings in APA's revised proposal.

APA's revised proposal

In its revised proposal APA stated that APA Group 'undertakes many activities as centralised functions' and consequently realises economies of scope and scale. It submits that when it allocates amounts to its subsidiaries, only costs incurred are allocated. APA states that it is under commercial pressure to keep overhead costs low as regulated revenue only accounts for a small proportion of its revenue, with 90 percent being contracted revenue streams, where increases in overheads cannot be recovered. APA stated that it only allocates corporate costs for regulatory reporting reasons and that this process has been applied consistently for many years and across the entire APA Group portfolio of assets.[195]

APA stated that for forecasting purposes it has calculated the average rate of portfolio-wide corporate overhead capitalisation over the last 6 years and applied that rate as a forecast of overhead loading applicable to forecast VTS projects. It stated that it applies this forecast rate equally to replacement, expansion and non-network capex.

It provided a table setting out its overheads (see Table 5.10).

Table 5.10 APA's Actual and Forecast Overheads

$million, nominal	2018 (A)	2019 (A)	2020 (A)	2021 (A)	2022 (E)	2023 (F)	2024 (F)	2025 (F)	2026 (F)	2027 (F)
Capitalised overheads	1.9	3.4	1.7	5.0	Note 1	9.4	3.1	2.0	1.8	1.6
Corporate opex	6.6	5.5	5.8	6.9	6.1	7.2	7.4	7.3	7.3	7.4
Corporate assets[13]	1.9	2.3	2.4	6.2	4.7	4.6	4.3	1.8	1.0	2.5
	10.4	11.3	9.8	18.1		21.1	14.7	11.0	10.2	11.4
Direct capex	24.3	43.3	32.2	60.1	172.2	145.0	48.6	30.3	28.6	27.1
Capitalised overheads	1.9	3.4	1.7	5.0	Note 1	9.4	3.1	2.0	1.8	1.6
Total capex	22.37	39.89	30.49	55.10		135.63	45.50	28.38	26.82	25.56
% of overhead capitalised	8.4%	8.6%	5.6%	9.0%	Note1	6.9%	6.8%	6.9%	6.6%	6.1%

Source: APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public.pdf, p.78.

[195] APA, VTS - APA VTS 2023-27 access arrangement - Overview of Revised Proposal - August 2022 – Public.pdf, p.79.

Our assessment

While Table 5.10 shows a variable forecast overhead rate, we calculated that APA had consistently applied a network overhead rate of 6.91 percent across the 2023–27 period. We established this with APA prior to our draft decision, and the capex for business case projects, from which we imputed this, has not changed in APA's revised proposal. Applying a 6.91 percent overhead, to all capex line items as stated by APA, implies[196] that a total network overhead amount of $18.1 million ($2022) is proposed by APA.[197]

Consequently, we applied the 6.91 percent network overhead rate forecast by APA to the VTS direct costs in our alternative capex forecast and calculated a network overhead amount of $14.2 million ($2022). This reflects the decrease in our alternative forecast and the non-application of network overheads to shared corporate assets. We have included this amount in our alternative forecast.

APA did not provide all of the information about overheads that we sought in information requests. The lack of information makes it more difficult for stakeholders to reconcile the proposals with historic outcomes and to understand the basis for the overhead forecasts. We expect a greater level of transparency in reporting the allocation of overheads from the APA Group level to its subsidiaries in future access arrangements.

5.5 South West Pipeline expansion projects – advanced determination under Rule 80

In its initial proposal APA sought an advanced determination under National Gas Rule (NGR) rule 80 for its proposed further expansion of the South West Pipeline (SWP). Rule 80 provides for the AER to make an advanced determination in relation to future capex.

Our draft decision in relation to the application made under r.80 of the NGR was that the capital expenditure proposed by APA of $230.6 million ($2022, excluding overheads) for the SWP expansion did not meet the new capital expenditure criteria set out in r.79 of the NGR. On this basis we proposed not to approve APA's proposed expenditure for two projects to expand the SWP under NGR r.80.

We indicated that we were consulting on this rule 80 application and invited stakeholders to make submissions.

Submissions

In its submission on APA's revised proposal, AGL stated that it agrees with the AER's draft decision, and that it did not support these applications because of the uncertainty surrounding the projects and the lack of clarity surrounding the actual system requirements and augmentations that would be needed if one or more of these projects was finalised.[198]

196 The network overheads were not separately reported in the capex model.

197 See AER Final Decision - APA VTS 2023-27 Capex Model - December 2022 – Confidential.xlsx, tab 'APA Revised Proposal - 2023-27'.

198 AGL, Draft Decision: APA Victorian Transmission System (VTS) Access Arrangement 2023-27 (1 January 2023 to 31 December 2027), 6 September 2022, p.2.

The Brotherhood of St Laurence stated that it supported the AER's draft decision, and stated a preference for developing alternative solutions to any potential short-term supply-demand imbalance, including demand management. It submitted that augmentation should generally be avoided where a possible stranding risk exists, as has been identified for the VTS. BSL stated that alternative solutions to building long-term infrastructure to address short term imbalances need to be developed.[199]

Venice Energy submitted that it considers that the supply and demand balance is becoming so dynamic now, that it believes it is important to have the Rule 80 and Pass-Through mechanism available to APA to be able to build the pipeline flow capacity needed to respond to gas supply demands in a timely fashion.[200]

APA's revised proposal

APA stated that it has not renewed its applications under Rule 80. APA submitted that its objective in lodging the Rule 80 application was to 'give a complete picture of the complexity of the uncertain supply and demand balance facing the VTS, and the uncertain nature of projects proposed to address that uncertainty'.

Our assessment

We accept APA's decision not to pursue its Rule 80 application.

199 Brotherhood of St Laurence, 2023-2028 Victorian Gas Transmission System (VTS) Access Arrangement: Submission from BSL to the AER's Draft Determination and APA's Revised Proposal, September 2022, p.16.

200 Venice Energy, APA Victorian Transmission System - Access Arrangement 2023–27 Submission, 5 September 2022, p. 3.

A Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
APA / APA VTS	APA VTS Australia (Operations) Pty Ltd and APA VTS Australia (NSW) Pty Ltd
BCS	Brooklyn Compression Station
BSL	Brotherhood of St Laurence
Capex	Capital Expenditure
EPMO	Enterprise Program Management Office
ERP	Enterprise Resource Planning
GSOO	Gas Statement of Opportunities
ICT	Information and communications technology
IT	Information technology
NGL	National Gas Law
NGR	National Gas Rules
Opex	Operating Expenditure
PTRM	Post-tax revenue model
RFM	Roll forward model
OT	Operational Technology
RAB	Regulated asset base
RIN	Regulatory Information Notice
RMP	Risk Management Program
SWP	South West Pipeline
TJ	Terajoule
TJ/day	Terajoules per day
WORM	Western Outer Ring Main
VTS	Victorian Transmission System