Final Decision

APA VTS access arrangement 2023 to 2027

(1 January 2023 to 31 December 2027)

Overview

December 2022



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Amendment record

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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

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Executive summary

The Australian Energy Regulator (AER) exists to ensure energy consumers are better off, now and in the future. Consumers are at the heart of our work, and we focus on ensuring a secure, reliable, and affordable energy future for Australia. The regulatory framework governing gas transmission and distribution networks is the National Gas Law and Rules (NGL and NGR). Our work is guided by the National Gas Objective (NGO).

A regulated gas network business must periodically apply to us for a ruling on network charges, in the form of an access arrangement. APA¹ has submitted a proposal for the Victorian Transmission System (VTS), the primary transmission system for the delivery of gas throughout Victoria. This is our final decision on that proposal.

This final decision allows APA to set gas transmission charges for the VTS resulting in recovery of an expected \$702.2 million (\$ nominal, smoothed) in revenues from consumers from 1 January 2023 to 31 December 2027. This is \$4.3 million (0.6%) more than presented in APA's revised proposal.

Movements in market variables such as interest rates, bond rates and expected inflation are currently acting to increase the return on APA's capital base. Updates for these movements are a standard part of our decision making process and do not result from differences between us and APA. Their impact in this final decision offsets the reductions we have made to forecast expenditure where we are not satisfied that what APA has proposed is prudent and efficient. While these areas of difference have narrowed since our draft decision, the issues in contention remain much the same. In arriving at this final decision, our reasons for which are set out in this Overview and its attachments, we make the following observations.

Transformation in the energy system and the explicit policy goal of reaching net zero emissions by 2050 create considerable uncertainties in future gas demand expectations. In addition to this complex energy transition, we are experiencing a rapidly changing economic environment and increased pressures on the cost of living. The Victorian Government's Gas Substitution Roadmap (Roadmap), released in July 2022 steps out how Victoria will move towards net zero emissions whilst providing greater choice and cutting energy bills through the use of energy efficiency, electrification, hydrogen, and biogas. Change will be driven through several initiatives including stronger incentives to switch from gas to efficient electric appliances, and the removal of planning provisions requiring new housing developments to connect to gas. These measures are expected to accelerate the decline of gas demand. What is more challenging is to predict how quickly that decline will happen.

As usage falls the ongoing costs of maintaining the network are shared by fewer customers over time. This poses a number of challenges, including that the cost burden of past investments may be disproportionately borne by future gas customers and that gas infrastructure assets may be economically stranded. These considerations prompted us to explore what we can do to manage these risks in our regulation of gas distribution and transmission networks, in our information paper, 'Regulating gas pipelines under uncertainty'.

¹ APA VTS Australia (Operations) Pty Ltd and APA VTS Australia (NSW) Pty Ltd.

The decision we make on this access arrangement cannot resolve the current uncertainty. It can, however, start to manage some of the risks it presents and mitigate their potential impact. We have been mindful of these challenges in arriving at an outcome with sufficient flexibility to balance affordability with the safe, reliable, and secure delivery of essential energy services, so that consumers are better off both now and in the future.

This final decision approaches this in two ways:

- by ensuring consumers pay no more than necessary and closely scrutinising forecasts of the capital (capex) and operating expenditure (opex) required to provide safe, secure, and reliable gas supply.
- by taking small steps now to manage the equitable recovery of those costs from a declining and sometimes vulnerable customer base over time.

To approve proposed expenditure, we must be satisfied that it is such as 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 this final decision we have confirmed our acceptance of forecast expenditure for key investments in the Western Outer Ring Main (WORM) and South West Pipeline, including updated forecasts for those projects reflecting developments since our draft decision. However, we have again found that the quality of APA's proposal and the lack of supporting analysis and evidence—both in its revised proposal and after our subsequent requests for further substantiating analysis and information—has led to expenditure outcomes in this final decision that are considerably below those sought by APA.

Concerns raised in our draft decision with APA's proposed capex and opex for overheads, information and communications technology and new obligations under Security of Critical Infrastructure (SoCI) legislation have not been fully addressed by APA. Our final decision allows more for these than we were in a position to approve in our draft decision, but APA has still sought to recover more expenditure from consumers for this work than has been justified by the information and analysis it has provided.

Our assessment of other elements of APA's proposed capex forecast has also resulted in reductions to what has been proposed. Our lower alternative total capex forecast results primarily from our final decision not to accept APA's proposed expenditure on a hydrogen safety and integrity assessment at this time, noting that there are avenues under the NGR for APA to revisit this project during the access arrangement period should the need arise. We have also reduced the amount of capex forecast for SoCI, completion of the WORM, asset replacement and IT.

Our review of proposed capex and opex forecasts recognises that as long as there is demand from consumers and businesses for gas distribution services, a level of investment in the networks that provide those services is necessary to ensure safe, reliable, and secure gas supply. We are satisfied that this final decision will adequately equip APA to achieve this.

Capex mostly relates to assets with long lives, the costs of which are recovered—or depreciated—over several access arrangement periods. In the context of the anticipated reductions in demand driven by the Roadmap, we now consider there is sufficient evidence to support some acceleration of that depreciation for the VTS. Our final decision approves

the more modest proposal for accelerated depreciation in APA's revised proposal. By taking small and measured steps now to bring forward the cost recovery of efficient investments, accelerated depreciation mitigates the risk of material price increases in the future as APA's costs of maintaining the VTS are recovered from a declining customer base. It also provides investment certainty for capex that is still needed to maintain safe, reliable, and secure supply.

It is recognised that regulatory proposals benefit from genuine engagement with consumers. Our draft decision observed that engagement on the initial proposal, while a step up for APA, fell short of the expectations in the Handbook for consumer partnership. We recognised that APA appeared to have provided participants with a good background to equip them to comment on some elements of its proposal. However, we observed that the broad cross-section of interests represented at APA's 'roundtable' events brought with it different priorities, preferences, and concerns: a lack of consensus was somewhat overlooked in APA's proposal. We encouraged APA to look for greater collaboration and partnership with consumers on the positions put forward in its revised proposal.

APA held two stakeholder roundtables between our draft decision and submission of its revised proposal, which it used to inform stakeholders of its intended response to our draft decision rather than to seek input on what that response should be. A further session on 31 August 2022 provided an opportunity to ask questions on the revised proposal, but this took place after it had been submitted to the AER. There is little if any evidence before us that APA's engagement with the end users and consumers, who will ultimately pay for its services, has impacted its revised proposal. In that context, while participants again recognised efforts on APA's part to improve, it is not surprising that stakeholder sentiment towards the revised proposal was in many respects unchanged since the initial proposal.

The uncertainty that has surrounded this review is likely to continue in future access arrangement periods. APA now has the opportunity to build the networks and engagement strategies it will need to prepare a proposal for its next access arrangement period that is genuinely driven by consumer preferences and supports delivery of services that meet the needs of its consumers, at a price that is affordable and efficient.

1 Our final decision

APA's proposed access arrangement for the Victorian Transmission System (VTS) sets out the service it will provide in the five years from 1 January 2023 to 31 December 2027 (2023–27 period), the tariffs for those services, and the other terms and conditions on which they will be provided.

An access arrangement final decision is a decision to approve, or to refuse to approve, an access arrangement proposal.² If, in an access arrangement final decision, the AER refuses to approve an access arrangement proposal, the AER must itself propose an access arrangement or revisions to the access arrangement (as the case requires) for the relevant pipeline.³ Because we have not approved APA's proposal, this final decision is accompanied by a revised access arrangement and tariff schedule.

At the centre of our decision is the forecast total revenue requirement for the provision of the regulated transmission service over the next five years. In the sections below we briefly outline what is driving APA's expected revenue, and the key differences between our final decision revenue of \$702.2 million (\$ nominal, smoothed) compared to its revised proposal of \$697.9 million.

On face value, it may seem peculiar that we are determining a revenue allowance that is higher than APA has proposed. We have carefully reviewed APA's proposal. Our final decision does not accept APA's proposed forecasts of capital and operating expenditure (capex, opex) and replaces these with lower amounts. However, since our draft decision and APA's revised proposal, we have seen increases in interest rates. In this final decision we have employed current interest rates rather than the placeholder values in APA's proposal. It is important that we update for the latest market data so that APA's access arrangement reflects current financial market conditions. This enables APA to attract the capital it needs to provide the services that consumers want.

Moreover, the return investors receive on their assets should reflect the risks of their investment. These risks include the prospect of inflation eroding the investor's purchasing power. An allowance for expected inflation provides compensation for this risk.

- The return on capital building block applies a nominal rate of return to the capital base.
 As the nominal rate of return includes expected inflation, part of that building block
 compensates for this. Higher expected inflation increases the return on capital as it is
 applied to the capital base and forecast capex.
- The return of capital building block removes expected inflation indexation of the RAB from forecast depreciation. This avoids compensation arising from the effects of inflation being double counted by including it in the return on capital building block and also as a capital gain (through the indexation of the capital base). Higher expected inflation therefore reduces the regulatory depreciation allowance.

² NGR, r. 62(2).

³ NGR, r. 64(1).

 Other building blocks (such as opex and revenue adjustments) include an inflation component, as the costs forecast in real dollar terms are escalated to nominal dollars using expected inflation in determining the required nominal revenues. Higher expected inflation will increase opex and revenue adjustments.

1.1 What is driving revenue?

Over time, inflation impacts the spending power of money. To compare revenue from one period to the next on a like-for-like basis, in this section we use 'real' values based on a common year (2022) that have been adjusted for the impact of inflation instead of the nominal values above. Figure 1 shows how revenue would change over the next 5 years in real terms, under APA's initial and revised proposals and our draft and final decisions.

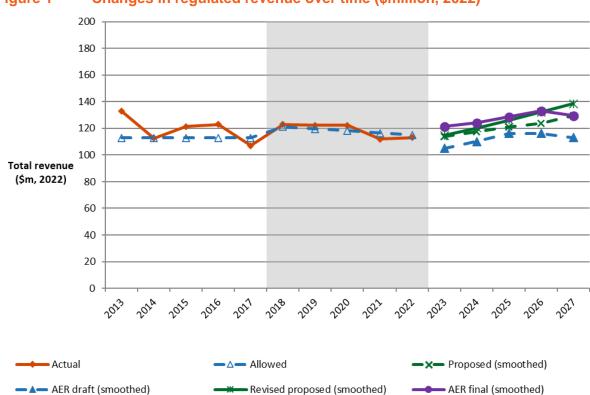


Figure 1 Changes in regulated revenue over time (\$million, 2022)

Source: AER analysis.

Where the assumptions in APA's revised proposal would have resulted in total revenue that was \$41.1 million (7.0%) higher than approved for the current period in real terms, the modelled impact of our final decision is currently an increase of \$46.2 million (7.8%).

Figure 2 highlights the key drivers of the change between the expected revenue approved for APA's current, 2018–22 period and that approved in this final decision for 2023–27, again in real terms.

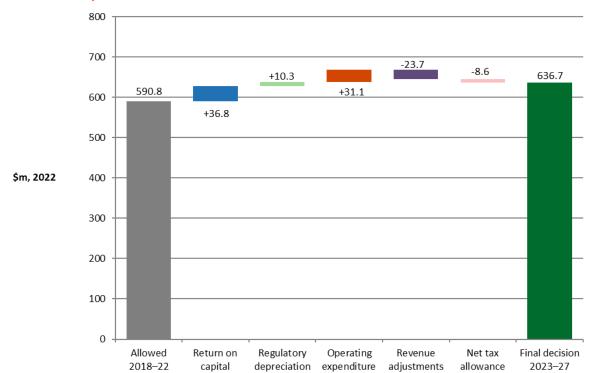


Figure 2 Change in building block revenue 2018–22 to 2023–27 (\$million, 2022; unsmoothed)

Source: AER analysis.

The return on capital for 2023-28 is increasing relative to the current period. The rate of return and forecast inflation we have approved for 2023-28 is higher than in our decision for 2018-22 and has been applied to a growing capital base.

Regulatory depreciation (the return of capital) is also increasing as the capital base grows. Our final decision includes accelerated depreciation of some assets to manage the recovery of capital between current and future periods as demand on the network falls.

Opex for 2023-27 is forecast to be higher than in 2018-22, driven largely by increases in costs to maintain and upgrade information technology, as well as to operate and maintain the augmented South West Pipeline and WORM, and to meet new obligations under Security of Critical Infrastructure (SoCI) legislation.

Offsetting these increases are adjustments to revenue under the opex efficiency carryover mechanism because APA has incurred a penalty over the 2018-22 period compared to the reward included in our last decision, and a lower net tax allowance due to the implementation of our findings from the 2018 *Review of the regulatory tax approach* since our last decision.

Figure 3 isolates the impact of accelerated depreciation and rising inflation from other parts of our final decision.

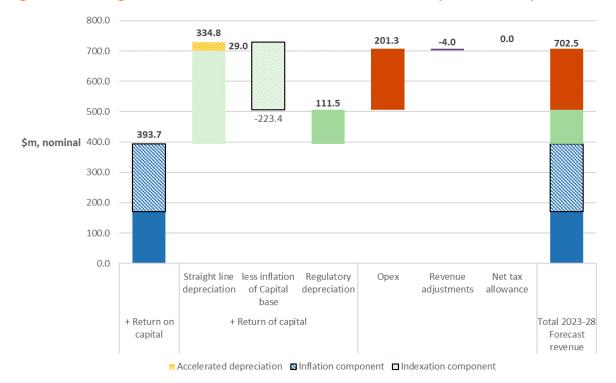


Figure 3 Building block chart with inflation and accelerated depreciation impact

Source: AER analysis.

1.2 Key differences between our final decision and APA's revised proposal

Our final decision accepts much of APA's revised proposal, including its revised approach to accelerated depreciation. We have also accepted its forecast of demand over the 2023–27 period. In other respects, the information available to us remains insufficient for us to accept its proposal.

The main areas of difference between our calculation of expected revenue and APA's are:

- Our approved forecast capex, which is \$46.4 million (16.6%) less than APA's revised proposal.
- Our approved forecast opex, which is \$4.7 million (2.5%) less than APA's revised proposal.⁴
- Our larger revenue adjustment (penalty) from the application of the opex efficiency carryover mechanism in the 2018–22 period (-\$4.1 million compared to -\$3.2 million in APA's revised proposal).

APA VTS proposed \$186.4 million (\$2022) of opex (inclusive of debt raising costs) in its revised proposal. Our assessment identified an error in the proposed opex amount as it does not include the opex step change for the augmentation of the South West Pipeline. Correcting this error resulted in a \$1.3 million (\$2022) increase to the proposed opex amount to \$187.6 million (\$2022). In responding to our information request, APA VTS confirmed this error. We have accounted for this error in our final decision to approve \$182.9 million (\$2022) of opex for APA VTS.

 Our estimate of expected inflation for the purposes of this final decision is 3.25% per annum. This is a higher estimate of inflation than used in APA's revised proposal (2.87%). This has decreased the return of capital (regulatory depreciation) relative to APA's revised proposal.

We have also updated and made minor corrections to other elements of APA's revised proposal in arriving at our total revenue requirement.

Movements in market variables including interest rates and expected inflation have nonetheless led to revenue outcomes that are higher in our final decision than APA's revised proposal. These include the higher rate of return of 5.55% we have included in this final decision. Updates to risk-free rate and the return on debt have resulted in an increase from the placeholder estimate of 5.19% in APA's revised proposal. This has increased the return on capital relative to APA's revised proposal.

These updates are a standard part of our decision making process and do not reflect areas of difference between us and APA.

1.3 APA's consumer engagement

Genuine, high quality consumer engagement by APA is essential to ensuring that its proposal is genuinely driven by consumer preferences, supports delivery of services that meet the needs of its consumers, and does so at a price that is affordable and efficient. Our framework for considering consumer engagement in network revenue determinations is set out in the Better Resets Handbook.

Our draft decision observed that engagement on the initial proposal, while a step up for APA, fell short of the expectations in the Handbook for consumer partnership. We recognised that APA appeared to have provided participants with a good background to equip them to comment on some elements of its proposal. However, we observed that the broad cross-section of interests represented at APA's 'roundtable' events brought with it different priorities, preferences, and concerns. This lack of consensus was somewhat overlooked in APA's proposal. APA's efforts appeared to have been more successful in winning support from other declared wholesale market participants for elements of its capex proposal than in addressing concerns with the overall proposal from end users and consumers.

We encouraged APA to look for greater collaboration and partnership with consumers on the positions put forward in its revised proposal.

APA held two stakeholder roundtables between our draft decision and submission of its revised proposal (a planned third was cancelled due to a Teams outage and not rescheduled). APA used these sessions to inform stakeholders of its intended response to our draft decision and to invite further discussion of what information stakeholders would like to see included in support of its revised proposal. APA held a further session on 31 August 2022 to take questions on the revised proposal, but this took place after it had been submitted to the AER.

Participants in this second round of engagement again recognised efforts on APA's part to improve. However, we share observations with the EUAA and CCP28 that these efforts still fall short of expectations in the Better Resets Handbook. CCP28's observations on APA's engagement since its initial proposal were consistent with those on APA's early engagement.

APA has made progress in its stakeholder engagement since previous resets, but by its own admission is finding this difficult and is not keeping up with its peers. Engagement on its revised proposal stopped at 'informing' stakeholders of its planned response to our draft decision and left little room for influence or exploration of alternatives. As observed in respect of APA's engagement on its initial proposal, its focus was on justifying proposed positions rather than engaging in what alternative positions and options might be. Its revised proposal failed again to address the fundamental questions raised by stakeholders, including CCP28, who sought to understand APA's plans for the next five years within the context of its longer-term business plans. The EUAA had a similar observation, noting that in several respects APA's revised proposal continued to pursue projects that consumer advocates had made clear they did not support, and without engaging with their concerns.

It is not surprising then, that stakeholder sentiment towards the revised proposal appeared largely unchanged since the initial proposal. There is little if any evidence before us that APA's engagement with the end users and consumers who will ultimately pay for its services has impacted its revised proposal.

APA is a natural monopoly supplying an essential service. There is a lot of room for improvement in its engagement with end users and consumers. The Handbook outlines what the AER expects would be in a high-quality, consumer-centric proposal. Our experience demonstrates that a regulatory proposal developed through genuine engagement with consumers will better promote their long term interests and is more likely to be largely or wholly accepted in our decisions. This creates a more efficient regulatory process for all stakeholders than we have seen in this review. We consider that the Handbook will also lead to many other benefits, including improved relationships and understanding between APA and consumers, greater faith from all parties in regulatory processes and the generation of new ideas and regulatory approaches that benefit both customers and networks.

APA now has the opportunity to start working toward this, by building the networks and engagement strategies it will need to prepare a proposal for its next access arrangement period that is genuinely driven by consumer preferences and supports delivery of services that meet the needs of its consumers, at a price that is affordable and efficient. The uncertainty that has surrounded this review is likely to continue in future access arrangement periods, and a clear and consistent business narrative throughout future proposals will be critical to that engagement.

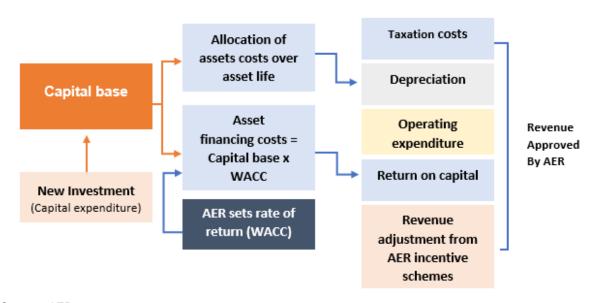
2 Total revenue requirement

The foundation of our regulatory approach is a benchmark incentive framework to setting revenues: once regulated revenues are set for the five year period, a network that keeps its actual costs below the regulatory forecast of costs retains part of the benefit. Service providers have an incentive to become more efficient over time, as they retain part of the financial benefit from improved efficiency. Consumers also benefit when efficient costs are revealed, and a lower cost benchmark is set in subsequent regulatory periods.

APA's proposed revenue requirement, and our assessment of it under the NGL and NGR, is based on six cost components or 'building blocks', illustrated in Figure 4:

- return on the capital base to compensate investors for the opportunity cost of funds invested in this business
- depreciation of the capital base or return of capital, to return the initial investment to investors over time
- capex the capital costs and expenditure incurred in the provision of network services, which directly affects the size of the capital base and, therefore, the revenue generated from the return on capital and depreciation building blocks
- forecast opex the operating, maintenance, and other non-capital expenses, incurred in the provision of network services
- revenue increments/decrements resulting from the application of incentive schemes,
 such as the opex efficiency carryover mechanism that applies to the VTS
- estimated cost of corporate income tax.

Figure 4 The building block approach to determining total revenue



Source: AER.

2.1 Final decision on total revenue

The total revenue requirement is a forecast of the efficient cost of providing gas transmission services over the access arrangement period. We determine annual revenue, and the total revenue requirement, in nominal terms that take into account expected future inflation. We use five year inflation expectations to convert revenues to nominal values.

Our final decision on APA's total revenue requirement for the VTS is \$702.2 million (\$nominal, smoothed). This is an increase of \$4.3 million (0.6%) from APA's revised proposal. We have made changes to each of APA's proposed revenue building blocks, discussed in section 3.

Table 1 sets out our final decision on APA's total revenue requirement (by building block) for the VTS for each year of the 2023–27 period, the total revenue after equalisation (smoothing), and the X factors derived from APA's tariff model for use in the tariff variation mechanism.

Table 1 AER's final decision on smoothed total revenue and X factors for the 2023–27 period (\$ million, nominal)

Building block	2023	2024	2025	2026	2027	Total
Return on capital	70.1	78.4	80.9	81.9	82.5	393.7
Regulatory depreciation	11.7	21.9	27.1	29.6	21.1	111.5
Operating expenditure	39.3	39.4	39.6	40.9	42.1	201.3
Revenue adjustments	-2.6	-2.2	-2.4	-0.2	3.3	-4.0
Net tax allowance	0.0	0.0	0.0	0.0	0.0	0.0
Building block revenue – unsmoothed	118.5	137.6	145.2	152.2	148.9	702.5
Building block revenue – smoothed	125.3	132.3	141.5	151.1	151.9	702.2
X factors ^a	n/a	-2.25%	-3.60%	-3.42%	2.66%	n/a

Source: AER analysis. n/a: not applicable.

(a) Under the CPI–X form of control, a positive X factor is a decrease in price (and therefore, in revenue). Our decision establishes 2023 tariffs directly, rather than referencing a change from 2022 tariffs.

2.2 Revenue smoothing and tariffs

The 'average revenue yield' form of control we apply to APA's tariffs for the VTS is unique to the APA VTS access arrangement. It shares characteristics with both a revenue and a price cap. Like a price cap, if actual demand is greater than forecast APA earns higher revenues than forecast, and vice versa if actual demand is less than forecast.

Our decision on APA's access arrangement proposal includes a determination of APA's total building block revenue (unsmoothed revenue), and a smoothed revenue profile across the 2023–27 access arrangement period.

This annual weighted average tariff change ('X factor') must ensure that the sum of the smoothed revenues across the period equals the unsmoothed building block revenue (in NPV terms). The X factors represent the weighted average *real* change in tariffs. As part of

the annual reference tariff variation process applying from 2024, we combine the X factors we have determined in our decision with actual inflation to create *nominal* reference tariffs for the coming year. This means that the prices paid by consumers, and therefore the revenues received, change with actual inflation, plus the annual X factor rate.

By smoothing revenue, we also aim to minimise price volatility between and within access arrangement periods by keeping the difference between smoothed and unsmoothed revenue in the final year of each period as close as possible, and to provide price signals across tariffs that reflect APA's underlying, efficient costs of providing services. Smoothing for the purposes of this access arrangement is completed in APA's tariff model.

The total revenue we have arrived at in this final decision, and our approved forecasts of capex and opex, mean that revenue smoothing has also changed. As a result, the average annual tariffs over the 2023–27 period are summarised in Table 2 below.

Table 2 AER's final decision - average annual tariffs for the 2023-27 period (\$/GJ, nominal)

	2023 a	2024	2025	2026	2027
AER's final decision (\$, million)					
Forecast volume (PJ)	206.9	204.2	201.5	196.8	198.1
Nominal price (\$/GJ)	0.61	0.65	0.70	0.77	0.77
Nominal price change	12.4%	7.0%	8.4%	9.3%	-0.2%
APA's revised proposal (\$, million)					
Forecast volume (PJ)	206.9	204.2	201.5	196.8	198.1
Nominal price (\$/GJ)	0.57	0.63	0.69	0.76	0.82
Nominal price change	6.2%	9.7%	9.7%	10.8%	7.5%

Source: AER analysis. n/a: not applicable.

(a) Nominal price change for 2023 is calculated based on the percentage change between 2022 average tariff and 2023 average tariff.

In considering the potential outcomes of this determination process it is important to remember that over the 2023–27 period there are additional mechanisms under the NGR that may operate to increase or decrease APA's reference tariffs. These could include cost pass through applications for expenditure needed to meet new regulatory obligations.

APA's transmission charges make up around 3% of Victorian consumers' gas bills (2.3% for residential customers and 3% for small business customers). Other components of the supply chain—the cost of purchasing energy from the wholesale market, distribution charges, and the costs and margins applied by electricity retailers in determining the prices they will charge consumers for supply—make up larger portions of the prices ultimately paid by consumers. These sit outside the decision we are making here but will also continue to change throughout the period.

In nominal terms, which include the impact of expected inflation, we estimate the impact of this final decision would be an increase to the current transmission component of consumers' energy bills. For illustrative purposes only, holding other components constant, we estimate the modelled impact of this final decision on the average annual gas bill for a residential

customer in Victoria, as it is today, would be an increase of \$14 (1.0%) by 2027 (\$ nominal). For small business customers, the impact would be \$119 (1.3%) by 2027.

For illustrative purposes, at a system wide level, the average charges for transmission service are estimated to increase by 52.2% (\$0.28/GJ) over the next five years were we to accept APA's revised proposal. The modelled impact of this final decision is an estimated increase of around 42.3% (\$0.23/GJ). The two are compared in Figure 5. These are simple estimates only, calculated based on an aggregate level (total revenue divided by total volume) rather than individual zone level tariffs.

The final decision smoothing profile will result in lower annual tariff changes over the 2023-27 period, so that by 2027 the average tariff under the final decision will be \$0.77/GJ compared to \$0.82/GJ under the revised proposal. We have achieved this by allowing a higher step change in revenue in the first year of the access arrangement period, while demand is at the highest point, in exchange for lower price increases in following years.

Within the access arrangement, the magnitude of changes to individual injection and withdrawal tariffs across the different tariff zones in the VTS will vary depending on cost allocation under APA's tariff model.

0.9 0.8 0.7 0.6 0.5 \$/GJ, nominal 0.4 0.3 0.2 0.1 0.0 2027 Final decision Actual Allowed Revised proposal

Figure 5 Indicative average reference tariffs from 2018 to 2027 (\$nominal)

Source: AER analysis.

3 Key elements of our final decision on revenue

The components of our final decision include the building blocks we use to determine the total revenue requirement. The following sections summarise our revenue decision by building block. The attachments to this decision provide a more detailed explanation of our analysis and findings.

3.1 Capital base

The capital base accounts for the value of regulated assets over time. To set revenue for a new regulatory period, we take the opening value of the capital base from the end of the last period and roll it forward year by year by indexing it for inflation, adding new capex and subtracting depreciation and other possible factors (such as disposals). This gives us a closing value for the capital base at the end of each year of the regulatory period.

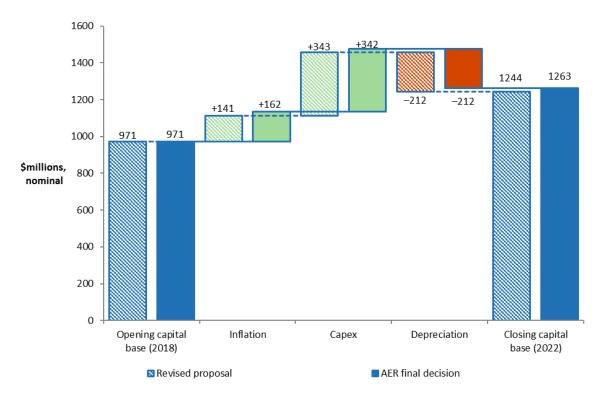
The value of the capital base is used to determine the return on capital and depreciation building blocks. It substantially impacts APA's revenue requirement, and the price consumers ultimately pay. Other things being equal, a higher capital base would increase both the return on capital and depreciation components of the revenue determination.

For this final decision, we have determined an opening capital base value of \$1262.8 million (\$ nominal) as at 1 January 2023. This value is \$19.2 million (1.5%) higher than APA's proposed opening capital base of \$1240.2 million. Key differences include that:

- We have updated the estimated inflation input for 2022 in the final decision roll forward model (RFM) based on the latest forecast from the November 2022 Statement on Monetary Policy by the RBA. The updated estimate of 8.0 % is higher than the 6.0% set out in the revised proposal. This results in a \$22.5 million (\$ nominal) increase to the opening capital base as at 1 January 2023 compared to the revised proposal, all else being equal.
- We do not accept the revised proposed adjustment of \$3.3 million to the opening capital base as at 1 January 2022 to account for the historical costs of line pack and spares inventory due to the re-allocation of these costs from opex to capex. This results in a \$3.3 million (\$ nominal) reduction to the opening capital base as at 1 January 2023 compared to the revised proposal.

Figure 6 shows the key drivers of the change in the VTS capital base over the 2018–23 period compared to APA's revised proposal.

Figure 6 Key drivers of changes in the capital base over the 2018–22 period – APA's revised proposal compared with AER final decision (\$ million, nominal)



Source: AER analysis

Note: The revised proposal closing capital base value as at 31 December 2022 includes \$3.3 million adjustment for linepack and spares adjustment.

The slight increase in capex is due a higher half year WACC applied to the estimated 2022 capex in the final decision compared to the revised proposal. The higher half year WACC for 2022 is in turn driven by higher estimated 2022 inflation approved in the final decision compared to the revised proposal.

Figure 7 likewise shows the key drivers of the change in capital over the 2023–27 period compared to APA's revised proposal. Our final decision projects an increase of \$139.5 million (11.0%) to the capital base by the end of the 2023–27 period compared to the \$162.9 million (13.1%) increase from APA's revised proposal.

2000 +251 +300 1800 1600 +223 +196 1406 1402 1400 1263 -335 1244 -334 1200 \$millions, nominal 800 600 400 200 0 Opening capital Inflation Capex Depreciation Closing capital base (2023) base (2027) AFR final decision Revised proposal

Figure 7 Key drivers of changes in the RAB over the 2023–27 period – APA's revised proposal compared with AER's final decision (\$ million, nominal)

Source: AER analysis

3.2 Rate of return and value of imputation credits

The return each business is to receive on its capital base (the 'return on capital') is a key driver of proposed revenues. We calculate the regulated return on capital by applying a rate of return to the value of the capital base.

We estimate the rate of return by combining the returns of two sources of funds for investment – equity and debt. The allowed rate of return provides the business with a return on capital to service the interest rate on its loans and give a return on equity to investors. We have applied our 2018 Instrument to estimate the rate of return for this final decision.⁵

The rate of return we have included in this final decision is 5.55% (nominal vanilla). Updates to risk-free rate and the return on debt have resulted in an increase from the placeholder estimate of 5.19% in APA's revised proposal.

Our estimate of expected inflation for the purposes of this final decision is 3.25% per annum. It is an estimate of the average annual rate of inflation expected over a five-year period based on the approach adopted in our 2020 Inflation Review⁶ and the forecast from the Reserve Bank of Australia's November 2022 Statement on Monetary Policy. This is a higher estimate of inflation than used in APA's revised proposal (2.87%).

AER, *Rate of return Instrument*, December 2018. See https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-guideline-2018/final-decision

⁶ AER, Final position – Regulatory treatment of inflation, December 2020.

Both APA's revised proposal and our final decision apply a value of imputation credits (gamma) of 0.585 as set out in the 2018 Instrument.⁷

3.3 Regulatory depreciation

Depreciation is a method used in our decision to allocate the cost of an asset over its useful life. It is the amount provided so capital investors recover their investment over the economic life of the asset (otherwise referred to as 'return of capital'). When determining APA's total revenue, we include an amount for the depreciation of the projected capital base. The regulatory depreciation amount is the net total of the straight-line depreciation less the indexation of the capital base.

Our final decision determines a regulatory depreciation amount of \$111.5 million (\$ nominal) for the 2023–27 period. This is a reduction of \$25.9 million (18.9%) from APA's revised proposal of \$137.4 million. The key reason for the difference between our final decision and APA's revised proposal is our higher expected inflation rate for the 2023–27 period. This increases the adjustment for indexation of the capital base that is offset against straight-line depreciation in determining regulatory depreciation. Our final decision also includes a lower capex forecast than APA's revised proposal, which reduces the associated depreciation amount.

Our final decision does include APA's revised proposal for accelerated depreciation. The approved accelerated depreciation will increase the total revenue requirement by \$29 million (4.3%) over the 2023–27 period relative to not including it.

APA's initial proposal put forward a 30-year cap on lives for all asset classes across the VTS. Our draft decision did not accept that proposal and included no accelerated depreciation. APA's revised proposal included a 30-year cap on both the remaining and standard asset lives of the 'Pipelines' asset class only, which currently has a standard asset life of 55 years and an average remaining asset life of 34 years. This proposal is more modest than its original proposal, which had also extended the cap to the 'Land' and 'Buildings' asset classes. We calculate the revenue impact of the original proposal would have been 5.0%, compared to 4.3% for the revised proposal.

In accepting the proposed 30 year cap we recognise that the publication of the Roadmap since our draft decision was made indicates that the Victorian Government is committed to the net zero emissions target by 2050.8 This will mean a limited role for gas beyond this date. The Roadmap included several initiatives that will reduce the role for gas in Victoria, such as incentives for residential customers to switch to electric appliances, the removal of planning provisions requiring new housing developments to connect to gas, and higher energy efficiency requirements for housing. Residential customers currently make up the largest proportion of demand, but this proportion is likely to decline going forward and may even end by 2050. The demand from industrial customers is less certain, while the future role for hydrogen is also uncertain at this time.

AER, Rate of return Instrument, Explanatory Statement, December 2018, pp. 307–382.

⁸ Victorian State Government, Gas Substitution Roadmap, July 2022.

While these changes are likely to eventuate, the pace of change remains uncertain. Our final decision to accept the proposed cap is guarding against risk of an earlier wind down of the network and the price spike that may result if demand falls faster than expected. As we stated in our draft decision, we have not attempted to resolve the issue of how much stranding risk customers and APA should share during the consideration of this review for the 2023–27 period. The most recent updates to AEMO's demand forecasts show a decline in demand projections compared to the demand scenarios used in APA's initial proposal. They suggest significant falls in demand post-2028 as emission reduction policies are expected to ramp up. Our final decision is consistent with this change in expectations.

As noted in our information paper on *Regulating Gas Pipelines Under Uncertainty*, bringing forward the cost recovery of the efficient investments that regulated businesses have already made would increase the certainty that incurred costs would be recovered, thereby reducing stranded asset risk and the potential need for material upwards price adjustments in the future. If the achievement of net zero emissions target progresses more quickly than anticipated leading to significant demand reductions, we consider customers could benefit from reducing the capital base now (by shortening the asset lives).

We are mindful of concerns consumer and user advocates have raised with the proposal. These stakeholders have generally been unsupportive of APA's proposal for accelerated depreciation. CCP28 commented on a lack of meaningful engagement before the revised proposal was submitted. The Brotherhood of St. Laurence discussed a number of concerns with APA's proposal, noting in particular that the high level of capex alone was reason to reject the proposal. The EUAA said it understood the reason for the draft decision. It stated it would leave it up to the AER to decide whether the additional ACIL analysis and the Roadmap policy announcements provide sufficient clarity on the State Government's objectives to support any level of accelerated depreciation. Red Energy was also concerned with the inconsistency between APA's high level of proposed capex and the proposal for accelerated depreciation. APA could and should have done a better job engaging its stakeholders on this issue.

We still have concerns that the level of analysis presented by APA in its revised proposal has not met the expectation set out in our information paper.¹⁴ The ACIL analysis is informative but does not address specific aspects of the VTS network. However, we do not consider that this lack of specificity is sufficient reason to not take a small step now.

We are also concerned with the inconsistency between APA's high level of proposed capex and the proposal for accelerated depreciation. This final decision approves total forecast

⁹ AER, Regulating gas pipelines under uncertainty information paper, November 2021, p. 29.

CCP28, APA: Victorian Gas Transmission System Access Arrangement 2023–27, CCP28 Advice to the AER - Revised Proposal, 31 August 2022, p. 14.

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, 1 September 2022, pp. 6-11.

EUAA, Submission, APA Gas Transmission access arrangement, 7 September 2022, p. 3.

Red Energy, *Re: Draft decision for APA Victorian Transmission System access arrangement 2023–27*, September 2022.

AER, Regulating gas pipelines under uncertainty information paper, November 2021, pp. 29-32.

capex that is 31.2% lower than APA's expected, actual capex in the current 2018–22 period, and 18.4% lower than APA sought in its revised proposal. We have previously observed that it is important to ensure a prudent level of expenditure on network investment or maintenance to maintain safe and reliable gas services for remaining customers, notwithstanding the risk that these expenditures may have economic lives shorter than expected or may not produce a net benefit ultimately. Neither APA's revised proposal nor our final decision include forecast capex for growth on the network. We consider the reductions to total forecast capex in this final decision and the types of capex approved go a long way to resolving the apparent inconsistency.

Accepting the proposal to accelerate depreciation leaves open the option to change course at future reviews. Although we may be approving acceleration now, reversals at a future date may also be required to promote efficient growth (including negative growth) of the market as required under the NGR. ¹⁶ If it becomes apparent that the VTS will still have significant role beyond 2050 then we consider that such a reversal may be required, potentially as soon as the next review.

3.4 Capital expenditure

Capital expenditure (capex)—the capital costs and expenditure incurred in the provision of prescribed transmission services—mostly relates to assets with long lives, the costs of which are recovered over several regulatory control periods. Forecast capex directly affects the size of the capital base and the revenue generated from the return on capital and depreciation building blocks.

Our final decision is not to accept APA's total forecast capex of \$279.6 million (\$2022) for the 2023-27 period. The total revenue requirement in this final decision includes forecast capex of \$233.2 million (\$2022), a reduction of \$46.4 million (16.6%) from APA's revised proposal.

Figure 8 compares APA's initial and revised proposals and our draft and final decisions to its expenditure in the current and previous periods. The total forecast capex in this final decision is 31.2% lower than APA's expected, actual capex by the end of the current period. The final years of the current, 2018-22 period have seen significant investment in the WORM and the installation of a second compressor at Winchelsea to mitigate the risk of forecast supply shortfalls in Winter 2023. These projects are expected to be commissioned in 2023, so expenditure in the 2023-27 period is lower as a result.

¹⁵ AER, Regulating gas pipelines under uncertainty information paper, November 2021, p. 50.

¹⁶ NGR, r. 89.

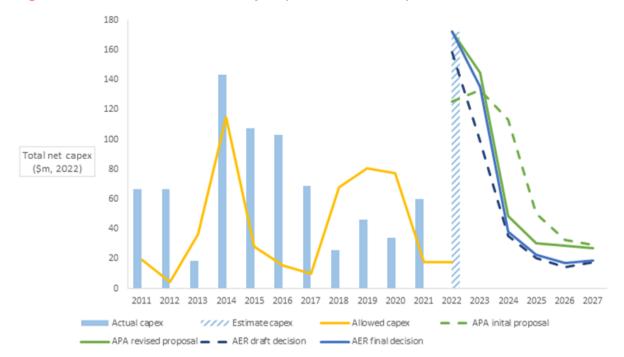


Figure 8 Historical and forecast capex (\$million, 2022-23)

Source: AER analysis

Our assessment of APA's proposed capex included several information requests to APA to obtain more detailed cost estimates and an understanding as to the basis of the capex forecasts. We have looked closely at the increased cost of the WORM (a \$32.0 million increase in the total project cost from the initial proposal) to ensure that project costs included in the total capex forecasts are prudent and efficient, and that increases are limited to those reflective of genuine changes in circumstance.

We also gave careful consideration to other key drivers of forecast capex. Our lower alternative total capex forecast results primarily from:

- our final decision not to accept APA's proposed \$18.9 million for a hydrogen safety and integrity assessment. APA has not demonstrated that its proposed study is prudent and efficient at this time. However, uncertainty mechanisms under the NGR—including the option of seeking re-assessment and pre-approval of the study at a later date under rule 80, or to seek an early review of the access arrangement under rule 65—will allow APA the opportunity to revisit this with the benefit of better supporting information and analysis if the need arises.
- concerns raised in our draft decision with APA's proposed capex for overheads, asset replacement, information and communications technology and to meet new obligations under SoCI legislation which have not been fully addressed by APA. Our final decision allows more for these than we were in a position to approve in our draft decision, but still lower than APA has sought to recover from consumers.

3.5 Operating expenditure

Opex is the operating, maintenance and other non-capital expenses incurred in the provision of APA's reference service.

Our final decision is not to accept APA's proposed opex forecast of \$187.6 million (\$2022). The total revenue requirement we have approved includes a lower opex forecast of \$182.9 million, a reduction of \$4.7 million (2.5%) from APA's proposal.

Figure 9 compares the total opex forecast for 2023-27 in this final decision to its revised proposal, and to actual and forecast opex in the current and previous periods.

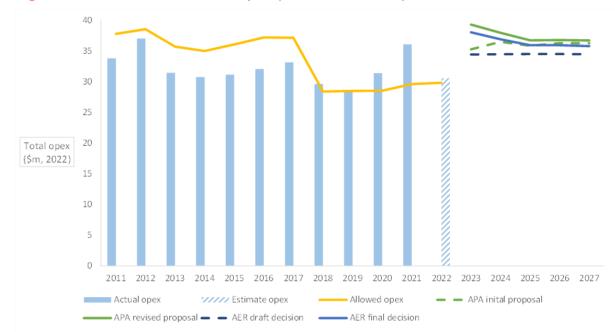


Figure 9 Historical and forecast opex (\$million, 2022-23)

Source: APA VTS, Access arrangement proposal 2023–27, Post tax revenue model, August 2022; APA, VTS 2023-27: Response to information request #022. Received 23 August 2022.; APA VTS, Access arrangement proposal 2023–27, Opex Model, 1 December 2021: 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. 15. AER analysis.

Forecast opex for 2023-27 is \$28.5 million (18.4%) above that approved for the 2018-22 period, and \$26.8 million (17.2%) higher than its expected, actual opex by the end of that period. Rey drivers of this increase include forecast opex relating to maintaining and operating the augmented SWP and WORM. Our decision also recognises that APA will incur some increases in costs in the 2023-27 period to maintain and upgrade information technology, and to meet new obligations under SoCI legislation, although both items at a lower cost compared to what APA proposed.

While we have included these step changes in our final decision at lower costs than proposed, consistent with our draft decision we have not included APA's proposed step changes for increases in property taxes and carbon emissions offsets. As we found in our

AER, APA VTS - Final decision post tax revenue model, November 2017, and AER analysis.

APA VTS, Access arrangement proposal 2023–27, Opex Model, 1 December 2021, and AER analysis.

draft decision, there is still insufficient supporting analysis and evidence—both in APA's revised proposal and after our subsequent requests for further substantiating analysis and information—for us to accept these increases to forecast opex APA proposed. Overall, this means that we have only included \$14.1 million of the \$21.0 million in step increases to opex proposed by APA.

Partially offsetting this reduction is a higher value for opex in the base year in our final decision (\$3.1 million) compared to APA's revised proposal as we have updated it for the forecast inflation for December 2022.¹⁹

3.6 Revenue adjustments

Our calculation of total revenue for the VTS includes an adjustment under the operating expenditure incentive mechanism in its access arrangement. This mechanism provides a continuous incentive for APA to pursue efficiency improvements in opex and provides for a fair sharing of these between APA and VTS users.

Our final decision is to approve a negative carryover amount of \$4.1 million (\$2022) from the application of the incentive mechanism in the current period. This is a larger adjustment than APA's proposed –\$3.2 million, because we have updated for more recent forecasts of inflation and included a non-recurrent efficiency gain. APA's revised proposal otherwise included the revisions required under our draft decision.

Our final decision also approves APA's proposal that the operating expenditure incentive mechanism continues to apply during the 2023–27 access arrangement period.

3.7 Corporate income tax

Our determination of the total revenue requirement includes the estimated cost of corporate income tax for 2023–27 period. Under the post-tax framework, this amount is calculated as part of the building blocks assessment using our post tax revenue model (PTRM).

Our final decision on APA's estimated cost of corporate income tax is zero over the 2023–27 period. This is consistent with APA's revised proposal and our draft decision. We expect APA to incur a forecast tax loss over the 2023–27 period. We have determined that \$76.9 million in tax losses as at 31 December 2027 will be carried forward to the 2028–32 access arrangement period where it can be used to offset future tax liabilities. The forecast tax losses arise because APA's forecast tax expenses will exceed its revenues for tax assessment purposes over the 2023–27 period. This is mostly due to the implementation of our findings from the 2018 *Review of the regulatory tax approach*, where the introduction of immediate expensing of capital expenditure (capex) and diminishing value method of tax depreciation have resulted in a significant increase of forecast tax depreciation.²¹

¹⁹ RBA, Statement on Monetary Policy, Forecast Table - November 2022, 4 November 2022.

A forecast tax loss occurs when the forecast assessable income is lower than the forecast tax expense. In this event no tax is payable. Any residual amount of tax loss will be carried forward over to future access arrangement periods to offset future taxable income until the tax loss is fully exhausted.

The third key finding from the 2018 tax review relates to capping tax lives for gas assets to 20 years.

4 Forecast demand

Forecast demand plays an important part in APA's access arrangement:

- The 'average revenue yield' form of control we apply to APA's tariffs is similar to a price cap. In very simple terms, tariffs are determined by cost (the revenue allowance discussed in section 2) divided by total demand. In this final decision, declining forecast demand has the effect of increasing tariffs.
- Forecast demand is also a driver of opex and capex for network growth or expansion.

The demand forecasts in APA's initial proposal were informed by the 2021 Gas Statement of Opportunities (GSOO), and by work it commissioned from Oakley Greenwood to explore key issues affecting supply and demand in Victoria considering the changes in the market after it was released, including potential implications for the VTS. Feedback from stakeholders was that it would be important to this decision to consider more recent forecasts informed by the 2022 GSOO, which was released in March. Our draft decision therefore adopted updated demand forecasts prepared by APA and based on AEMO's 'progressive change' scenario. That scenario represents a future that delivers action towards net zero emissions through technology advancements and was based on state and federal government environmental and energy policies in place at the time.

In its revised proposal APA adopted a delayed step change scenario, whereby AEMO's progressive change scenario is proposed for this access arrangement period before changing to a step change scenario from the next access arrangement. The Step Change scenario, also from the 2022 GSOO, represents a future with rapid transformation of the energy sector and a coordinated economy-wide approach that efficiently and effectively tackles the challenge of rapidly lowering emissions, (including electrification of gas heating load), driven by consumer-led change with a focus on energy efficiency, digitalisation and step increases in global emissions policy above what is already committed.

During consultation on the 2022 Integrated System Plan (ISP), stakeholders identified Step Change as the scenario they considered to be the most likely pathway. However, as AEMO noted, the pace of change so far has been relatively slow and urgent action would be needed to put south-eastern regions on the Step Change path in the short term. APA's hybrid demand forecast recognises this by assuming a 5-year policy lag before demand is likely to reduce at the rate contemplated in the step change scenario.

We consider the demand forecast APA has proposed is consistent with its forecasts of expenditure, including the progression of the WORM and expansion of the SWP with the new Winchelsea compressor. We also consider it consistent with the direction of the Roadmap. Forecast declines in connection to Victoria's distribution networks suggest that they will see a slightly faster decline in demand than the transmission network. APA's demand base is broader than the distributors. It includes demand from directly connected gas fired power stations and large industrial users. These demand sources are not affected by the roadmap over the next regulatory period so contribute to more stable demand for APA in the short term. The progressive change scenario is a reasonable short-term forecast until more substantial initiatives are introduced in future periods.

5 Reference services and tariffs

APA's access arrangement for the VTS specifies the reference service it will provide, the tariffs for that service, and the other terms and conditions on which it will be provided.²²

5.1 Services covered by the access arrangement

The VTS operates under the market carriage model, which provides for open access to the VTS and uses the outcomes from the operation of Victoria's Declared Wholesale Gas Market to schedule injections and withdrawals from the VTS. As the system operator of the VTS, the Australian Energy Market Operator (AEMO) is responsible for scheduling injections and withdrawals and the day-to-day operation of the pipeline.

The single reference service in APA's access arrangement proposal is its Tariffed Transmission Service. APA makes the Tariffed Transmission Service for the VTS available to AEMO under a Service Envelope Agreement, in accordance with the NGL.²³ Shippers access that reference service through AEMO. They then pay transmission tariffs directly to APA as owner of the VTS.

APA submitted its reference service proposal for the Tariffed Transmission Service in December 2020.²⁴ We published our decision to approve that proposal in May 2021.²⁵ Absent any material change in circumstances since then, this final decision confirms our approval of APA's proposed reference service.

Our final decision also approves the non-tariff components of the proposed access arrangement, which are consistent with those approved in our draft decision and in our decision for the current 2018-22 period. We remain satisfied that these elements of the APA VTS access arrangement are appropriate in the unique circumstances of the VTS.

5.2 Reference tariff setting and variation mechanism

APA proposed the continuation of the current reference tariff structures during the 2023–27 access arrangement period, which we have accepted subject to updates required to give effect to other parts of this decision. Stakeholders have again noted the complexity of the VTS tariff structure, which establishes locational tariffs based on the physical flow of gas across the VTS network. In future access arrangement periods, APA intends to move away from the existing VTS tariff model and tariff structure towards something more straightforward. We look forward to its engagement on this reform, which we expect to see completed in time for APA's next access arrangement review.

²² NGR, r. 48(1)

²³ NGL, s. 91BE.

APA VTS - Victorian Transmission System reference service proposal - December 2020

²⁵ AER - APA Victorian Transmission System reference service decision 2023-27 - Final decision, May 2021

Our final decision largely accepts APA's revised proposal on its annual tariff variation mechanism, which incorporated the revisions required by our draft decision with the exception of its proposed cost pass through events.

The cost pass through events available to APA in the current period will continue to apply in the 2023–27 period. However, we have amended the definition of the terrorism event in APA's revised proposal to capture changes in APA's costs, and not just 'increases' in costs as it has proposed. This revision was required in our draft decision but inadvertently missed in APA's revised proposal. It retains the intended symmetry of the cost past through mechanism, which is designed to allow both positive and negative adjustments. We have also made some further minor amendments to this and the insurer credit risk event that were not picked up in our draft decision.

Our final decision does not accept APA's proposed new 'pre-approved capex' cost pass through event, which would extend the effect of rule 80 of the NGR to allow APA to reopen its reference tariffs to recover a return on additional forecast capex during the 2023-27 access arrangement period. Without the cost pass through event this recovery would not occur until the beginning of the next access arrangement period, when these costs would be included in the capital base. This would mean that APA misses out on the return on capital (but not the return of capital) within the access arrangement period the capex is incurred, but otherwise recovers its costs associated with the investment in future periods.

We accept that there may be changes in capex projects, timing, and priorities over the 2023-27 period. The total revenue requirement approved in this access arrangement provides an envelope of forecast capex within which APA is incentivised to manage its expenditure. The incentive framework under which we have approved that forecast provides APA with some flexibility to manage and recover the capex costs for any changes in efficient investments within that envelope, as it did during the current period. It would still be able to manage its risk in addressing any supply / demand shortfalls by seeking pre-approval of new proposed capex by lodging an application under rule 80 to seek comfort that it meets the conforming / new capital expenditure criteria. In such cases, however, we consider incentives to promote the efficient investment in, and efficient operation and use of, the required infrastructure are stronger without the pre-approved capex event. Recognising this also means there is some risk sharing in the management of capex priorities within the period between APA and consumers, particularly in the event that within the period APA does not fully utilise its approved capex forecast.

A List of submissions

Submissions on our draft decision and APA's revised proposal are listed below.

Stakeholder	Date
Australian Energy Market Operator	September 2022
AGL	September 2022
Brotherhood of St Laurence	September 2022
Consumer Challenge Panel (CCP28)	September 2022
Esso Australia Resources	September 2022
Energy Users Association Australia	September 2022
Lochard Energy	September 2022
Red Energy and Lumo Energy	September 2022
Venice Energy	September 2022

B Glossary

Term	Definition
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
APA / APA VTS	APA VTS Australia (Operations) Pty Ltd and APA VTS Australia (NSW) Pty Ltd
Capex	Capital expenditure
CCP/CCP28	Consumer Challenge Panel, sub-panel 28
CPI	Consumer price index
GSOO	Gas Statement of Opportunities
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
NPV	Net present value
Opex	Operating expenditure
PTRM	Post-tax revenue model
RBA	Reserve Bank of Australia
RFM	Roll forward model
Roadmap	Victorian Gas Substitution Roadmap
SoCI	Security of Critical Infrastructure
SoMP	Statement on Monetary Policy
SWP	South West Pipeline
WACC	Weighted average cost of capital
WORM	Western Outer Ring Main