



Victorian Transmission System 2023-27 access arrangement

Public Forum

01 February 2022

Agenda

Topics

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- 3 Balancing conflicting objectives
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About APA

We provide energy services to customers across Australia

APA owns and/or manages and operates a diverse portfolio of gas, electricity, solar and wind assets

Consistent with APA's purpose to strengthen communities through responsible energy,

- · APA delivers about half of the nation's gas use, and
- connects Victoria with South Australia and New South Wales with Queensland through investments in electricity transmission assets.

APA is also one of the largest owners and operators of renewable power generation assets in Australia, with wind and solar projects across the country

We employ 2,000 people across Australia.



About the Victorian Transmission System

The VTS comprises approximately 1,992 km of pipelines which transport gas from various inlet points to load centres throughout Victoria.

Gas enters the VTS primarily from:

- Longford/Pakenham in the east;
- Port Campbell in the west;
- Culcairn in the North.

The VTS is part of the inter-connected East Coast Grid.

Almost all the natural gas consumed in Victoria (about 200PJ per year) is transported through the VTS.



The VTS and the Market Carriage Model

The Victorian Transmission System (sometimes known as the Declared Transmission System, DTS) is owned and maintained by APA

The VTS is operated by the Australian Energy Market Operator (AEMO) under a market-based centrally co-ordinated carriage system under the *National Gas Law* - the "Market Carriage" model

Buyers and sellers bid their gas supply and demand thorough the mandatory market (the "Declared Wholesale Gas Market"), administered by AEMO

When gas is dispatched through the market, the gas is bundled with the VTS tariffed transportation service - the access arrangement Reference Service is the provision of the VTS to AEMO to operate under the DWGM

Under the market carriage model, there is no scope for buyers or sellers to reserve pipeline capacity. Users are therefore reluctant to fund capacity expansion works.

This has significant implications for the role of the access arrangement on VTS investment.

The Declared Wholesale Gas Market



The VTS access arrangement proposal – a double balancing act

Our access arrangement proposal has needed to balance conflicting objectives:

Declining forecast volumes:

- per AEMO GSOO/VGPR forecasts
- 2021 IASR and 2022 GSOO?
- Victoria Net Zero 2050 initiatives
- Victoria Gas Substitution Road Map

Asset stranding

- Near term
- Longer term

Safety and Integrity

- Ongoing maintenance
- Pigging
- Hydrogen safety

Security of Supply

- Near term peak day security
- VGPR Threat to System Security
- Longer term supply adequacy
- National Gas Infrastructure Plan

Need for new and ongoing investment

Safety, integrity, reliability

Ageing asset

- Urban development and encroachment
- High consequence areas
- Change in definition of "natural gas" to include H2 blends

Tariff impacts

- Short term
- Long term
- Intergenerational equity

Recap of VTS stakeholder engagement

- We describe our approach to VTS stakeholder engagement as "thinking out aloud with stakeholders to develop the proposal
- We started VTS stakeholder engagement in October 2020
- VTS stakeholder engagement group had representatives from 37 groups including consumer advocates, business advocates, customers (shippers), storage facilities, AEMO (Australian Energy Market Operator) and government
- We released the draft Engagement Plan with information about APA, VTS, regulatory framework, engagement principles, indicated timelines and topics. We asked for feedback on the draft Plan and received feedback during roundtables
- Engagement principles set out in the Plan no surprises; clear, accurate and timely communication; easy to understand; transparent; and influence
- We held 12 roundtables, one capital issues workshop and a hydrogen information session
- Each roundtable, workshop or information session was attended by 20-35 external stakeholders
- We have endeavoured to be flexible to best meet the needs of the stakeholder group
- The VTS access arrangement revision is characterised by complexityin policy National Gas Infrastructure Plan, AEMO drivers, Victorian policy on electrification, decarbonisation, future gas demand and supply uncertainty
- Recognising the range of views held by stakeholders (which in some cases were opposing), we didn't set out to get agreement
 from stakeholders rather we wanted to understand everyone's point of view. And to the extent possible reconcile opinions and
 positions, and incorporate them as much as possible into our proposal
- We conducted a quick poll at the end of roundtable 12 to gauge views about our engagement.

Survey questions (for customers, shippers, consumers)

Questions

- 1 Was the information (slides, presentations, papers) for the VTS stakeholder engagement easy to understand?
- 2 Was information (slides, presentations, papers) for the VTS stakeholder engagement transparent?
- 3 Do you feel that you had influence? Did we take on board your feedback?
- 4 In a few words, how would you describe the stakeholder engagement?(word cloud multiple answers allowed)
- 5 Do you have suggestions for ways we could better engage?(word cloud multiple answers allowed)

Table 1 Feedback on APA VTS stakeholder engagement



First Look document



- We consulted on our proposed positions on the 2023-2027 access arrangement proposal before submitting the proposal
- We issued the First Look document on 15 October. We received three written submissions - Lochard consortium, AEMO and Brotherhood of St Laurence
- We have considered the submissions as well as the comments from the previous roundtables in forming our positions
- We also considered AER information paper titled 'Regulating gas pipelines under uncertainty' (15 November 2021).

Our Proposal

Supply Assumption & Proposed SWP570 capital expenditure

We acknowledged comments about our supply side assumptions made by stakeholders

Some thought we should include Port Kembla Gas Import Terminal because AEMO had included it in its forecast.

Others thought that it the status of the project was unclear and that it was an uncertain environment.

Others do not support investing in SWP - Victoria should avoid investing in assets that are at risk of stranding where possible.

- We adopted an approach to only recognise projects that have publicly reached FID APA East Coast Grid expansion; Lochard Iona 570
- We are proposing to invest in the SWP570 in 2023 and 2024.
- SWP570 expenditure forecast cost \$97.2 million
- Stakeholders asked about staging the investment, and we listened
 - Stonehaven is now scheduled to come into service in 2024 and Pirron in 2025

Security of s	upply Unit	2023	2024	2025	2026	2027	Total
SWP570	\$m, \$2022	36.9	53.1	7.3	0.0	0.0	97.2

- Tariff impact for both compressors is about 2.2¢/GJ
 - A little over \$1 per year on a domestic customer bill
 - About \$11 per year for business customers
- To help address investment uncertainty we proposed a Fixed Principle (Rule 99) so as the investment in SWP expansion and the WORM is not subject to the Rule 85 capital redundancy provisions
- There are projects mooted to bring more gas into Victoria but none of these projects have reached Final Investment Decision (FID). As a contingency we also submitted a rule 80 proposal seeking the pre-approval of the AER to consider these projects as conforming capital expenditure if they reach FID.
 - Without this approval, these projects will be unable to compete

Asset lives and depreciation

We discussed proposal to shorten lives of assets.

APA VTS proposed an asset life capped at a maximum of 30 years (rather than 25 to reduce tariff impacts)

- This applies to all assets new and old
- Assets that have a shorter lives will stay at the shorter lives.

Shortening assets lives is a way to bring forward the recovery of efficient costs. At R11 discussions:

- Principle of reducing asset lives and accelerated depreciation was accepted -"logic says ...start sooner rather than later, but make it a smaller amount all the way across"
- Capping maximum lives at 25 years was considered reasonable
 - To help reduce tariff impacts further, we propose a 30-year cap on asset life
- Support for reviewing asset lives at every regulatory reset to assess economic lives should there be a change is circumstances (given uncertainties about future fuels and demand for gas).
- Impact on tariffs and customer bills:
 - Relative to a 25-year life, this reduces the system average tariff impact by about 3.5¢/GJ
 - about \$1.90 per year for domestic customers, \$17.50 per year for business.

Proposed replacement capital expenditure

Replacement program and projects are driven by the need to maintain and improve the safety, security, reliability and integrity of services.

Stakeholders asked whether we would be reviewing our capital expenditure forecasts given AER concerns about the size of the capex budget and accelerated depreciation

In response we reviewed the program and reduced the scope of the encroachment program

The replacement program reduced from forecast \$140.4m to \$122.9m (\$17.4m or 12% lower)

Replacement program is heavily focused on asset integrity. Key programs

- Pipeline integrity program forecast is \$27.6 million
- Unpiggables identified as high risk program forecast cost is \$26.8 million.

Replacement capital expenditure

- The replacement (stay-in-business) are driven by the need to maintain and improve the safety, security, reliability and integrity of services. Programs are aligned with safety obligations and good industry practice
- Proposed replacement expenditure is \$45.4million (59%) more than expenditure in the current period
- The increase is due to a greater focus on addressing increased risk factors
- Program responds to increased risk factors:
- VTS is an ageing asset, combined with
- greater urban encroachment, increases
- need for integrity projects and addressing unpiggable pipelines.

Replacement (SIB) program	Unit	2018-2022	2023	2024	2025	2026	2027	Total
Total replacement	\$m, \$2022	77.5	26.9	35.9	26.0	18.1	16.1	122.9
Key programs								
BC258 Integrity management								
(in line inspections)	\$m, \$2022	15.8	7.0	6.5	6.9	5.2	2.1	27.6
BC259 Unpiggables	\$m, \$2022	16.9	9.7	14.1	3.0	0.0	0.0	26.8
BC204 Upgrade Brooklyn								
compressor	\$m, \$2022	2.6	2.5	2.5	2.5	2.8	0	10.3

Hydrogen safety and integrity testing

Our consideration

- We acknowledged stakeholder interest in better understanding the safety implications of hydrogen; impact on customer appliances; and concerns about price impacts for customers
- Government policy is fast tracking consideration of bringing hydrogen and other renewable gas blends into the national energy regulatory framework
- There is an increasing likelihood that hydrogen will be transported via the VTS
- Government policy means that we need to ensure safety and integrity of pipelines so that any hydrogen injected into the system does not cause harm

Our position

- There is a level of urgency to ensure that VTS pipelines can safely accept hydrogen without compromising integrity
- It is critical that we undertake technical assessments before any quantity of hydrogen gas enters the VTS network
- We are proposing to undertake hydrogen safety and integrity testing (39 pipelines in the VTS). This review will be complex and take five years to undertake
- Forecast cost of the testing is \$37.9 million
- The bill impact is about 2¢/GJ, which is:
 - o about \$1.10 per year for domestic customers
 - o and \$10.00 per year for business customers.
- Business case justifying testing submitted as part of our proposal

SoCI program and Information Technology

Forecast for Security of Critical Infrastructure program:

Business case (confidential) justifying program includes Mandated obligation, Gap analysis, Costings and Benefits.

VTS allocation of SoCI cyber and program is based on cost allocation method submitted to AER. Physical is based on site specific costs.

Forecast for Information Technology:

 VTS IT allocation of corporate costs is based on cost allocation method submitted to the AER.

Transformation &							
Technology	Unit	2023	2024	2025	2026	2027 2	023-2027
Transformation Offi	ce \$m, \$2022	2.05	2.05	1.23	0.41	0.41	6.16
Operational Techno	olog <u>:</u> \$m, \$2022	0.79	0.78	0.64	0.65	0.67	3.53
Information Techno	logy\$m, \$2022	0.11	0.03	0.00	0.09	-	0.24
Total	\$m, \$2022	2.96	2.86	1.87	1.16	1.08	9.93

-	TUTAL	ЭШ, Э2022	3.85	4.03	3.60	3.10	0.42	15.01
ιp -	Total	¢ლ ¢ን0ንን	2.05	4.00	2.00	2 10	0.40	15.01
n	SoCI physical security	\$m, \$2022	2.68	2.77	2.77	2.77	0.10	11.09
	SoCI program	\$m, \$2022	0.34	0.42	0.08	0.08	0.08	1.01
	SoCI cyber	\$m, \$2022	0.84	0.84	0.74	0.25	0.25	2.91
	SOCI programs	Unit	2023	2024	2025	2026	2027 2	023-2027

Operating expenditure

Base – Step – Trend approach

- Base year based on 2020 actuals last complete year
 - Covid: no cost increases, but some works deferred
- Forecast forward using CPI
 - No real labour cost increases or productivity factors



Step changes

- Capex related opex
 - WORM opex (\$600k)
 - Based on previously forecast opex escalated by CPI
 - SWP 570 expansion opex
 - Stonehaven compressor opex (\$560k)
 - Pirron compressor opex (\$560k)
 - Based on experience with similar compressors
- SoCI (\$1.3M)
- Transformation and Technology (\$1.1M-\$2.3M)
- Cloud migration: IT is Opex rather than capex
- Vic Net Zero 2050 Interim Target
 - Carbon offset certificates

Proposed tariff and impact on customer bills

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
Volumes (PJ)	220	229	222	225	206	206	203	201	197	198	
Target revenue (\$m nominal)	108	110	111	112	113	115	122	128	135	143	
System wide average tariff	\$ 0.49	0.48	0.50	0.50	0.55	0.56	0.60	0.64	0.69	0.72	
					Composi	te tariff c	over the	5 year p	eriod:	0.641	
Annual cost per residential customer	\$ 27	26	27	27	30	31	33	35	37	39	2.9%
Average residential customer bill										1,350	
Annual cost per business customer	\$ 246	239	249	248	274	280	300	319	344	361	3.8%
Average business customer bill										9,426	

For further information

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Appendix

Security of supply

Short term:

We propose to proceed with the SWP_570 expansion to accommodate committed peak day deliverability from Iona Gas Storage

We propose to stage this project

- Stonehaven Compressor scheduled for Winter 2024
- Pirron Compressor scheduled for Winter 2025

Total cost \$97m

Tariff impact for both compressors is about 2.2¢/GJ \$1.20 per year on a domestic customer bill of \$1350 \$11.00 per year for business customers

Long term:

We have lodged an application under Rule 80 for pre-approval of capex required to meet long term supply adequacy needs

• The costs of this expansion has not been included in the proposed tariffs





Volume forecasts

Volume forecasts are a significant element of the AA:

- Volumes have a significant effect on tariff outcomes
 - Declining volumes puts significant upward pressure on tariffs
- Volume forecasts drive the need for security of supply capex.

We have adopted the AEMO 2021 GSOO/VGPR volume forecasts:

- Extrapolated beyond VGPR 2025 limit based on AEMO forecast portal total volumes
- We will update these forecasts in our revised proposal for the 2021 IASR and 2022 GSOO/VGPR.

We have added NSW Export volumes at current average volumes:

AEMO does not forecast exports.

We have reinstated a provision in the AA that shares weatheradjusted volume risk, relative to forecast between VTS and shippers:

- If actual volumes are more than 5.5% greater than forecast, customers benefit through lower tariffs
- VTS carries the impact of volume declines down to -5.5%.

	Annual system con	sumption by	SWZ (Tarim	v and D spi	if) (PJ/y)		APA Extrapo	lated
SWZ		2021	2022	2023	2024	2025	2026	2027
Ballarat	Tariff V	8.9	9.0	9.0	9.0	9.2	8.5	8.6
	Tariff D	1.7	1.6	1.6	1.6	1.6	1.6	1.6
	SWZ total	10.6	10.6	10.6	10.6	10.7	10.0	10.1
Geelong	Tariff V	11.5	11.6	11.6	11.6	11.7	10.9	11.0
	Tariff D	9.1	9.1	8.9	8.8	8.6	8.7	8.7
	SWZ total	20.6	20.6	20.4	20.3	20.3	19.6	19.7
Gippsland	d Tariff V	5.9	5.9	5.9	6.0	6.0	5.6	5.6
	Tariff D	8.1	7.9	7.7	7.4	7.1	7.5	7.5
	SWZ total	14.0	13.8	13.6	13.4	13.2	13.1	13.1
Melbourn	e Tariff V	92.2	90.5	88.5	86.7	85.6	83.1	84.2
	Tariff D	35.5	35.3	34.9	34.5	33.9	34.2	34.1
	SWZ total	127.7	125.8	123.4	121.2	119.5	117.3	118.2
Northern	Tariff V	1.3	1.3	1.3	1.3	1.3	1.2	1.2
	Tariff D	2.7	2.7	2.7	2.7	2.7	2.7	2.6
	SWZ total	4.0	4.0	4.0	4.0	4.0	3.9	3.9
Western	Tariff V	11.3	11.3	11.3	11.3	11.4	10.6	10.7
	Tariff D	8.6	8.7	8.7	8.6	8.5	8.5	8.4
	SWZ total	20.0	20.1	20.0	19.9	19.8	19.1	19.2
	Total Tariff V	131.1	129.6	127.6	125.9	125.2	119.8	121.3
	Total Tariff D	65.7	65.3	64.5	63.6	62.4	63.1	62.9
	Total	196.9	194.9	192	189.4	187.5	183.0	184.3
	Export	18.9	11.4	13.9	13.9	13.9	13.9	13.9
	Total	215.8	206.3	205.9	203.3	201.4	196.9	198.2

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Note: AEMO's 2021 VGPR incorrectly transposed the Northern and Western demand forecasts. Totals are correct.

Comparison of actual and forecast expenditure in real terms (\$2022)

Capital expenditure	Unit	2018-2022	2023-2027	Change
Replacement	\$m, \$2022	77.5	122.9	45.4
Expansion	\$m, \$2022	169.9	140.0	-30.0
Other (SoCI. Hydrogen testing)	\$m, \$2022	3.7	53.2	49.5
Non-network	\$m, \$2022	42.4	13.3	-29.1
Capitalised overhead	\$m, \$2022	NA	22.5	22.5
Total capital expenditure	\$m, \$2022	293.6	352.0	58.4

Proposed capital program is \$58.4 million (20%) higher than expenditure in the current period

Replacement capital expenditure is \$45.4m (59%) higher than current period

Expansion is lower. Includes SWP570 and final years of expenditure on WORM

Other capital expenditure includes new programs:

- Hydrogen testing
- SoCI program.

Asset stranding and the future of gas

We had discussed curtailing all asset lives to 25 years to align with the Victoria Government Net Zero 2050 Initiatives

While feedback suggested 25 years was sensible, there was concern regarding

- the near term tariff impacts;
- the longer term tariff impacts, particularly as they relate to vulnerable customers; and
- the impacts on intergenerational equity

Our principle remains -

- that we need to take action to reduce future revenue requirements in an effort to maintain tariff stability
- that we can not know precisely what we need to do to accomplish the transition
- that we will all be better served if we start small, start early, and monitor regularly

But we know we need to balance this against tariff impacts

We propose to cap all asset lives at 30 years

This reduces the system wide average tariff by about 3.5¢/GJ (about \$1.90 per year for domestic customers, \$17.50 per year for business)

Cost of capital and inflation

Cost of capital

Based on AER 2018 Rate of Return Instrument

Cost of Equity: Placeholder Risk Free Rate: 1.243% Beta 0.6 Market Risk Premium 6.1% Cost of equity: 4.903%

Cost of Debt:

Based on 10-year rolling average commencing in 2018 Applies most up-to-date annual cost of debt per current tariff variation Forecast cost of debt based on 2021 current rate, 2.43%

Gearing: 60% debt, 40% equity

Value of imputation credits (gamma): 58.5%

Vanilla WACC: 4.27% declining over the period to 3.73%

Inflation

We have continued to apply indexed straight line depreciation in this proposal

Forecast inflation has been drawn from the AER's April 2021 electricity and gas Final Decisions:

Expected Inflation					
Year	2023	2024	2025	2026	2027
Expected Inflation	1.50%	1.75%	2.00%	2.25%	2.50%
Interim Calculation	1.0150	1.0175	1.0200	1.0225	1.0250
Year	2023				
Inflation Rate f	2.00%				

How do all the pieces fit together?

The regulated capital base increases by \$190m over the period, driven by the WORM and SWP_570 expansion

Opex remains stable in real terms – increases by opex for WORM and SWP_570

Return on capital remains stable -increasing RAB offset by falling cost of capital

Depreciation increases due to shorter asset lives and low inflation

Total increase over 2022 tariffs is about 17¢/GJ About \$9.25 per year (on \$1,350) for domestic customers About \$85 per year (on \$9,426) for business customers

\$2022 m	2023	2024	2025	2026	2027
Forecast capital expenditure	130.6	110.9	49.6	32.2	28.8
Forecast operating expenditure	35.3	36.5	35.9	36.0	36.2
\$m nominal	2023	2024	2025	2026	2027
Opening Regulated asset base	1,139.6	1,249.2	1,330.1	1,339.7	1,326.5
WACC	4.3%	4.1%	4.0%	3.9%	3.7%
Return on Capital	48.7	51.7	53.2	51.7	49.4
\$m nominal	2023	2024	2025	2026	2027
Return on Capital	48.7	51.7	53.2	51.7	49.4
Return of Capital (regulatory depreciation)	25.1	35.6	43.5	48.4	45.6
Operating Expenditure	36.0	38.0	38.1	39.0	40.0
Revenue Adjustments	-	-	-	-	-
Net Tax Allowance	-	-	-	-	-
Total Revenue (unsmoothed)	109.8	125.2	134.7	139.2	135.0
Smoothed revenue requirement	115.5	121.8	128.5	135.5	142.9

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Volumes (PJ)	220	229	222	225	206	206	203	201	197	198
Target revenue (\$m nominal)	108	110	111	112	113	115	122	128	135	143
System Average tariff	0.49	0.48	0.50	0.50	0.55	0.56	0.60	0.64	0.69	0.72

How does this proposal compare to the current AA?

Building Block Components (\$m, Nominal)	2017	2018	2019	2020	2021	2022	2022	2023	2024	2025	2026	2027
Return on Capital		55.84	58.74	61.27	63.06	61.72		48.70	51.67	53.20	51.74	49.41
Return of Capital (regulatory depreciation)		12.93	15.73	17.81	21.41	17.04		25.10	35.60	43.50	48.43	45.63
Operating Expenditure		26.59	27.35	28.03	29.82	30.77		35.99	37.97	38.05	39.01	40.00
Revenue Adjustments		7.07	4.72	3.86	2.36	-		-	-	-	-	-
Net Tax Allowance		1.63	2.04	2.22	1.66	0.40		-	-	-	-	-
Annual Building Block Revenue Requirement (unsmoothed)		104.06	108.57	113.19	118.31	109.93		109.79	125.25	134.75	139.18	135.04
Revenue Cap Calculation (\$m, Nominal)												
Unergenetic de Annuel Building Black Brannes Bandarour d	100.00	404.00	100 57	110.10	440.04	400.00		400 70	105.05	10175	100.10	105.04
Unsmoothed - Annual Building Block Revenue Requirement	103.20	104.06	108.57	113.19	118.31	109.93	113.19	109.79	125.25	134.75	139.18	135.04
				(0)					1:66	(0)		
		4.10	First year differen	ice (\$m)				5.00 Fi	rst year diπerend	ce (\$m)		
		3.94%	First year differen	ice (%)				5.15% Fi	rst year differend	ce (%)		
Smoothed - Maximum Allowed Revenue	103.20	108.16	109.52	110.85	111.79	113.19	113.19	115.45	121.78	128.46	135.50	142.92