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apa

Victorian Transmission System Stakeholder Engagement Group. 2023-27 access arrangement (AA6).

Roundtable 10 – First look at regulatory positions

6 October 2021

Acknowledgement of Country

We would like to begin by paying respect to the Traditional Owners of the land on which we meet today and their continuing connection to land, waters and community.

We pay our respect to Traditional Owners, their cultures, and to their elders past and present.

Dandenong ranges

Today's discussion & format

	Topics	Times
1	Welcome & Acknowledgement of Country	2.30 to 2.35
2	**Key assumptions for VTS proposal** • Demand and supply • Security of Critical Infrastructure obligations	 2.35 to 2.45 2.45 to 2.55

3	**Expenditure forecasts**
	• Summary of total capital expenditure
	• Replacement (stay-in-business) capital expenditure
	• Expansion for security reasons
	  • South West Pipeline
	  • Western Outer Ring Main
	• Transformation & Technology program
	• Operating expenditure
		
		2.55 to 3.00
		3.00 to 3.10
		
		3.00 to 3.05
		3.05 t0 3.15
		3.20 to 3.30
		3.30 to 3.35

4	**Hydrogen safety and integrity assessment**	3.45 to 4.00
5	**First Look at revenue and tariff scenarios** • Tariff options	4.00 to 4.25
6	What we heard from stakeholders and how we have taken them into consideration (deferred)	For discussion R11
7	Next steps	4.25 to 4.30

Note that the meeting will be recorded to assist updating issues register.
Video will not be distributed outside of APA.

Purpose of today's discussion is to consult & involve.
We do encourage your views and feedback today

Key assumptions
- Demand & supply and South West Pipeline

Demand, supply and SWP expansion

To recap:

- AEMO's 2021 GSOO forecast supply shortfalls by 2026, earlier if the Port Kembla Gas Terminal (PKGT) was delayed.
  - The PKGT has still not reached FID (although we understand construction is continuing)
- A number of announcements were made post publication of the GSOO:
  - Lochard FID on Iona 570 expansion; APA expansion of the East Coast Grid, and 2 major customer changes (Mobil Refinery and Qenos)
- We engaged Oakley Greenwood to review the impacts of these announcements on the GSOO forecasts.

The following charts:

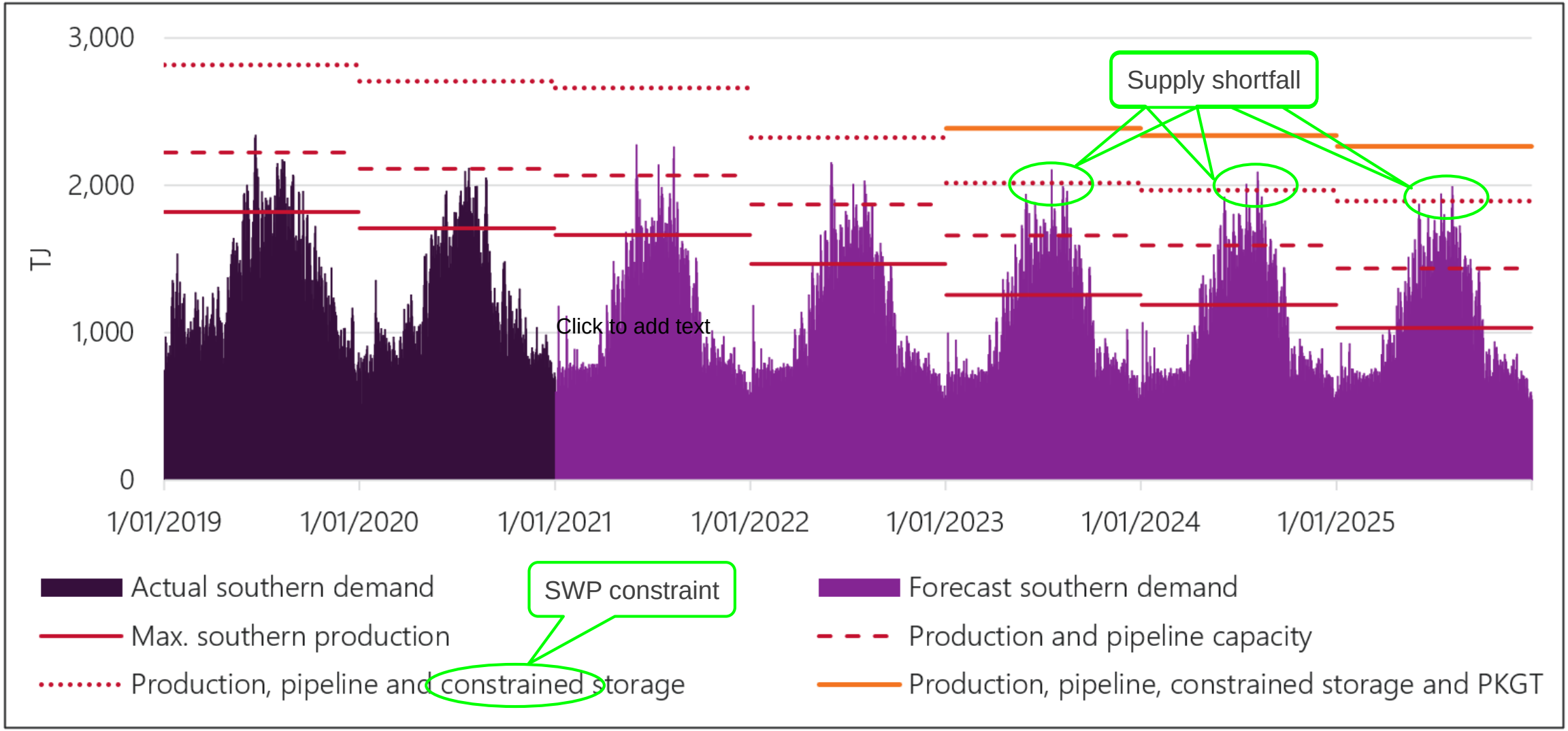
1. Start with AEMO's supply and demand chart from the 2021 GSOO;
2. Remove the PKGT from the supply side and adjust for FID capacity expansion of the APA East Coast Grid
3. Adjust for capacity expansion of the SWP to 570 TJ/day

This analysis does not:

- Adjust AEMO's information on Longford production
- Adjust for (minor) demand and peak demand changes associated with Mobil Refinery and Qenos announcements
- Adjust demand for AEMO's new assumptions surrounding electrification of the domestic heating load

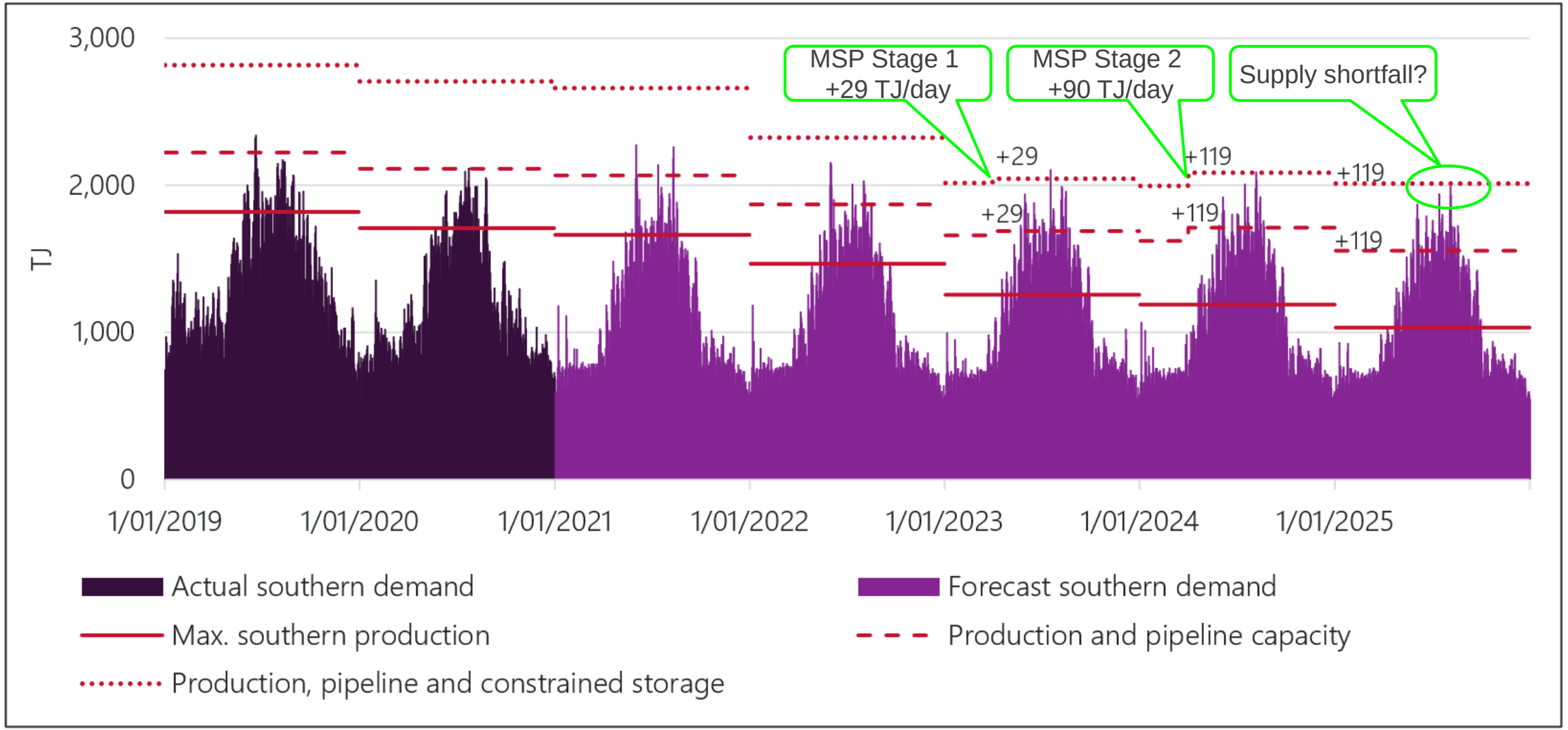
Data source: AEMO, 2021 Gas Statement of Opportunities report figures and data

AEMO's 2021 GSOO



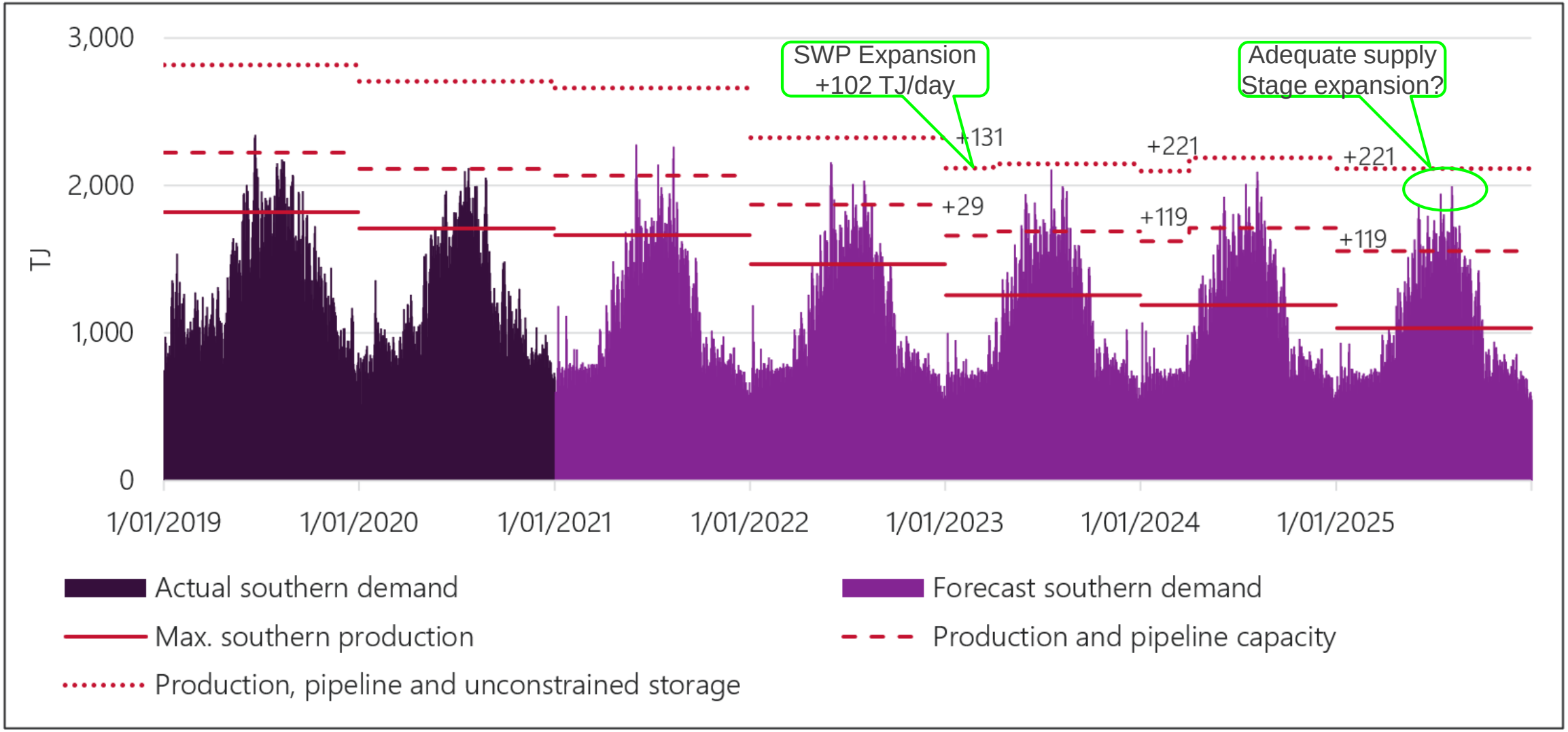
Data source: AEMO, 2021 Gas Statement of Opportunities report figures and data

APA East Coast Grid expansion



Data source: AEMO, 2021 Gas Statement of Opportunities report figures and data modified by APA as shown

SWP expansion



Data source: AEMO, 2021 Gas Statement of Opportunities report figures and data modified by APA as shown

Security Legislation Amendment (Critical Infrastructure) Bill 2020
Obligations and initial compliance update

Ed Shaw, OT Transformation Advisor

Security of Critical Infrastructure obligations

Obligations

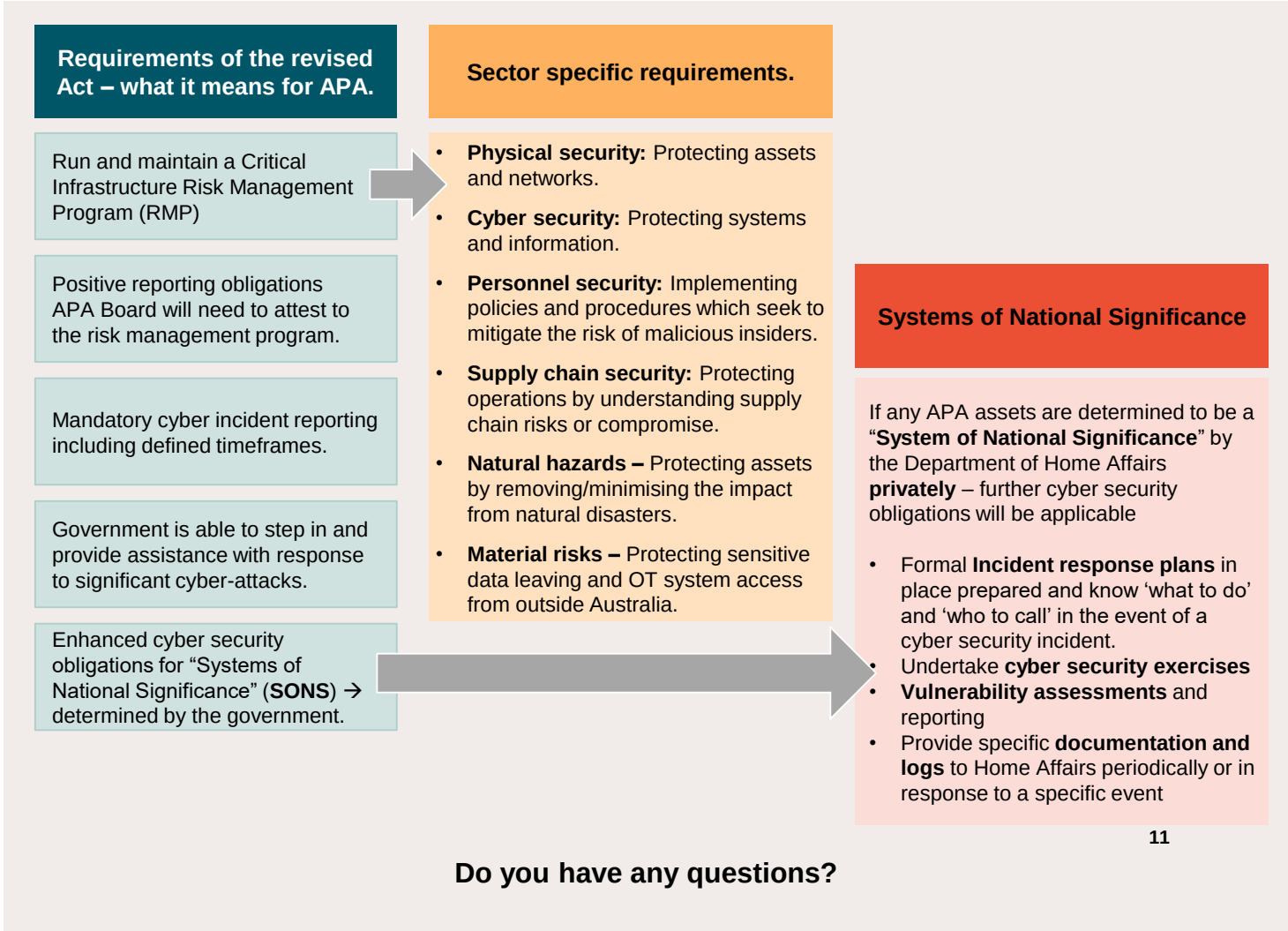
- The SOCI Act 2018 (SOCI 2018) established a framework to manage national security risks to Critical Infrastructure (CI) assets which includes maintaining and reporting to the Critical Infrastructure Centre on a register of operational or direct interest information.
- The Security of Critical Infrastructure Amendment Bill (SOCI 2020) introduces an enhanced framework, significantly expanding the scope of the existing legislation and governance rules requiring formally defined responsibilities and activities that support good risk practice and a greater awareness of threats and vulnerabilities to CI assets.

APA's program of work

- APA is working with EY to undertake a gap analysis to define a program of work
- This includes high level costing to meet these obligations and any augmentation of existing cyber and physical programs
- High level costs have been incorporated in VTS forecasts for SOCI related physical security ($12.1 million) and transformation and operational technology ($9.1 million) (opex and capex).

The Security of Critical Infrastructure (SoCI) Amendment Bill aims to improve security and resilience of Australia's critical infrastructure and protecting essential services relied on by all Australians.

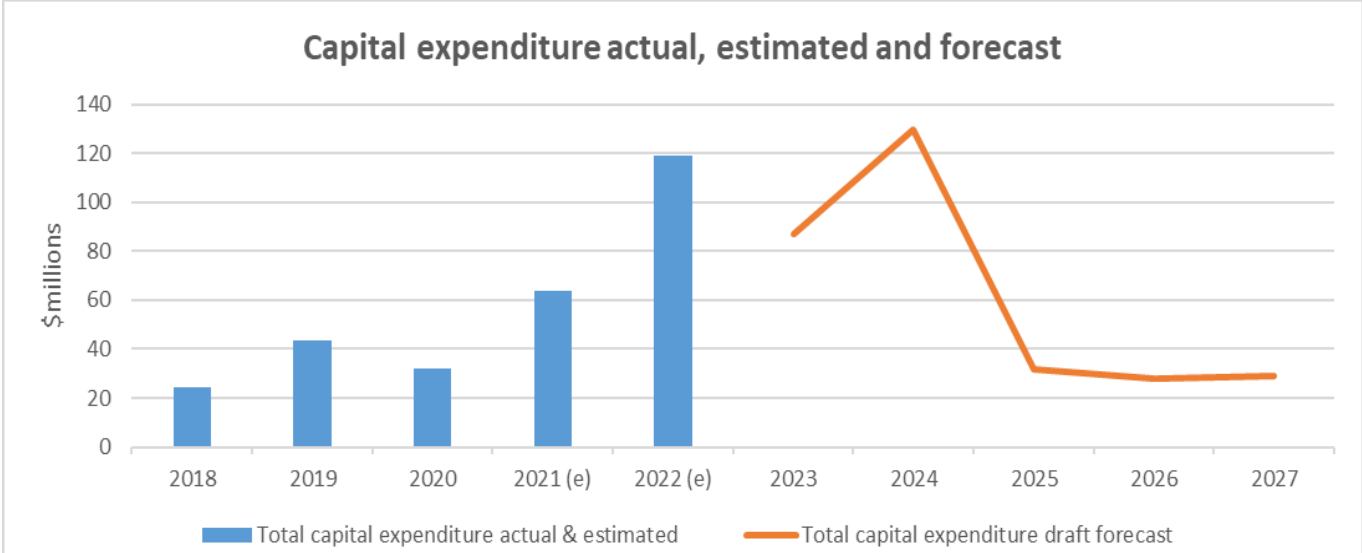
When passed the SoCI Amendment Bill significantly increases the obligations and effort required by APA to maintain compliance



Expenditure forecasts – key inputs

Actual, estimated and forecast capital expenditure (2023 to 2027 draft)

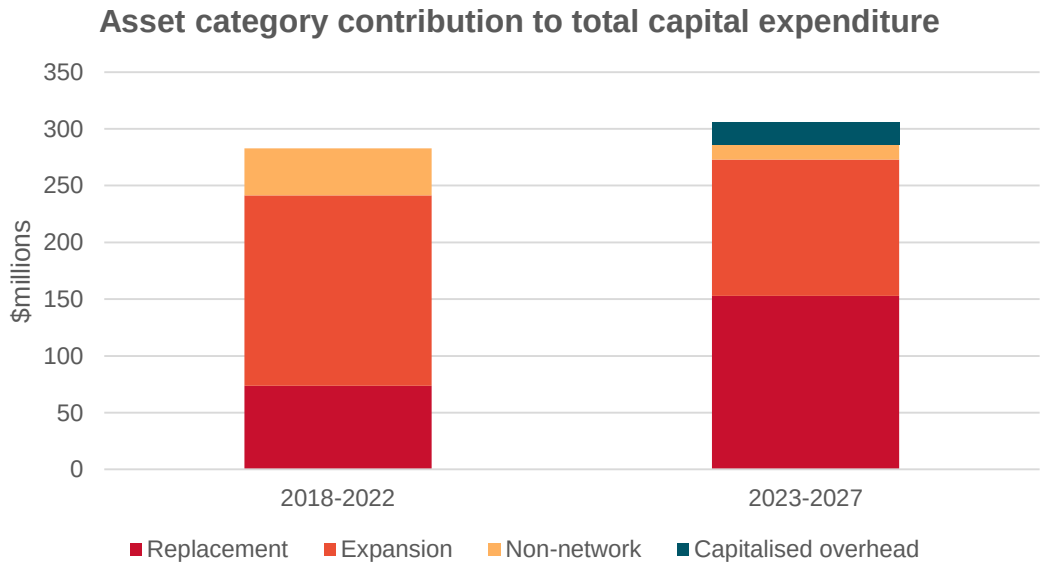
- Forecast capital expenditure is expected to be 8 percent higher than the current access arrangement period.
- In the current period there is an uptick in 2021 and 2022 largely due to ramp up in expenditure on the Western Outer Ring Main (WORM)
- In the next period, both 2023 and 2024, include continuing expenditure on the WORM and new South West Pipeline 570 expansion before flattening out again
- The lumpy nature of expansion projects is the reason for the peakiness of the capital expenditure
- We started to split out capitalised overheads (from other capital expenditure) for the next access arrangement period.

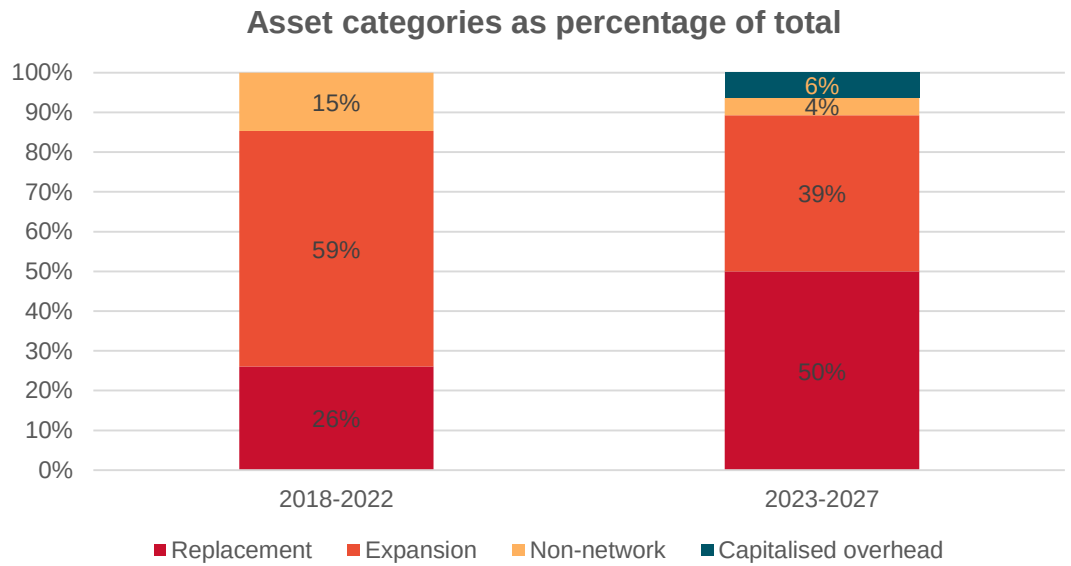


Asset category ($millions)	2018-2022	2023-2027	Change	% Change
Replacement	73.7	152.8	79.1	107%
Expansion	167.6	120.0	- 47.6	-28%
Non-network	41.5	13.1	- 28.4	-68%
Capitalised overhead	-	19.5	19.5	nan
Total capital expenditure	282.9	305.5	22.6	8%

Actual, estimated and forecast capital expenditure (2023 to 2027 draft)

Asset category ($millions)	2018	2019	2020	2021 (e)	2022 (e)	2023	2024	2025	2026	2027
Replacement	4.3	11.6	11.4	28.4	17.9	31.8	44.0	27.8	25.0	24.3
Expansion	12.6	17.0	10.6	30.0	97.3	46.3	73.8	-	-	-
Non-network	7.3	14.7	10.2	5.4	4.0	3.5	3.6	1.7	1.3	3.0
Capitalised overhead	-	-	-	-	-	5.6	8.3	2.0	1.8	1.8
Total capital expenditure	**24.3**	**43.3**	**32.2**	**63.8**	**119.2**	**87.2**	**129.7**	**31.6**	**28.0**	**29.0**



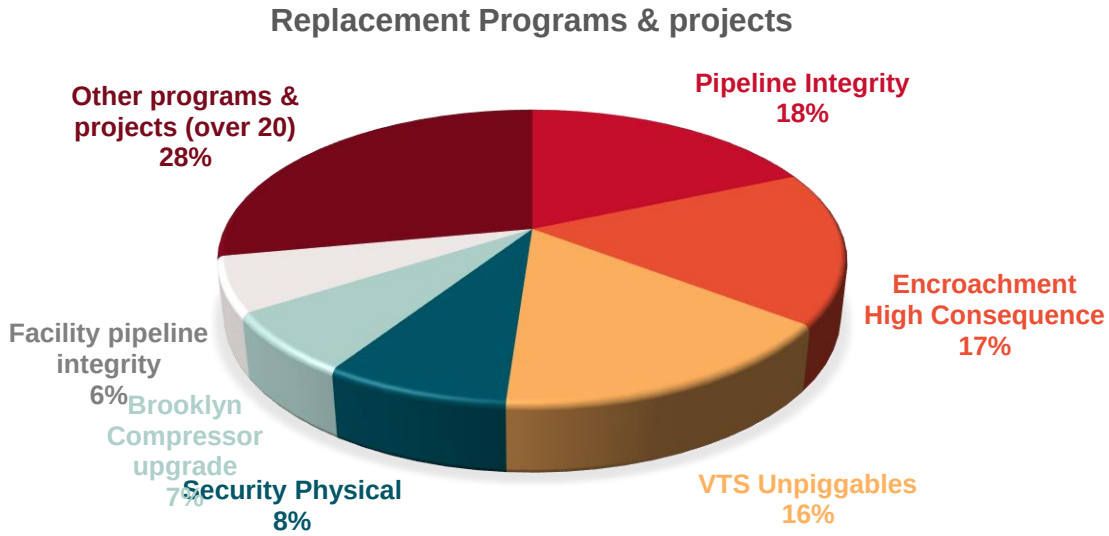


Do you have any comments or questions about actual, estimated or forecast capital expenditure?

Replacement capital expenditure

The replacement of these assets complies with the new capital expenditure criteria in Rule 79 of the NGR - safety and integrity needs; and such that incurred by a prudent service provider

- Replacement expenditure is forecast to be $152.8 million compared to $73.7 million in the current period. This represents a $79.1 million (or 107%) increase forecast for the next period.
- Main reasons for this are
  - An increased focus on asset integrity which is increasing investment on inline inspections - pigging and the unpiggables program
    - Pipeline integrity program forecast is $28.2 million
    - Unpiggables identified as high risk
      - Proposed capital expenditure for VTS unpiggables is $24.1 million
  - Safety measures for high consequence areas
    - Forecast capital expenditure approximately $26 million
  - New obligations under that Security of Critical Infrastructure (SOCI) obligations
    - Physical security $12.4 million.



Major programs & projects ($millions)	2023-2027
Pipeline Integrity	28.2
Encroachment High Consequence	25.8
VTS Unpiggables	24.1
Security Physical	12.4
Brooklyn Compressor upgrade	10.3
Facility pipeline integrity	9.3
Other programs & projects (over 20)	42.7
Total replacement expenditure	**152.8**

South West Pipeline

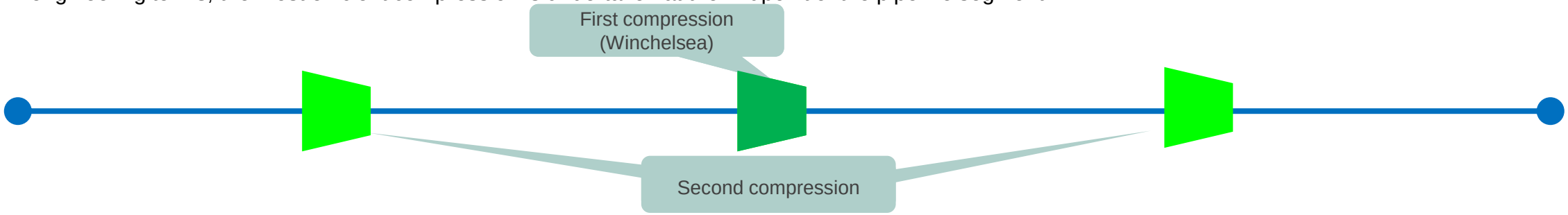
There are many options available to deliver pipeline expansion, including

- Compression
- Looping
- Combinations of compression and looping

We have targeted 570 TJ/day to match the deliverability of the Iona Gas Storage facility

- In practice 19 TJ/day of Iona deliverability will serve the Western system, providing scope for additional Port Campbell production.

In engineering terms, the most efficient compression is undertaken at the midpoint of the pipeline segment:



We have undertaken engineering cost analysis and concluded that addition of 2 compressors, at the first and third quartile distance points, is the lowest cost alternative to deliver 570 TJ/day of SWP capacity.

Total cost, including necessary upgrades to the Brooklyn City Gate, is estimated at approximately $76 million.

Western Outer Ring Main

- In the AER's 2017 Final Decision 2018-22 on the access arrangement for VTS, a total of $126.7 million ($2017) was included in the VTS capital program to undertake the WORM project for security of supply reasons
- The WORM was proposed in 2016 to address key capacity constraint in the VTS by providing a new high pressure connection between existing sources of natural gas supply in the north and east with those in the west of the Victoria
- In 2019 APA was required to undertake Environment Effects Statement (EES) and Inquiry Panel Hearing commenced on 4 October 2021
- In the VTS Capital Issues Paper, we indicated that the costs of the WORM was projecting higher than the AER approved $127 million
- The key cost variances from the original forecast in 2017 are due to:
  - Forecast increase in construction costs ($24M) due to the number and length of horizontal directional drilling and rock disposal (the need for this discovered during the EES), additional EES conditions, Department of Transport requirements and management of Covid
  - Land access and approval costs ($20M) including EES process itself, net gain offsets, land access compensation, cultural heritage salvage works
  - Materials procurement ($7.5M) due to higher steel prices and delays in placement of orders due to EES.

- The draft capital expenditure forecast for WORM is shown in the table.

$ millions	2018-2022	2023-2027	Total
Western Outer Ring Main	135.8	49.0	**184.8**

- APA is currently preparing to go to market for pipeline and facilities construction
- Depending on the planning approvals, we expect the WORM to be completed by mid 2023.

Transformation & Technology program

- APA is undergoing a review of the corporate Transformation and Technology (T&T). APA had a number of legacy systems that needed to be replaced but that APA was in early stages of preparation
- APA's Transformation & Technology covers the following core functions:
  - Transformation Office. responsible for ensuring projects deliver optimum business value as early as possible and ensuring a continuous improvement focus
  - Operational technology. ensures APA has appropriate, resilient and high performing real time systems and engineering applications, data and solutions
  - Information & Technology. partners with all business units to deliver end to end I&T solutions and services.
- Key drivers impacting the Transformation & Technology program going forward include:
  - Replacement of obsolete legacy systems
  - Cyber security and obligations under Security of Critical Infrastructure legislation (as discussed earlier)
  - Migration to cloud-based services
  - Routine upgrades and maintenance (licensing, system upgrades).
- VTS is allocated a cost of the T&T budget based on a cost allocation method using a revenue allocation. This allocation is 8.21% of total corporate costs

- **Replacement of obsolete legacy systems**
  - APA has a number of legacy systems that are reaching end of technical life
  - The need for replacements are driven by the condition and obsolescence of system components and the lack of ongoing vendor support.
- **Migration to cloud-based computing**
  - IFRC clarification to accounting standards for cloud migration (SaaS and PaaS) and consideration of whether programs were opex and capex
  - Due to this accounting clarification, a higher proportion of T&T costs are being allocated to opex – rather than capex
  - Noting that Operational Technology projects would for the most part remain as capex.

Capital expenditure forecasts						
Portfolio ($millions)	2023	2024	2025	2026	2027	Total
Transformation Office	2.1	2.1	1.2	0.4	0.4	6.2
Operational Technology	1.3	1.1	0.8	0.7	0.7	4.5
Information Technology	0.1	0.0	0.0	0.1	-	0.2
Total	**3.4**	**3.2**	**2.0**	**1.2**	**1.1**	**10.9**

Operating expenditure forecasts						
Portfolio ($millions)	2023	2024	2025	2026	2027	Total
Transformation Office	4.1	4.7	3.2	2.5	2.5	16.9
Operational Technology	0.1	0.1	0.1	0.1	0.1	0.6
Information Technology	-	-	-	-	-	-
Total	**4.2**	**4.8**	**3.3**	**2.6**	**2.6**	**17.5**

Energy Ministers agreement on natural gas equivalents

Energy Ministers agreement

- On 20 August 2021, Energy National Cabinet Reform Committee (Energy Ministers) agreed on an expedited process to amend the National Gas Law, National Energy Retail Law and subordinate instruments so hydrogen blends, biomethane and other renewable methane gas blends are brought within the national energy regulatory framework
- Energy Ministers have asked the Australian Energy Market Commission (AEMC) to review the National Gas Rules and National Energy Retail Rules to determine what changes are necessary to include low-level hydrogen blends and renewable gases ('natural gas equivalents') in the frameworks
- The Energy Ministers agreement drives the need for APA to understand the impacts of hydrogen on the VTS.

AEMC & AEMO work programs

- Following Energy Ministers agreement, the AEMC has commenced a new work program to support the ongoing decarbonisation of the energy sector including
  - a review into extending the energy market rules to low-level hydrogen and renewable gases
    - The terms of reference for the review describe the purpose of these reforms as a priority under the National Hydrogen Strategy as an essential step in the development of a decarbonised gas sector
    - The review formally begins on 21 October 2021 with the release of a consultation paper
  - a rule change request for the Victorian declared wholesale gas market (DWGM) which seeks to enable that market to recognise distribution connected facilities. These facilities may include hydrogen and renewable gas facilities as well as others such as storage
  - AEMO is carrying out a review of relevant gas market procedures to support the use of low-level hydrogen blends and renewable gases.

In light of Energy Ministers agreement, we need to understand whether or not existing pipeline infrastructure is hydrogen-compatible; and what the impacts on pipeline material, operational envelope and overall capacity of the transmission network may be

APA is proposing to undertake an assessment to investigate safety and integrity of carrying hydrogen on the VTS. This assessment needs to occur before any quantity of hydrogen gas enters the VTS network. We consider it to be justifiable under Rule 79 for safety and integrity reasons.

Proposed VTS hydrogen safety and integrity assessment

Australian Standards need to be developed

- Currently, there is no Australian standard for design of new hydrogen pipelines or conversion of existing infrastructure. Plans are in progress that will develop these over the next 5 years
- When a steel pipeline is used to transport hydrogen, hydrogen is absorbed into the steel and affects the material properties. This effect is referred to as ‘hydrogen embrittlement’
- Work by gas infrastructure companies will provide much-needed technical data to support an evidence-based approach to developing these standards.

Proposed assessment

- APA is proposing to undertake an assessment to provide sufficient data to understand the impacts of hydrogen embrittlement on pipelines in the VTS
- The information will allow APA to quantify the integrity impacts and suitability for hydrogen blending up to 10% by volume , and any remedial works or changes in operation required to ensure continued safe operation of the VTS
- The findings from the assessment will be used to support VTS strategic network planning by identifying which parts of the network are suitable for hydrogen blending, and which are not

Cost of the assessment

- APA has undertaken a preliminary desktop analysis to scope out the VTS safety and integrity assessment. The cost of the assessment is presented below.

Work scope	Estimate Cost $millions
Line Pipe Sampling	12.8
Line Pipe Testing	4.3
Lateral In Situ Inspections	5.8
Pipeline Assessment Report	2.0
Pipeline Assemblies Assessment	2.6
Facilities Assessment	7.3
Complex Facilities Assessment	0.9
SMS Studies	1.5
Final Report	0.7
Total	**37.9**

We are seeking your views about the proposed assessment.

Operating expenditure

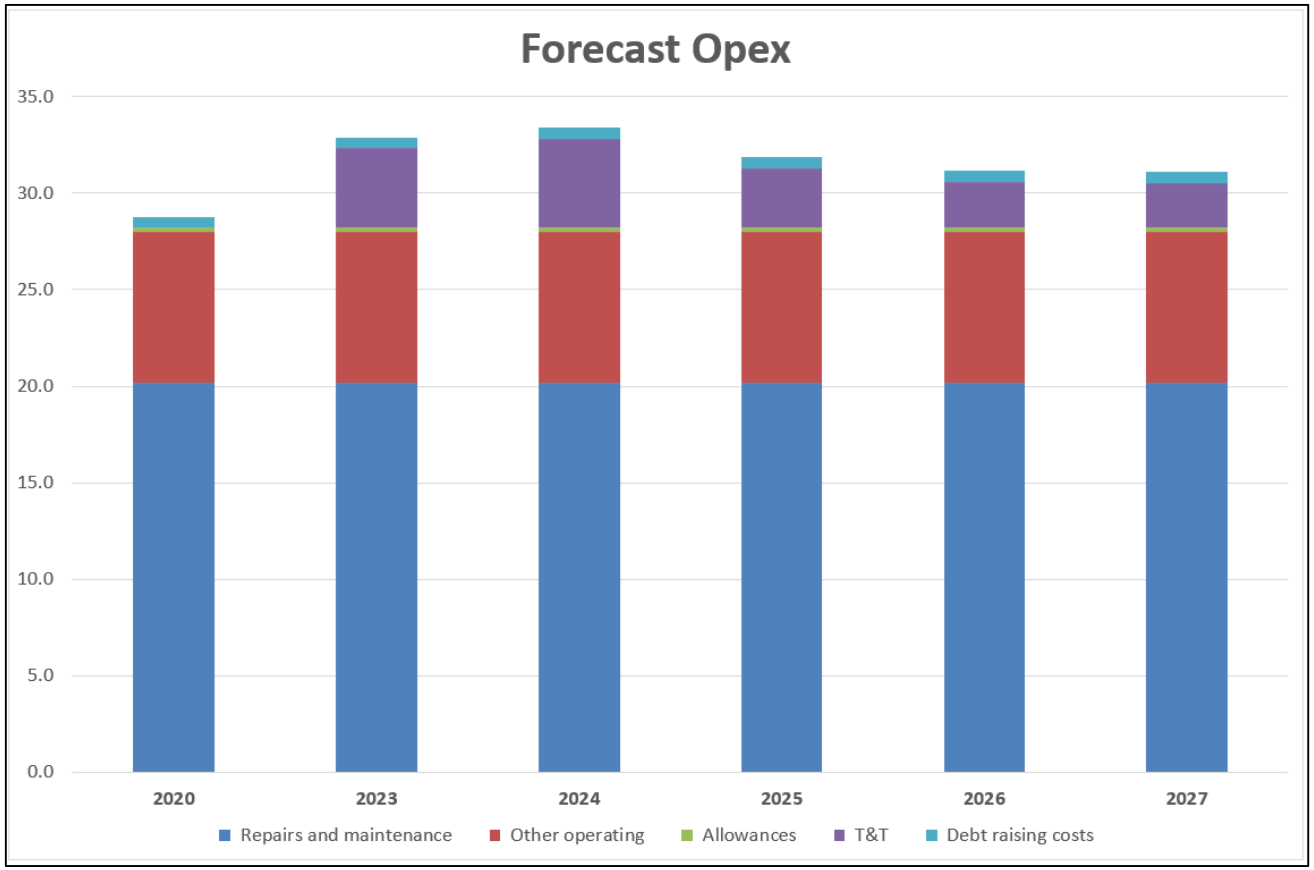
Forecast opex has been based on 2020 revealed costs as reported to the AER in the Annual Reporting RIN

The only change has been opex associated with T&T costs, as discussed

“Allowances” includes a return on line pack and on spares – consistent with current access arrangement

Corporate overheads are currently embedded in the reported opex costs – we will report these separately

Debt raising costs are as calculated in the PTRM.



Revenue & tariff impacts

Expressing VTS tariffs

VTS "composite tariff"

VTS tariffs consist of an injection tariff and a geographically granular volumetric withdrawal tariff

In this First Look, we will calculate a "composite tariff" based on

total revenue ÷ total volumes

We apply an average annual volume of 192PJ/year, consistent with AEMO's VGPR

The composite tariff is calculated as:

$$\frac{\text{Sum of PTRM revenue requirements over the 5 year period}}{\text{Volumes over the 5 year period (192PJ/year x 5)}}$$

We can then examine the tariff implications of various decisions and scenarios on a consistent basis.

Indicative Bill Impacts

We have agreed with the AER to apply a standard bill impacts measure, based on the Victorian Essential Services Commission Victorian Market Update: June 2021.

This report uses standard measures of residential and small business consumption levels and annual costs:

	Residential	Small business
Annual consumption	54.4 GJ / year	500 GJ / year
Annual cost	$1,350 / year	$9,426 / year
Implied cost / GJ	$24.82 / GJ	$18.85 / GJ
Average 2021 VTS tariff	$0.5342 / GJ	$0.5342 / GJ
Annual VTS costs	$29.06 / year	$267.10 / year
VTS tariff as a % of total	2.2%	2.8%

Forecast VTS tariff scenario testing

Starting with a Base Case (scenario 1) we select items to change and observe the tariff impacts.

We also include combinations of items.

The four items tested are:

1. Net Zero 2050 asset lives
2. Indexation of the capital base
3. Include/Exclude/Stage SWP_570 capex
4. Tariff impact of H2 testing

Pipeline asset life (years)	Indexation	SWP_570 capex	H2 testing	5-year revenue requirement	Composite tariff	Composite tariff Δ
55	yes	yes	yes - capex	573.7	0.5976	0.5976
25	yes	yes	yes - capex	+49.6	0.6493	+0.0517
55	no	yes	yes - capex	+138.9	0.7423	+0.1447
55	yes	no	yes - capex	-3.5	0.5940	-0.0037
55	yes	yes	no	-17.8	0.5791	-0.0185

Some insights from the scenario testing:

- The impact of capping asset lives at 25 years is about 5¢/GJ
- The impact of stopping indexation of the capital base is about 14.5¢/GJ
- Staging the SWP_570 expansion to 2026 and 2027 to better match the declines in Longford production saves approximately 0.3¢/GJ:
- The impact of undertaking the VTS hydrogen capability assessment is in the order of 1.8¢/GJ:
- We have proposed the H2 assessment as a capex project. Were it to be treated as opex, the tariff impact would be about 2.8¢/GJ
- The impact of undertaking the SWP_570 expansion is about 0.4¢/GJ

Next steps

- **First Look consultation paper**
  - 8 October (Friday) we are aiming to release the First Look Paper
- **Next roundtable proposed**
  - 20 October (next Wednesday) Roundtable 11. First Look - Q&A session

Phase 3 - Putting the plans together			
6/10/2021	Roundtable 10	How you have influenced our draft proposal. First look at the revenue requirements - capital and operating expenditure forecasts, impact on tariffs.	Inform / Consult
8/10/2021	Consultation	APA release APA VTS early consultation document	Involve
20/10/2021	Roundtable 11	Early consultation proposal - Q&A session	Involve
11/10/2021 to 22/10/2021	Consultation	Opportunity for one on one meetings with stakeholders	Involve
3/11/2021	Placeholder	Follow-up on any outstanding issues & updates	Involve
8/11//2021	Consultation	Submissions to APA on early consultation document	
17/11/2021	Roundtable 12	How you shaped our thinking on the VTS regulatory proposal	Involve
1/12/2021	Submission	APA VTS regulatory proposal submitted to AER	
9/12/2021	Feedback session	Post lodgement review and feedback on VTS engagement	Involve
TBA	Further roundtables	Proposed during the regulatory process	

For further information

Scott Young or Nives Matosin

E: scott.young@apa.com.au or

E: nivesmatosin@apa.com.au

www.apa.com.au