

ASX: TBN

# Shenandoah South IP30 Flow Test Results

26 February 2024

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**This ASX announcement was approved and authorised for release by Joel Riddle, the Managing Director and Chief Executive Officer of Tamboran Resources Limited.**

## Conversion factors

1 TJ sales gas	0.943 MMcf
1 PJ sales gas	0.943 Bcf
1 million tonnes of LNG	55.43 PJ or 46.37 Bcf



# Shenandoah South 1H (SS-1H) delivers IP30 flow rates of 6.4 MMcf/d (1,000 metres normalized)

Material de-risking to deliver proposed 40 MMcf/d Shenandoah South Pilot Project, targeting first gas by 1H 2026

**SS-1H IP30 flow test achieved normalized rates of 6.4 MMcf/d<sup>1</sup> (19.5 MMcf/d normalized to 10,000 ft), exceeding pre-drill expectation**

**The SS-1H IP30 result has high graded ~1 million acres of the Mid-Velkerri dry gas play in the deep Beetaloo West area**

**Progressing proposed 40 MMcf/d Pilot Project in the Shenandoah South area of the Beetaloo West, targeting Final Investment Decision in mid-2024 and first gas in 1H 2026<sup>2</sup>**

**~\$55 million in cash at the end of January 2024 to fund initial drilling of two wells for the proposed Pilot Project (TBN 38.75%)**



*Flow testing of Shenandoah South 1H (Jan 2024)*

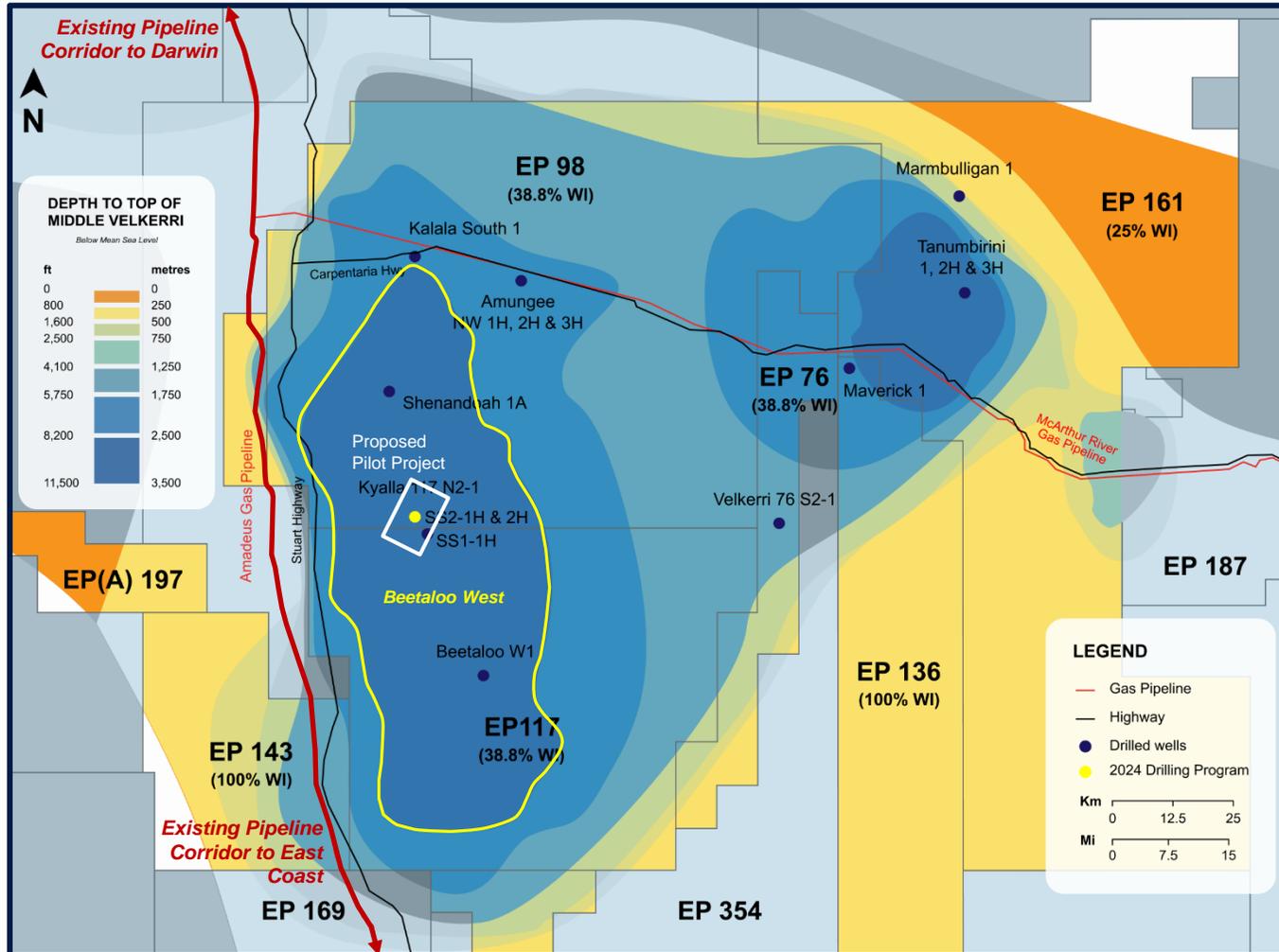
<sup>1</sup>Wellhead rate of 3.2 MMcf/d over 501 metres (1,644 ft), normalized flow rate of 6.4 MMcf/d over 1,000 metres (3,281 feet).

<sup>2</sup>Subject to Tamboran securing funding and meeting current approval process timelines.



# Tamboran's focused strategy targeting development in the Shenandoah South area

Regional study leveraged learnings from successful US shale gas basins over last 10 years

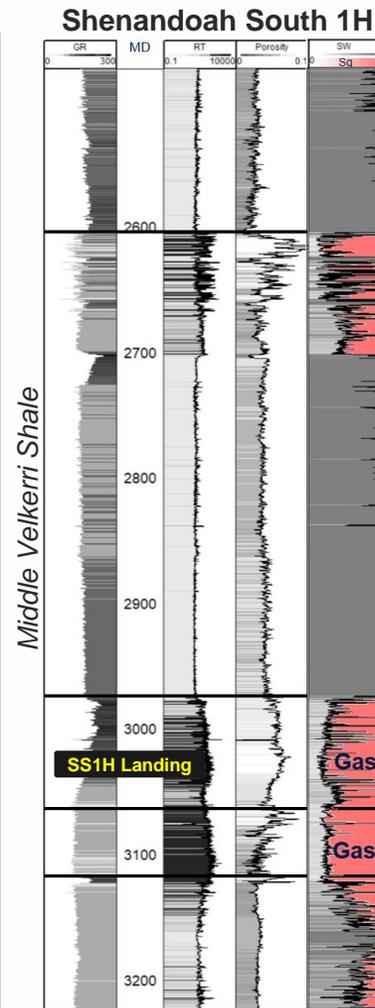
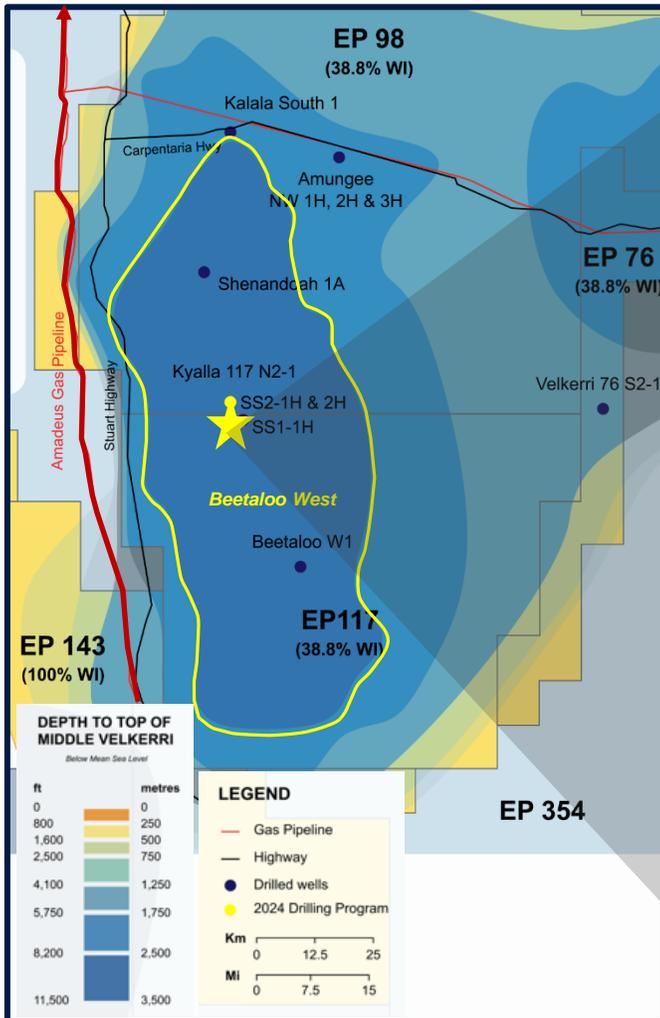


- Mid-Velkerri dry gas play in deep Beetaloo West area (~1 million acres at >2,500-metre depth)
- Simple geology and over-pressured regime (>0.50 psi/ft)
- Close to existing pipeline corridor to Darwin and East Coast Domestic Market via Amadeus Gas Pipeline
- Target cost reduction using latest generation rigs and completion equipment imported from the US
- Commercial and supportive pastoralists and Native Title stakeholders

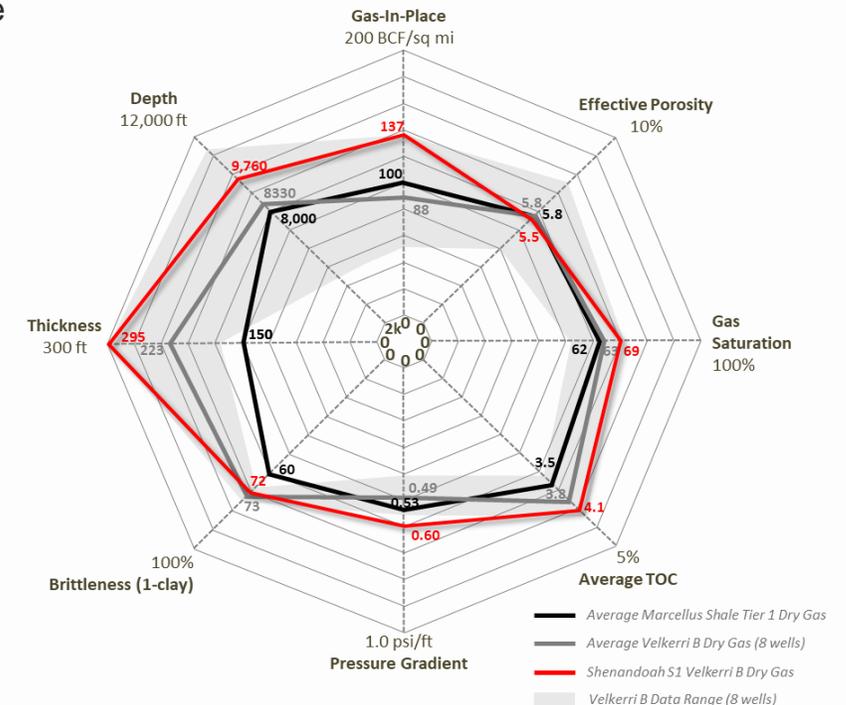
Note: Tamboran holds interest in all color blocks above. Tamboran operates EPs 76, 98, 117, 136 and 143

# Shenandoah South 1H drilled in deepest section of Mid-Velkerri gas play in the Beetaloo West area

Geological rock properties at SS-1H compare favourably with those in the average Marcellus Shale dry gas window



- SS-1H well logged ~480 ft of high quality, stacked Middle Velkerri shale interval at ~10,000-foot depth
- Reservoir properties of Mid-Velkerri 'B' and 'Lower B' shale compares favourably to the average Marcellus Shale dry gas window
- Reservoir pressure gradient up to ~0.6 psi/ft observed
- **SS-1H drilled 1,000-metre horizontal and stimulated 1,644 ft in highest quality section of Mid Velkerri B shale in the Beetaloo Basin to date**



Source: Based on core data from Tanumbirini 1, Amungee NW1, Kalala S1, Beetaloo W1 and Maverick 1. Proprietary Core-calibrated modelling performed by Nutech (2023). Marcellus shale Tier 1 Dry Gas Area average reservoir properties from Enverus Foundations™ Geoscience Analytics (2023). Pressure gradient estimation for SS-1H is based on a linear flow analysis of the Diagnostic Fracture Injection Test (DFIT) and build-up analysis during flowback of the SS-1H.

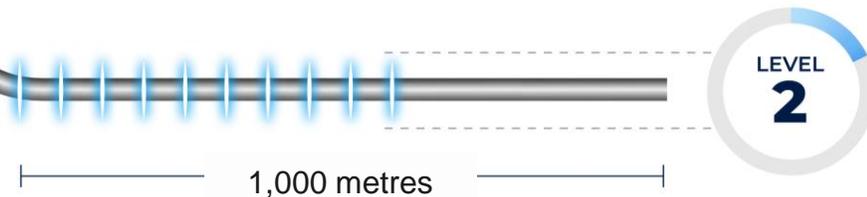


# Shenandoah South 1H optimised with “US-style” completion design

Incorporating US completion expertise to improve well performance

## Santos

### EP 161 Tanumbirini 3H well



## T3H previously delivered highest flow test in Beetaloo Basin

Drilled with 4 ½” casing, ~60 bpm with cross-link gel design

Stimulation intensity 1,600 lb/ft

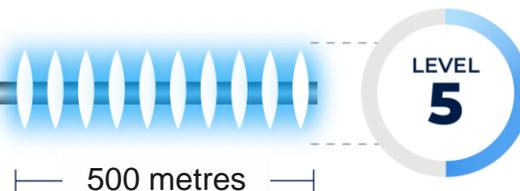
10 stimulation stages over 600 metres (60-metre spacing)

IP30 flow tests delivered **5.2 MMcf/d per 1,000-metre lateral**

### Application of T3H Learnings



## Shenandoah South 1H



Drilled with 5 ½” casing, ~100 bpm with optimized slickwater design

Stimulation intensity ~2,250 lb/ft with optimized US-style perforation strategy

10 stimulation stages over 500 metres (50-metre spacing)

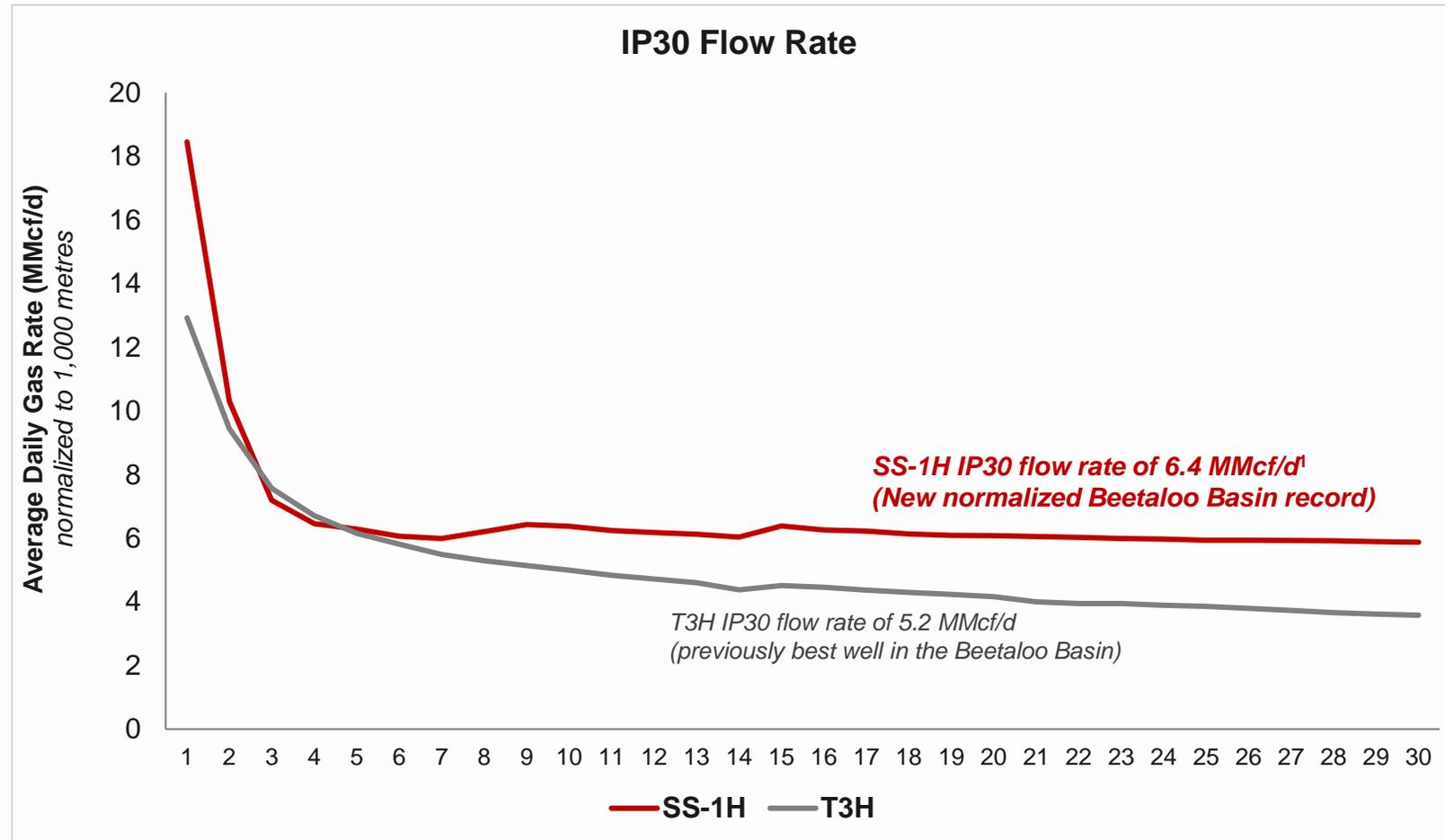
IP30 flow tests delivered **6.4 MMcf/d per 1,000-metre lateral**

**High confidence in executing SS-1H completion design for 3,000-metre (~10,000 ft) lateral**



# Shenandoah South 1H IP30 flow test results

SS-1H well achieved the highest normalized IP30 flow test in the Beetaloo Basin to date

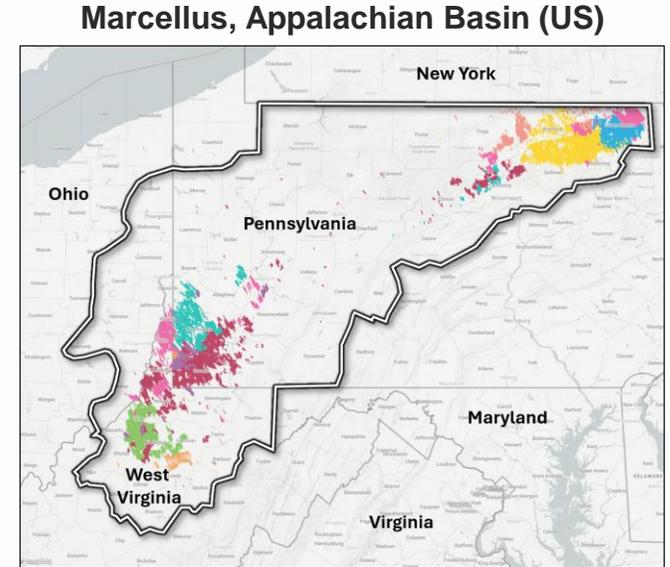
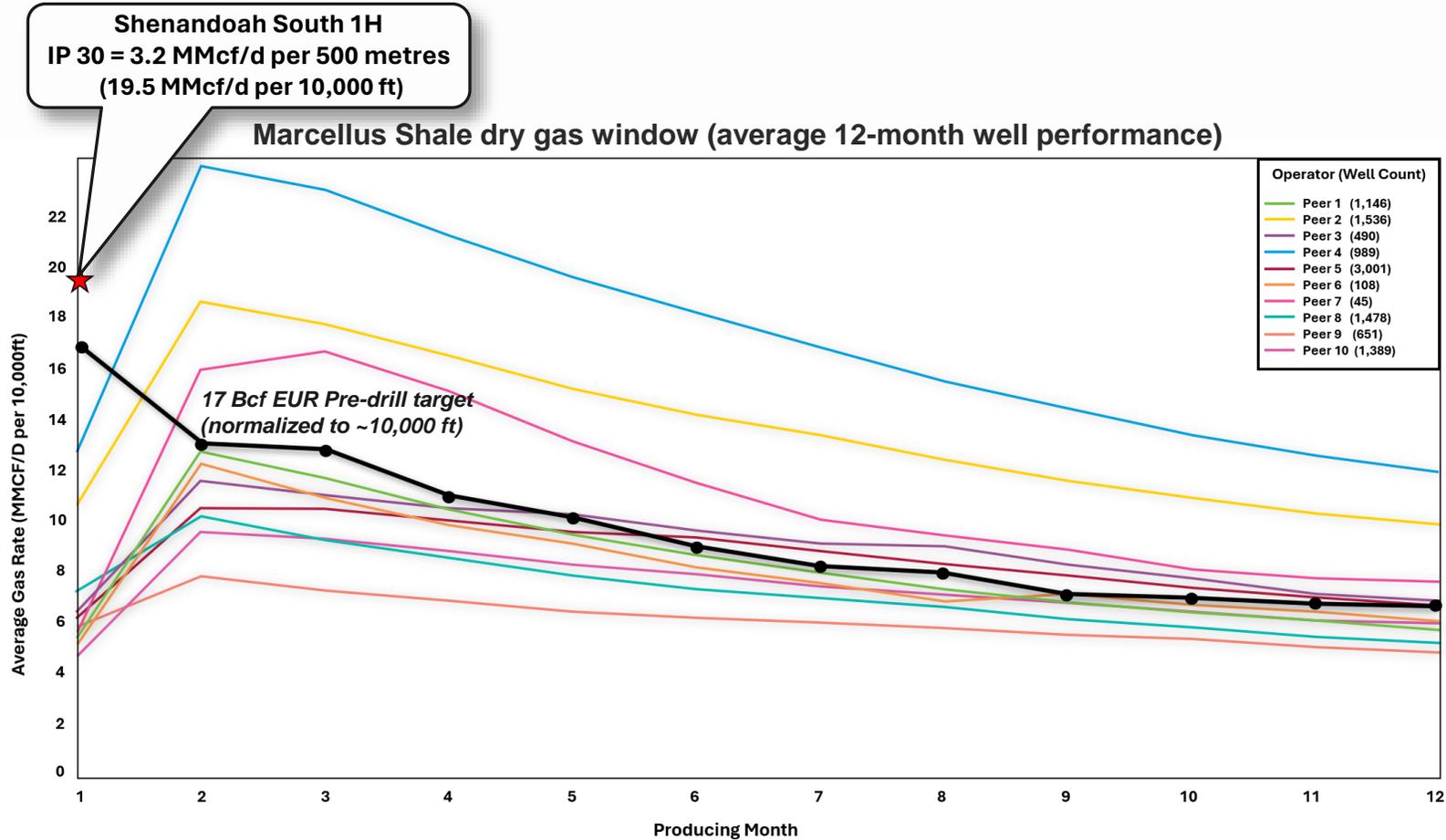


- IP30 flow rate of 6.4 MMcf/d<sup>1</sup> – exceeding pre-drill expectation
- Steady, low-decline during the IP30 test period, which may indicate enhanced fracture conductivity
- Flowing tubing pressure remaining stable at ~580 psi on a 43/64” choke
- Potential for a 3,000-metre (~10,000 ft) Beetaloo Basin development well to deliver IP30 flow rates of ~19 MMcf/d

<sup>1</sup>Wellhead rate of 3.2 MMcf/d over 501 metres (1,644 ft), normalized flow rate of 6.4 MMcf/d over 1,000 metres (3,281 feet).

# Shenandoah South 1H IP30 performance vs. Marcellus Shale producers

Favourable IP30 comparison to average Marcellus Shale well performance



- The IP30 of the Mid Velkerri B Shale at SS-1H compares favourably with average rates from Marcellus Shale producers
- **SS-1H IP30 initially outperforming Tamboran's preliminary 17 Bcf EUR internal pre-drill target estimate**

Note: SS-1H initial 30-day production plotted against average of 10,833 wells within the Marcellus dry gas window. Our preliminary 17 Bcf EUR internal forecast demonstrates Tamboran's pre-drill expectation of the well decline which drives the economic modelling of the proposed Pilot Project, normalized for a 3,000 metres (~10,000 ft) development well, a common practice in United States shale operations). The SS-1H average 30-day gas rate of 3.2 MMcf/d for 500-metres (~1,640 ft) stimulated lateral length normalized to 10,000 ft. First month production for Marcellus operators include a cleanup period with lower gas rates; SS-1H 30-day IP was initiated after ~10 days of cleanup and a 3-week shut-in period for soaking. Marcellus comparison includes 10,833 wells with minimum 12 months of production from the following operators: Antero Resources, Chesapeake, CNX Resources, Coterra Energy, EQT, HG Energy, Olympus Energy, Range Resources, Repsol and Southwestern Energy. Marcellus Production Data Source: Enverus Prism Foundations™ Forecast Analytics (15 Feb 2024).



# SS-1H result demonstrates a potential pathway to improved economics

Targeting cost reduction and enhanced well recovery by incorporating US technology

Unit cost (US\$ per mcf)		Development well EUR (10,000 ft lateral)					
		13 BCF	15 BCF	17 BCF	19 BCF	21 BCF	23 BCF
Development well cost	US\$10 million	0.77	0.67	0.59	0.53	0.48	0.43
	US\$15 million	1.15	1.00	0.88	0.79	0.71	0.65
	US\$20 million	1.54	1.33	1.18	1.05	0.95	0.87
	US\$25 million	1.92	1.67	1.47	1.32	1.19	1.09
	US\$30 million	2.31	2.00	1.76	1.58	1.43	1.30

*Previous* (based on Tanumbirini 3H) 

*Updated Future Target Development well* (based on SS-1H) 

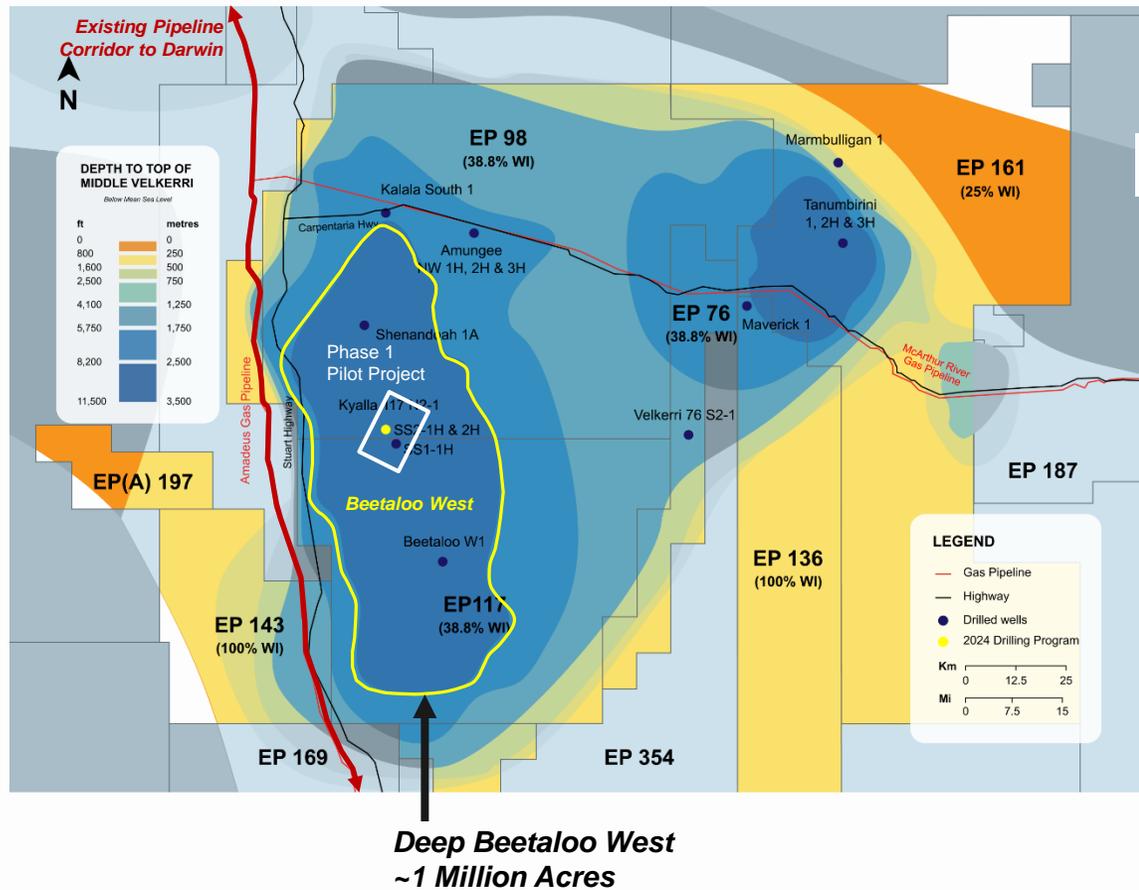
+ operating costs (targeting in line with US best practice) + processing facilities + pipeline transportation + royalties + carbon offsets

**Current Australian gas market prices ~US\$9 per mcf**



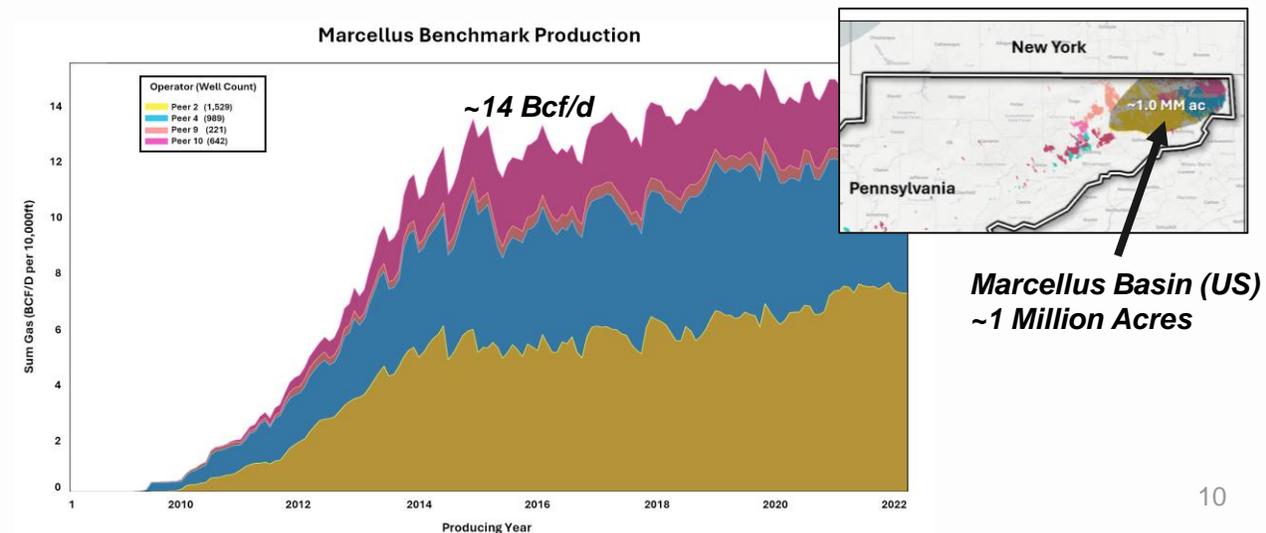
# SS-1H results high grade ~1 million acres in deep Mid-Velkerri gas play in Beetaloo West area

Significant de-risking of acreage close to existing pipeline corridor



## Targeting development in deep Beetaloo West area:

- ~1 million gross acres (>20 Tcf 2C gas resources<sup>1</sup>, Mid Velkerri 'B' shale only)
- Future upside potential from development of Mid Velkerri 'Lower B' shale target
- For example, the Marcellus Shale in NE Pennsylvania produces ~14 Bcf/d from ~1 million acres<sup>2</sup>



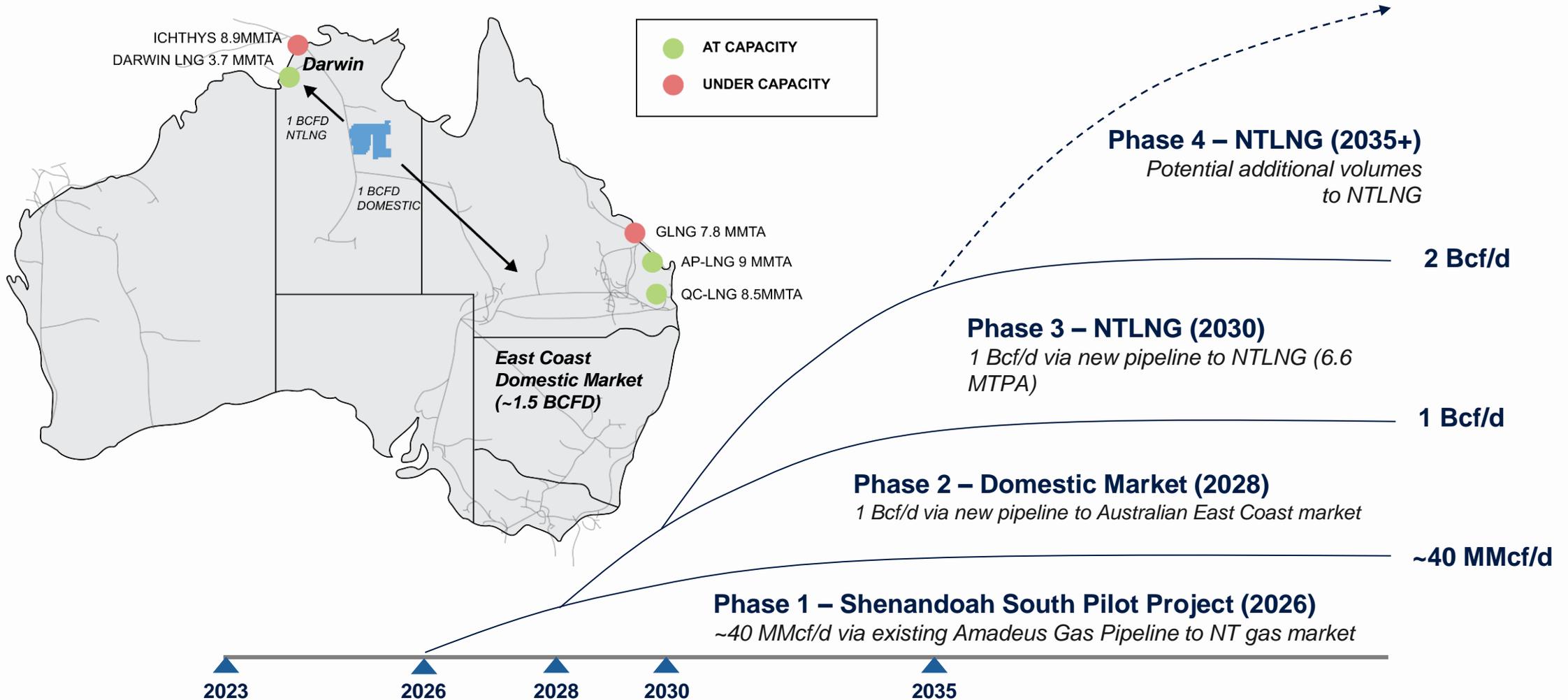
<sup>1</sup>Refer to Tamboran ASX Announcement (31 October 2023) "Non-Deal Roadshow Presentation" (slide 14).

<sup>2</sup>Marcellus Production Data Source: Enverus Prism Foundations™ Forecast Analytics (15 Feb 2024).



# Tamboran's Beetaloo Basin development strategy

Vision to achieve 2 Bcf/d (gross) as early as 2030<sup>1</sup> to supply NT, East Coast and Asia Pacific markets



<sup>1</sup>Reflects gross Beetaloo Basin production aspirations by 2030 from assets Tamboran has ownership in (EP 98, 117, 76, 161 and 136).

<sup>2</sup>Subject to available pipeline capacity in the Amadeus Gas Pipeline and Blacktip production by 2026.

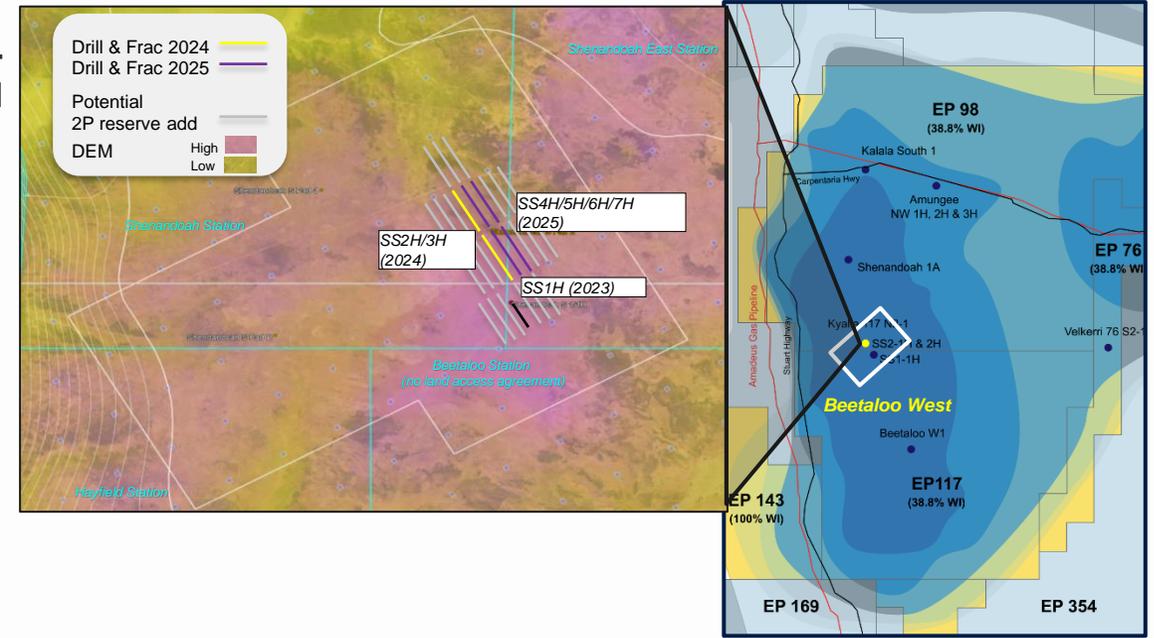
Note: Timings for phased development are flexible and subject to commercialisation of Beetaloo gas resources and key stakeholder and JV approvals.



# Phase 1 – Proposed Shenandoah South Pilot Project

Targeting sanction of proposed ~40 MMcf/d Pilot Project in mid-2024; targeting first gas in 1H 2026

- Proposed Pilot Project targeting six horizontal wells drilled in 2024-25 to achieve 40 MMcf/d plateau production, subject to funding and standard stakeholder approvals
  - o **2024:** Drill, stimulate and test **two 3,000-metre** (~10,000 ft) horizontal wells (one well planned for 360-day flow test) and acquire 300 km<sup>2</sup> of 3D seismic
  - o **2025:** Drill and stimulate **four 3,000-metre** (~10,000 ft) horizontal wells ahead of first production in 1H 2026
- Design and Procurement activities for new 40 MMcf/d compression facility and 35 km pipeline has commenced
- Tamboran is engaging with Native Title holders, landholders, JV partners and key stakeholders to secure approvals by mid-2025

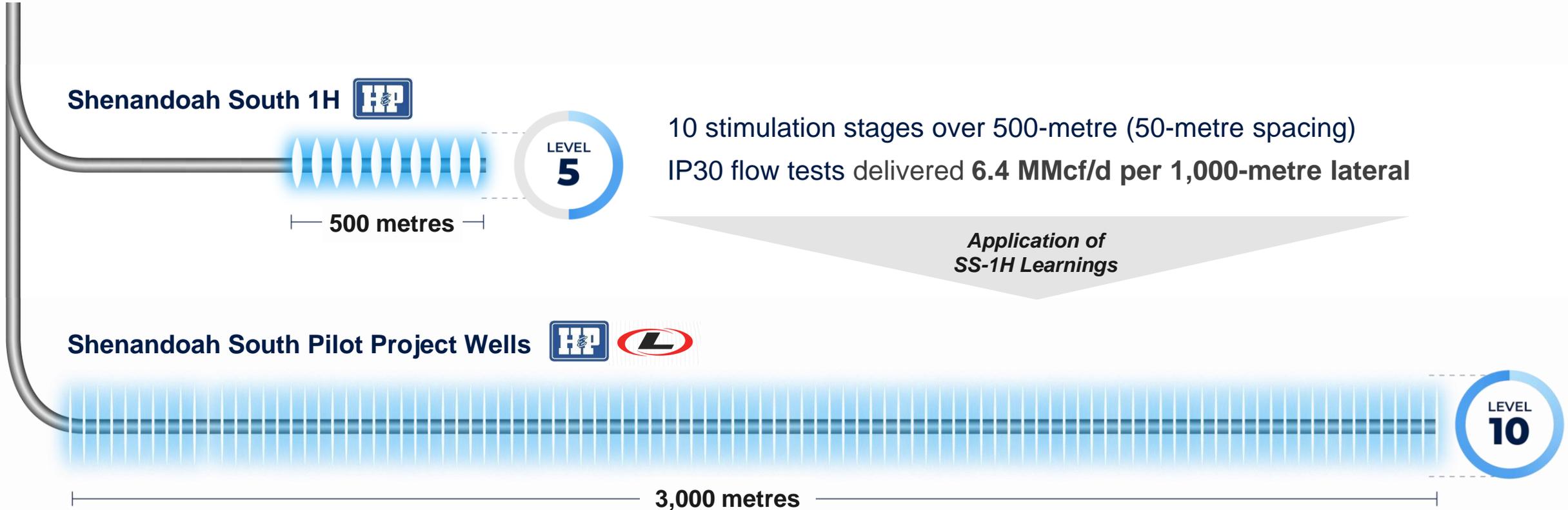


Activities	2024				2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SS-1H Flow Test	🚰 IP30	🚰 IP90						
Pilot Development			★ Proposed Pilot Project Sanctioning					Commissioning ★
Pilot Project Drilling		🏗️ SS2-1H	🏗️ SS2-2H			🏗️	🏗️	🏗️
Pilot Project Stimulation			★★ SS2-1H & -2H				★★★★ SS2-3H, -4H, -5H & -6H	
Pilot Project Flow Testing				🚰 Commence SS2-1H 360-day flow testing				
3D seismic			📷 300 km <sup>2</sup> 3D seismic					



# Proposed Pilot Project to further optimise “US-style” well design

Incorporating learnings from SS-1H to further improve well performance and cost efficiency



Optimized completion design with increased stimulation intensity

60 stimulation stages over 3,000 metres (~10,000 ft)

**Potential IP30 flow tests >19 MMcf/d**

# Tamboran's Strategic Partnerships

Delivering on commitment to import US technology and additional pipelines into the Beetaloo Basin



(5.1% shareholder)

- Tamboran / H&P (NYSE: HP) Strategic Alliance to import modern US unconventional drilling rigs into the Beetaloo Basin.
- Current two-year rig contract for H&P FlexRig® super-spec rig (2,200 HP, 1,000,000 lb hook load)
- **US\$15 million strategic investment in 2022**
- Option to **import an additional four additional FlexRig super spec rigs** into the Beetaloo Basin



(4.6% shareholder)

- Tamboran and Liberty (NYSE: LBRT) entered into Strategic Partnership to **import a modern frac fleet into the Beetaloo Basin in 2024**
- **US\$10 million strategic investment in 2023**
- Fit-for-purpose completion equipment has potential to significantly reduce costs of future stimulation and increase efficiency



- APA Group (ASX: APA) and Tamboran entered into three formal and binding agreements in 2023 to support the development of the Company's Beetaloo Basin assets to the East Coast gas market and Darwin
- APA has agreed a process to continue development of the proposed pipelines with early works expenditure of up to A\$10 million, subject to Tamboran reaching agreed milestones



# Upcoming catalysts

Progressing towards sanctioning decision on proposed ~40 MMcf/d (gross) Pilot Project in 1H 2024



**April 2024**

**Announce SS-1H IP90 flow rates**

**2Q 2024**

**Finalise binding Gas Sales Agreement for proposed Pilot Project**

**2Q 2024**

**Commence drilling SS-2H & SS-3H wells**

**2Q 2024**

**Complete Concept Select engineering studies for NTLNG project**

**Mid-2024**

**Secure remaining funding and sanction proposed Pilot Project**

**2H 2024**

**Stimulate two wells and commence 360-day flow test of SS2H**

# Q&A



# Appendix A:

## Additional Information



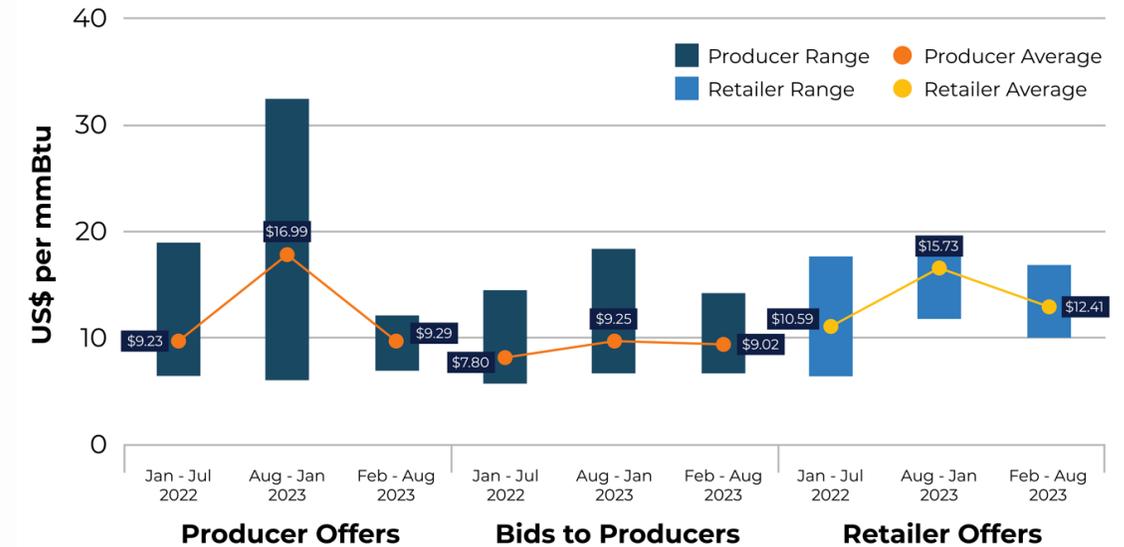


# Australian gas price premium

Australian domestic gas and LNG prices trade at multiples higher than Henry Hub gas price

- Australian gas contracts typically negotiated between buyer and seller over short- to medium-term supply period, with longer supply periods to support new fields and infrastructure.
- Higher prices reflect lack of investment in new domestic gas supply and longer transport route to market.
- Pricing confidential, however Australian Consumer and Competition Commission (ACCC) releases gas offer and bid ranges throughout the year.
- In December 2023, the ACCC announced **East Coast gas producer offers at US\$9.29 per MMBtu between Feb and Aug 2023, a 280 per cent premium to Henry Hub pricing** during that period.

**ACCC analysis of bid and offer information provided by suppliers<sup>1</sup>**



US\$ per MMBtu	Feb – Aug 2023
ACCC Reported Producer Offers <sup>1</sup>	9.29
Henry Hub <sup>2</sup>	2.44
Australian East Coast gas premium	6.85 (+280%)

<sup>1</sup>ACCC Gas inquiry 2017-30 reports: Gas Inquiry December 2023 interim report – 15 December 2023 (p. 81).

<sup>2</sup>Source: Bloomberg (19 February 2024).



# SS-1H IP30 flow test vs. other Beetaloo Basin

Achieving the highest normalized IP30 flow test in the Beetaloo Basin to date

	Shenandoah South 1H (SS-1H)	Tanumbirini 3H (T3H)	Tanumbirini 2H (T2H)	Carpentaria 2H (C2H)	Carpentaria 2H (C2H)
Beetaloo Permit	EP 117	EP 161	EP 161	EP 187	EP 187
Operator					
IP30 flow test (actual) (MMcf/d)	3.2	3.1	2.1	2.8	3.3
IP30 flow test (normalized, 3,281 ft) (MMcf/d)	6.4	5.2	3.2	3.0	1.7
Stimulated horizontal length (metres)	501	600	660	927	1,989
Stimulated horizontal length (feet)	1,644	1,969	2,165	3,041	6,526
Stimulated stages	10	10	11	21	40
IP30 exit rate (actual) (MMcf/d)	2.9	2.1	1.6	2.3	2.6
Well EUR (20-years, 10,000 ft) (Bcf)	TBC	18.5	16.8	~8	~8
Mid Velkerri B Depth (feet)	9,957	11,119		~5,200	~5,200
Pressure gradient (psi/ft)	~0.6	0.51 – 0.56		~0.5	~0.5

Data sourced from publicly available information, including ASX announcements and presentations.

# Appendix B:

## Resource Disclosure

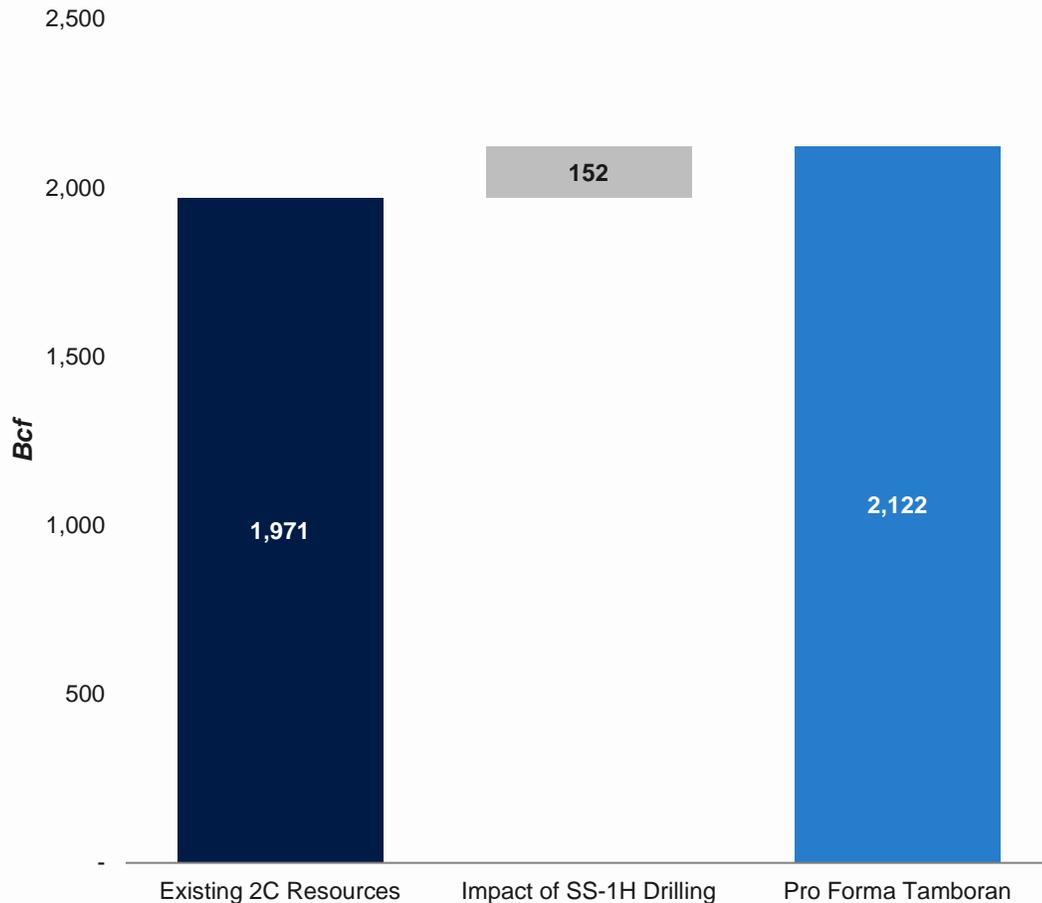


# EP 98/117 Resource upgrade

Increase in 2C contingent gas resources to 2.1 Tcf | Initial resources booked over Shenandoah South region



## Increase in 2C Contingent Resources<sup>1</sup>



Bcf (net TBN)	Previous	New	Δ (%)
<b>1C Gas Resources</b>	458	491	+7%
<b>2C Gas Resources</b>	1,971	2,122	+8%

- Initial gross 2C contingent gas resources of 391 Bcf (151 Bcf net Tamboran) booked over the Shenandoah South area
- The 2C contingent gas resources supports potential sanctioning of the proposed Pilot Project at Shenandoah South
  - o Production target of 40 MMcf/d (gross) over 10-years requires 146 Bcf (57 Bcf net Tamboran) of resource
- The resource upgrade has been evaluated and certified by leading independent third-party resource certifier Netherland, Sewell & Associates, Inc. (NSAI), with an effective date of 31 January 2024.

<sup>1</sup>Refer to Tamboran ASX Release (26 February 2024): "Tamboran increase Beetaloo Basin 2C gas resources to 2.1 Tcf". Refer to Resources Statement on Slide 22.



# NSAI estimates of contingent gas resources

2.0 Tcf 2C contingent gas resources<sup>1</sup> and 147 Tcf 2U prospective gas resources<sup>2,3</sup>

	Contingent Gas Resources			Unrisked Prospective Gas Resources		
	Low Estimate (1C)	Best Estimate (2C)	High Estimate (3C)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)
	<i>Bcf</i>	<i>Bcf</i>	<i>Bcf</i>	<i>Bcf</i>	<i>Bcf</i>	<i>Bcf</i>
Lower Kyalla	-	-	-	177	451	1,457
Mid Velkerri C	184	789	1,754	20,230	35,230	74,560
Mid Velkerri B	307	1,333	2,979	51,399	85,557	174,697
Mid Velkerri A	-	-	-	13,156	25,553	59,691
<b>Total</b>	<b>491</b>	<b>2,122</b>	<b>4,733</b>	<b>84,962</b>	<b>146,791</b>	<b>310,406</b>

<sup>1</sup>2C net contingent gas resources assessed and verified by Netherland, Sewell & Associates, Inc. (NSAI) in Report Dated 23 February 2024. Totals may not add due to rounding.

<sup>2</sup>2U net prospective gas resources assessed and verified by Netherland, Sewell & Associates, Inc. (NSAI) in Report Dated 26 September 2023. The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

<sup>3</sup>Refer to Resources statement on following page.



## Resources statement

The estimates of contingent gas resources in the permits contained in the announcement were prepared by Netherland, Sewell & Associates Inc., qualified resource evaluators. The resource assessment was independently carried out by John G. Hattner, Senior Vice President, and Joseph M. Wolfe, Vice President of Netherland, Sewell & Associates Inc., in accordance with the 2018 Petroleum Resource Management System (PRMS) approved by the Society of Petroleum Engineers (SPE).

Mr. Hattner and Mr. Wolfe meet the requirements of Qualified Petroleum Reserve and Resource Evaluator as defined in Chapter 19 of the ASX Listing Rules. Mr. Hattner is a Licensed Professional Geophysicist in the State of Texas, USA and Mr. Wolfe is a Licensed Professional Engineer in the State of Texas, USA. Mr. Hattner and Mr. Wolfe have consented to the use of the resource estimates figures in the form and context in which they appear in this release. Mr. Hattner has over 42 years of relevant experience. His qualifications include an MBA from Saint Mary's College of California, Master of Science in Geological Oceanography, Florida State University, and a Bachelor of Science in Geology from University of Miami. Mr. Wolfe has over 14 years of relevant experience. His qualifications include a Master of Petroleum Engineering from Texas A&M University and a Bachelor of Science in Mathematics from Northwestern State University.

The estimates of contingent gas resources provided in this announcement were estimated using a combination of deterministic and probabilistic methods. Estimates for September 2022 are as of 31 August 2022 and estimates for September 2023 are as of 30 June 2023. Contingent resources are aggregated by summation by category.

The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially movable hydrocarbons.

For further details, refer to Tamboran's ASX release titled "Tamboran increase Beetaloo Basin 2C gas resources to 2.1 Tcf" on 26 February 2024.

Tamboran is not aware of any new information or data that materially affects the information included in this presentation and that all the material assumptions and technical parameters underpinning the estimates in this presentation continue to apply and have not materially changed.

Numbers in this report have been rounded. As a result, some figures may differ insignificantly due to rounding and totals reported may differ insignificantly from arithmetic addition of the rounded numbers.



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RESOURCES

