



ASX:EEG

A Transformational Step – the Pangaea / EMG acquisition



Managing Director's General Meeting Presentation August 2021

Corporate Snapshot



Capital Structure

	Current	Pro-forma
Shares on issue ¹	447.9m	597.0m
Share price	\$0.29	\$0.29
Market cap	\$129.9m	\$173.1m
Net (debt ²) / cash	~\$30.7m ³	~\$20.0m ³
Enterprise value	~\$99.2m	~\$153.1m
Cash at bank	~\$39.1m	~\$28.4m

ASX Share Price



Pro-forma Top Shareholders

Pangaea Resources (NT) Pty Limited ⁴	20.0%
Elphinstone Holdings Pty Limited	8.9%
Global Energy and Resources	5.4%
Energy and Minerals Group	5.0%
Macquarie Bank Limited	4.4%
Board of Directors ⁵	2.0%



1. Empire has 18.4m unlisted options on issue with an average exercise price of <A\$0.32 per share. In addition, there are 13.9m Share Rights on issue to members of the management team and Board. Most of the Share Rights have performance hurdles tied to total shareholder return.

2. Empire has a US\$7.5 million debt facility (drawn to US\$6.125 million) with Macquarie Bank maturing in September 2024 which is secured against the Company's USA gas production assets. Under new management, total debt has been reduced by over 80% since 2018. Net debt excludes a US\$343,602 loan which has been approved and received under the US Paycheck Protection Program which is expected to be forgiven.

3. Pro-forma net cash after transaction costs of ~\$11m comprising: cash consideration \$6.1m, stamp duty \$3.4m and professional services fees ~\$1.2m

4. Pangaea consideration includes 140m shares in total, which will be issued subject to Pangaea not holding an interest of more than 20% in Empire's ordinary shares at any point in time. It is expected that 119,394,868 shares will be issued to Pangaea at completion, with 20,605,132 being unissued

5. Board shareholding excludes options and MD Rights

A major lift in Resources with infrastructure connection



2015 Avago Seismic Survey



2013 Hidden Valley Seismic Survey



2014 Tarlee-S3 Velkerri Shale gas bleeds



2015 Birdum Creek-1 – Saxon Rig



2015 Birdum Creek-1 - Core capture



2015 Birdum Creek-1 Coiled tubing



2015 Tarlee-1 - Oil on core under UV light – Kyalla Shale



2015 Wyworrie-1 Wireline logging



2015 Wyworrie-1 Hydraulic stimulation



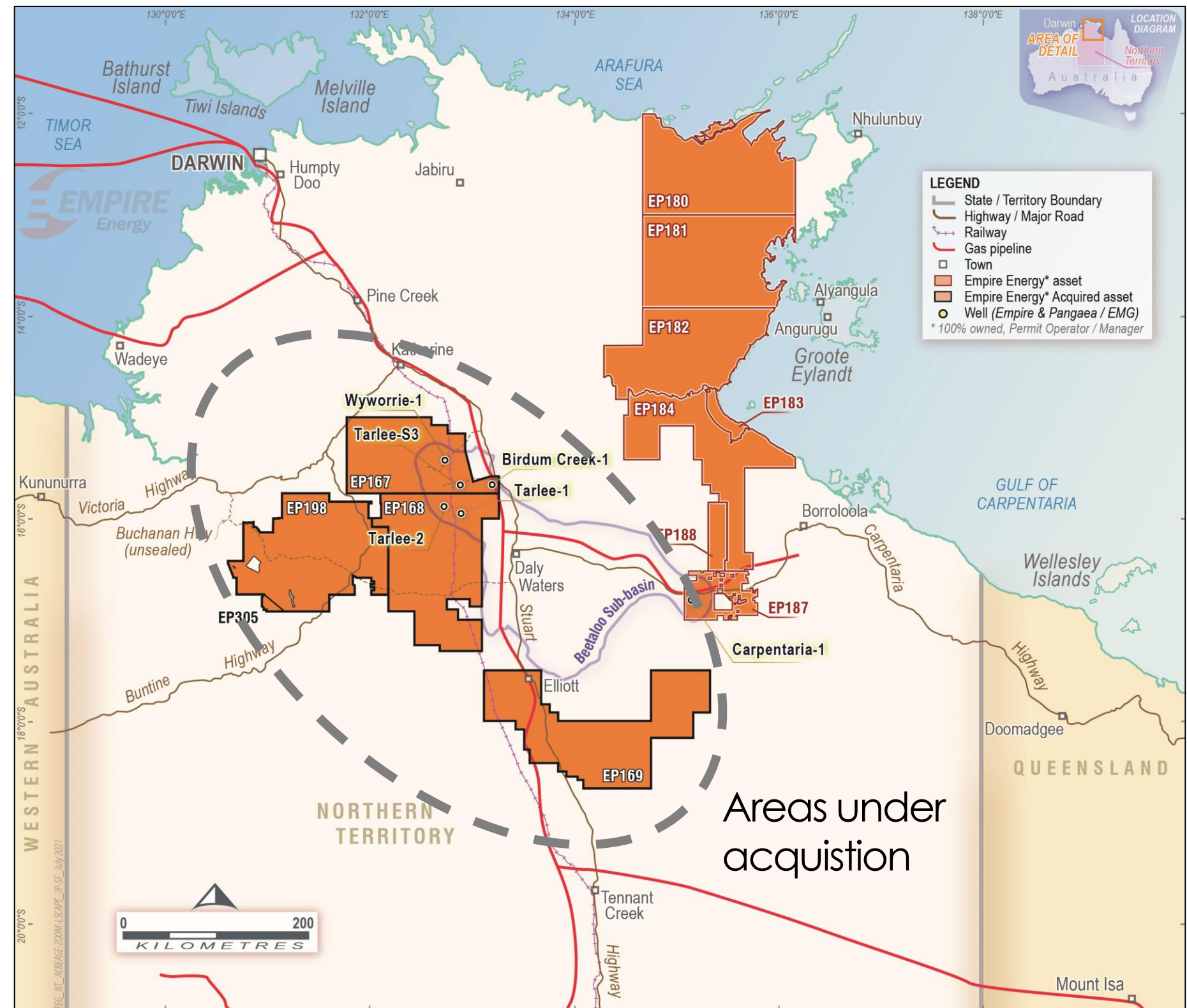
Natural fractures Velkerri core



2015 Wyworrie-1
Gas flare

\$110m invested - pipeline, road and rail infrastructure

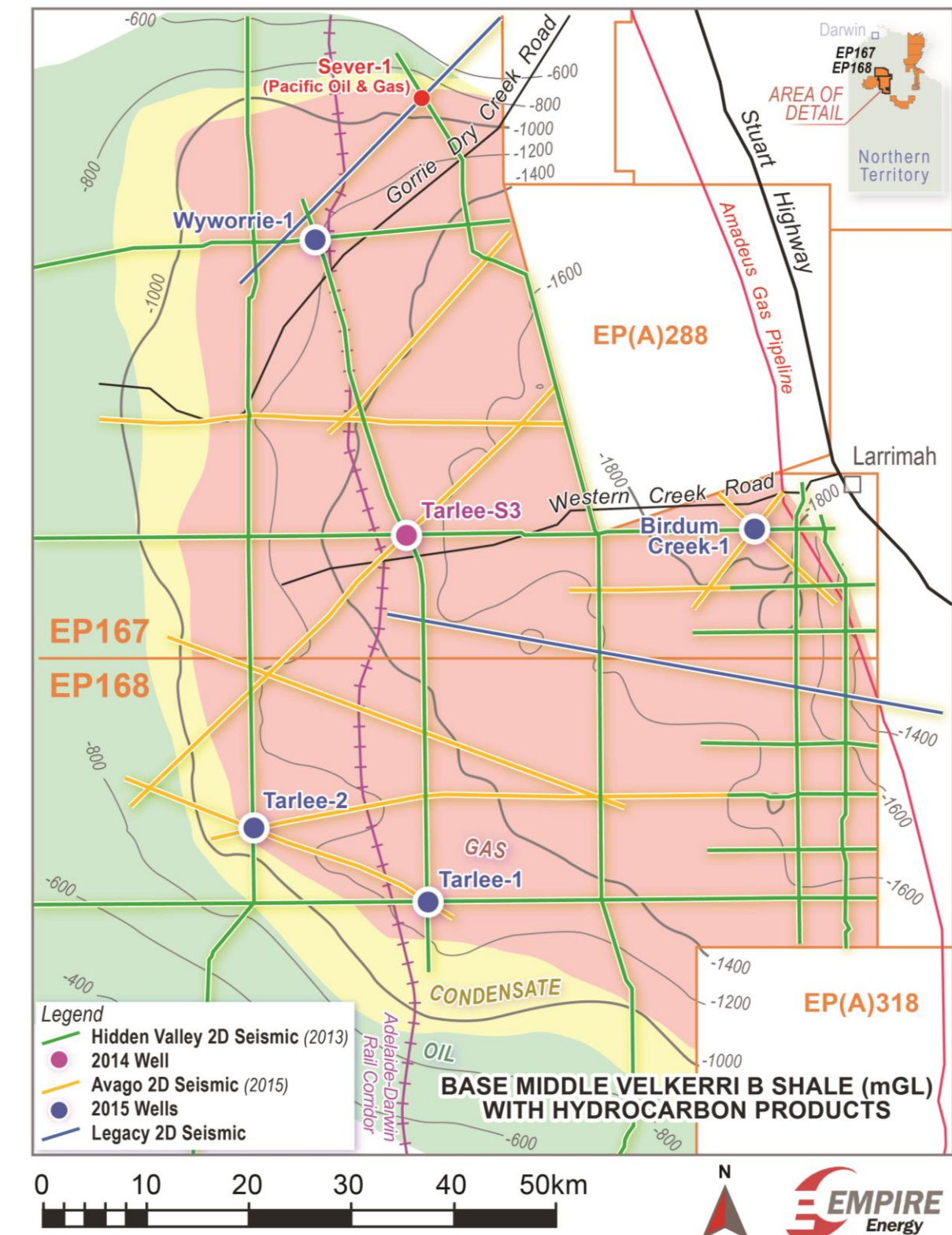
- NSAI certified best estimate Prospective Resources 27.6 Tcf gas and 764 MMbbls liquids
- NSAI certified 2C Contingent Resources of 157.5 Bcf gas and 3.5 MMbbls liquids
- ~14 million acres net to Empire in the onshore Northern Territory, including key areas of the Beetaloo Sub-basin
- Empire land holding post acquisition: ~29 million acres
- ~A\$110 million of capital expenditure by Pangaea and EMG between 2013 and 2015
- Close to existing infrastructure including the Stuart Highway, Darwin to Adelaide rail corridor and the Amadeus Gas Pipeline (connecting to the Northern Gas Pipeline)
- Appraisal program paused in 2016 due to the NT moratorium which was subsequently lifted in 2018



Acquisition acreage is thoroughly appraised and drill-ready



- 2012** Exploration targets identified
- 29,000km airborne survey
- 2013**
- 1,400km 2D seismic acquired
 - Regional petrophysical and geochemical study
- 2014** Drill exploration targets confirms Beetaloo shale units
- Two stratigraphic and one exploration well
 - **Discovery of world-class shale reservoirs** within the Beetaloo Sub-basin middle Velkerri shales
 - Energy & Minerals Group farm-in to Pangaeda's project
- 2015** Drilling of reservoirs determines rock properties and resource for Beetaloo shales (Kyalla & Velkerri) identifies appraisal and development areas
- Drilled four appraisal wells
 - 380km 2D seismic acquired
 - **Major Gas Discovery Notice lodged** (B Shale only) with the Northern Territory Government¹



1. On 23 October 2015, Pangaeda lodged a notification of discovery with the Northern Territory Government. The estimated total volume of original gas in-place for this discovery was ~92TCF (B Shale only)

Largest Coring Program and best data set in the Beetaloo

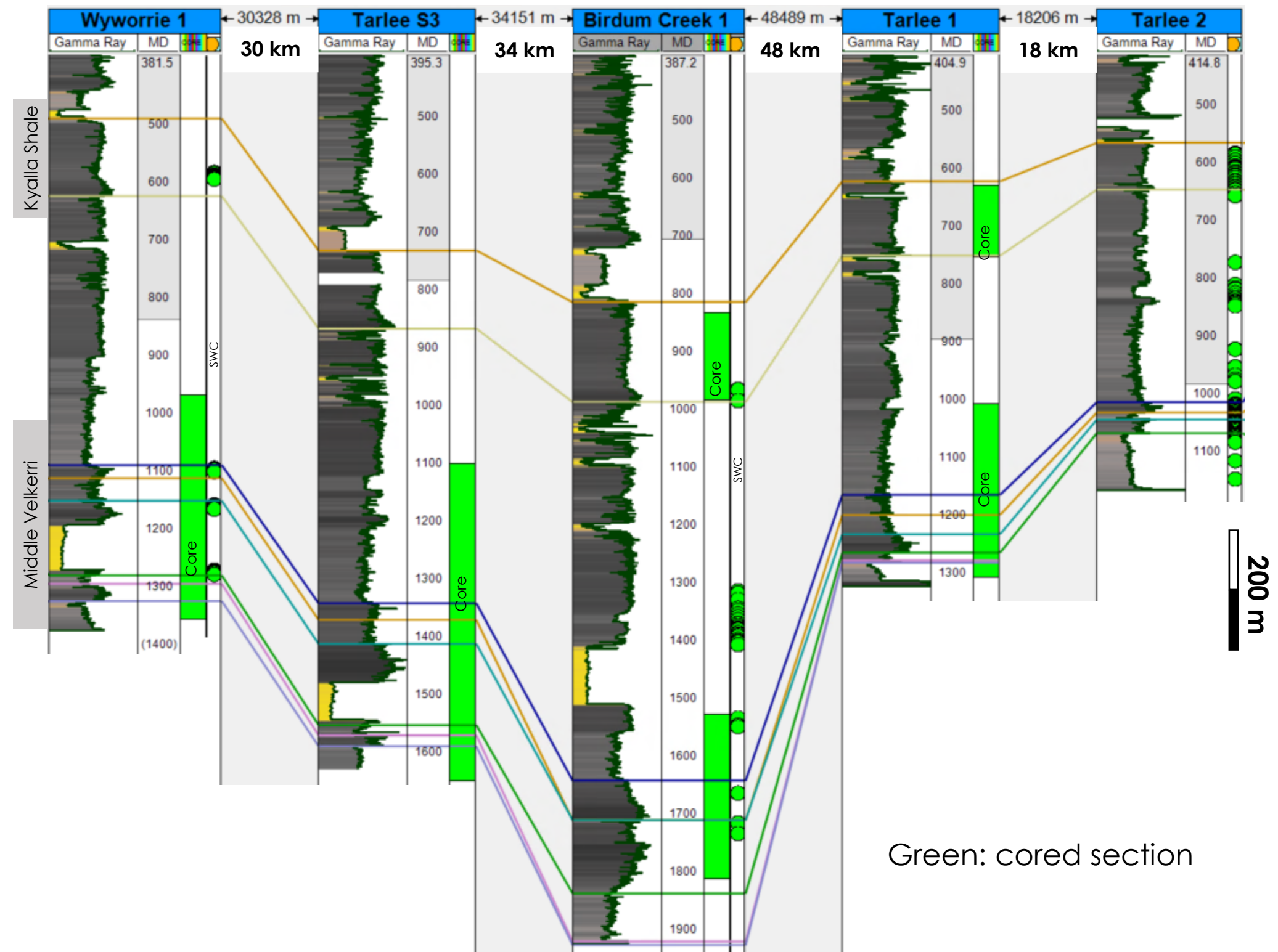
Pangaea-EMG achieved the largest core capture program in the Beetaloo Sub-basin. This included:

- ~1.8 km of large diameter core;
- Side wall cores (SWC); and
- Specialised large diameter downhole pressurized side wall cores (CoreVault)

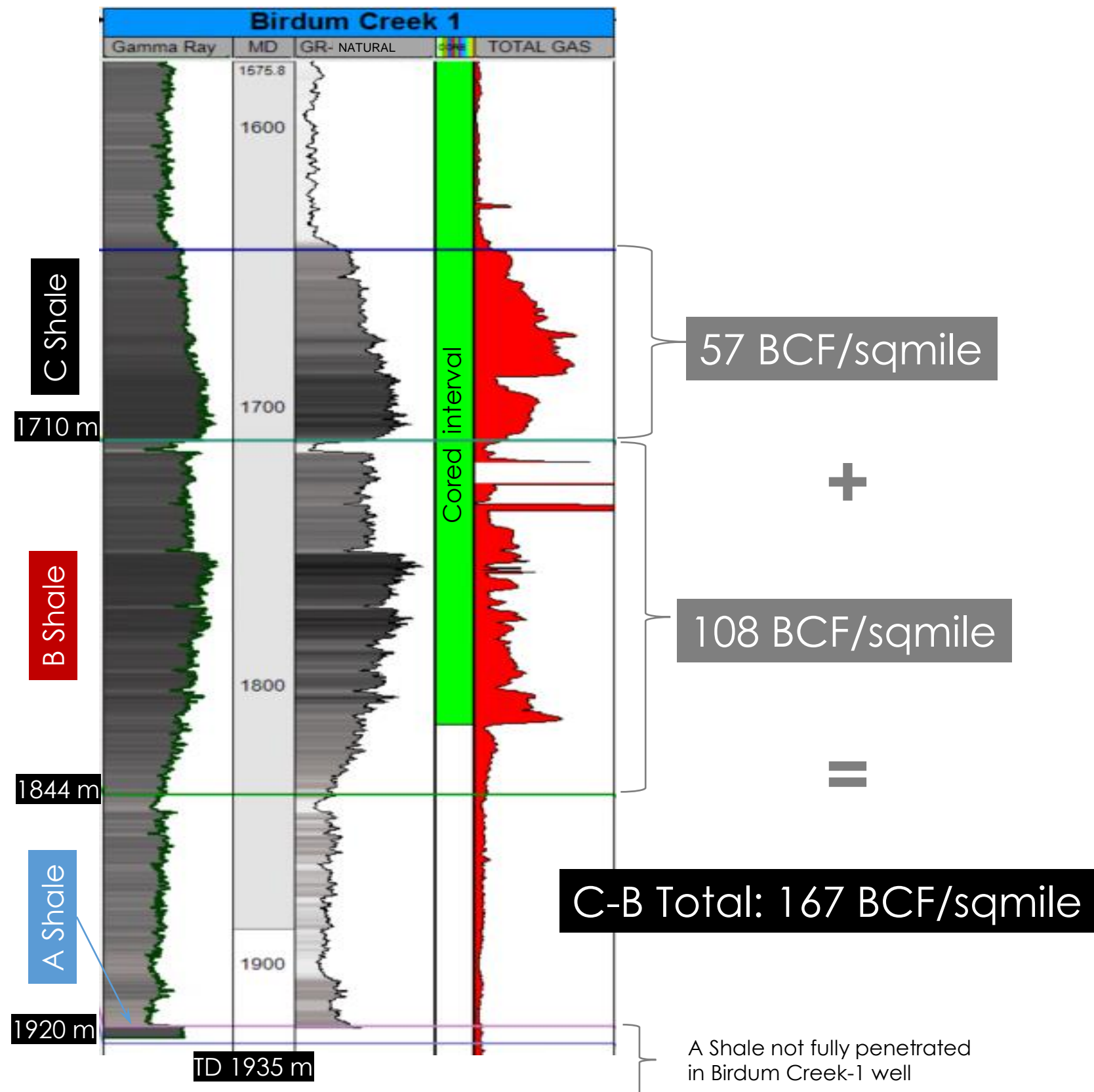
Core analysis was completed by W.D.Von Gonten Laboratories in the US

- Same world-leading unconventional reservoir / rock laboratory as used to analyse Carpentaria-1
- This allows direct comparison between Pangaea-EMG and Empire's reservoir properties

Acquisition includes total data sets



A Resource Concentration equal to the US Marcellus



- Measured by area the stacked B and C Shales have a Resource Concentration equal to the most productive shale play in the US, the Marcellus Shale
- Birdum Creek-1 encountered the thickest sequence of organic-rich shales, in excess of 200 metres across the B and C Shale zones of the middle Velkerri
- Very strong mud gas shows of over 2,000 units was encountered while coring through these zones
- Gas composition is dry with 92.8% CH₄, 2.4% C₂-C₃ and CO₂ 0.45%
- Middle Velkerri Shale: ~395+ metres gross/160+ metres net thickness (B and C Shales only)
- Middle Velkerri shales have in excess of 165 BCF/square mile in the deeper portion of Pangaea-EMG permits

Source: WDVG core calibrated petrophysical Resource numbers

How the Middle Velkerri matches the Marcellus Shale

Pathway to development

Gas-In-Place	Thickness	✓	The middle Velkerri Shales show high lithological consistency and thickness <ul style="list-style-type: none">Spatial drilling has proven target thickness intervals ranges from ~50 – 100+m for the B Shale alone
	TOC & Thermal Maturity	✓	The middle Velkerri Total Organic Carbon (TOC) content is consistent <ul style="list-style-type: none">The B Shale contains 3 – 6.5% TOC, averaging 4% (comparable to Carpentaria-1). Thermal maturity ranging from oil to dry gas
	Storage Capacity HC Saturation	✓	Excellent storage capacity and hydrocarbon (HC) saturations indicates large gas-in-place <ul style="list-style-type: none">Well developed effective porosities ranging from ~4 –8% with high hydrocarbon saturations averaging ~66%
	Resource Concentration	✓	High gas concentration equivalent to the Marcellus Shale <ul style="list-style-type: none">The Velkerri B Shale ranges from ~40 to over 100 BCF/sqmile - stacked A, B & C Shales can exceed 160 BCF/sqmile
Deliverability	Mineralogy & Rock mechanics	✓	Favourable mineralogy and rock mechanics for well treatments – shales are brittle and frackable <ul style="list-style-type: none">Core and logs confirm Velkerri shales have favourable fracture stimulation characteristics - high quartz (~60%) and low non-reactive clays (20 -35%)
	Overpressure	✓	Shale reservoirs are consistently over-pressured to similar level as the Marcellus Shale <ul style="list-style-type: none">Diagnostic Fracture Injection Tests (DFIT), pressurised core confirm the shales are over-pressured (0.51 – 0.59 psi/ft)
	Permeability	✓	Good to excellent shale permeabilities in the nanoDarcy to microDarcy range <ul style="list-style-type: none">Radial flow regime encountered in DFIT, indicating high levels of permeability and is consistent with core data

Continuous productive shales, these five wells span 309km



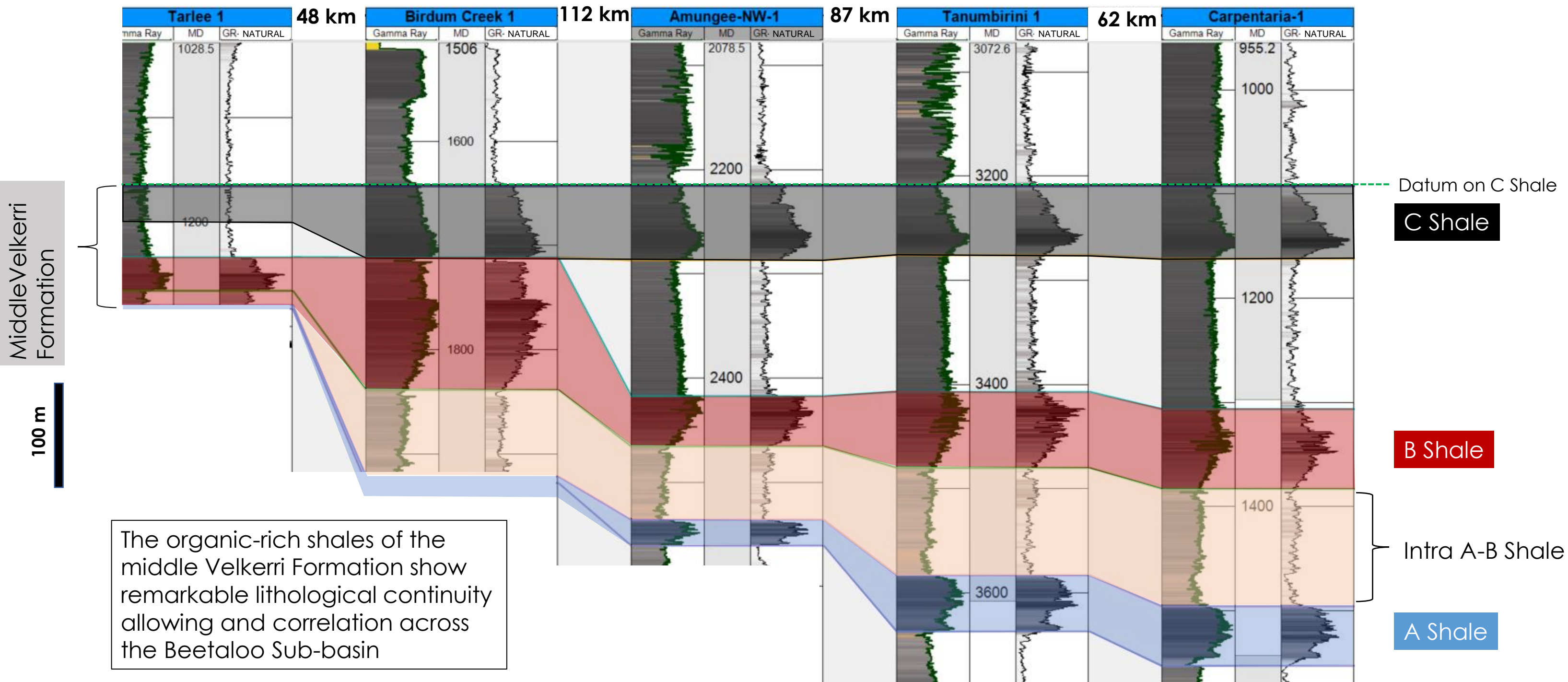
West



Santos



East



New areas enhance the array of potential liquids product



West

East

Liquids Rich Gas

Dry Gas

Dry Gas

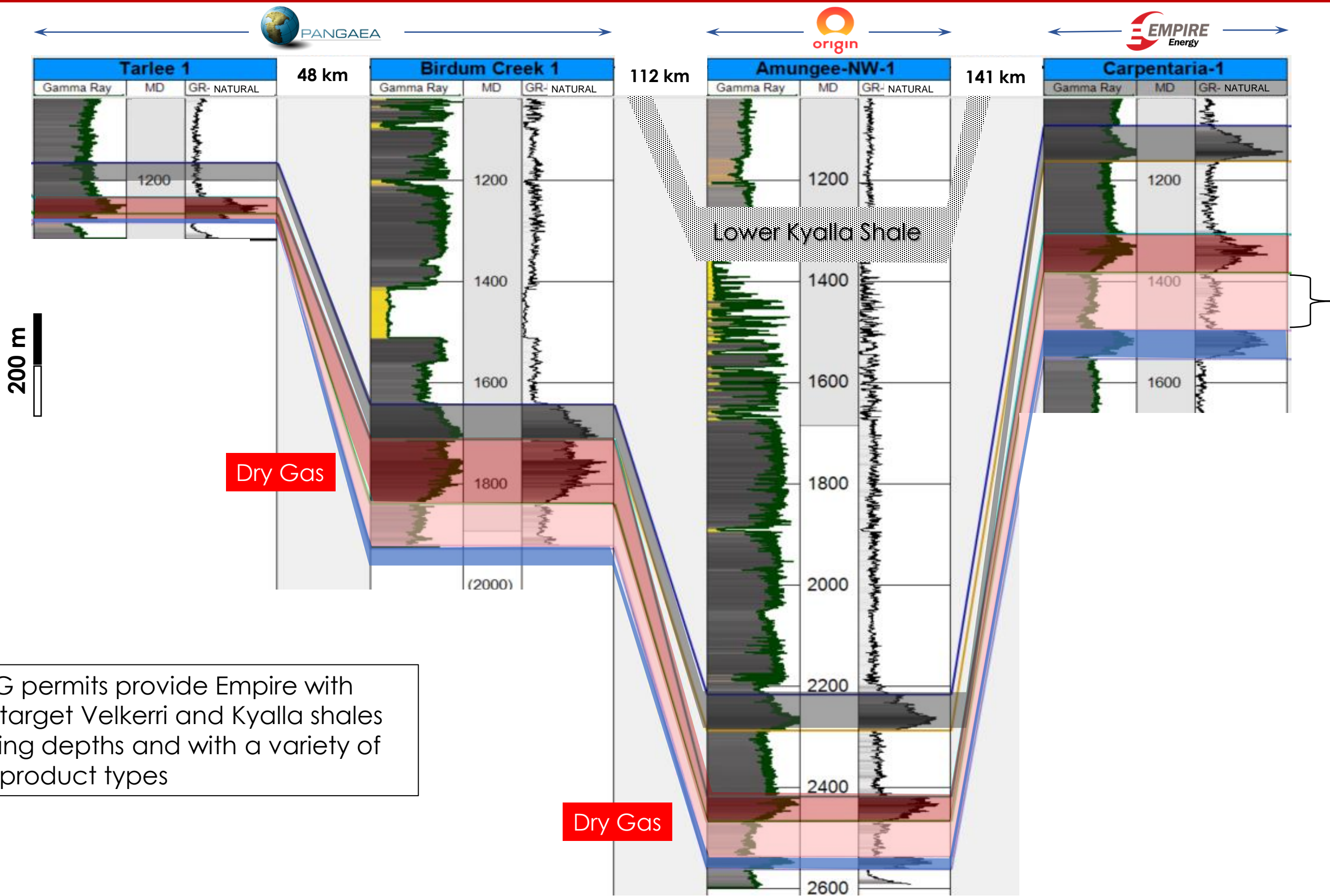
C Shale

B Shale

Intra A-B Shale

A Shale

Pangaea-EMG permits provide Empire with optionality to target Velkerri and Kyalla shales at various drilling depths and with a variety of hydrocarbon product types

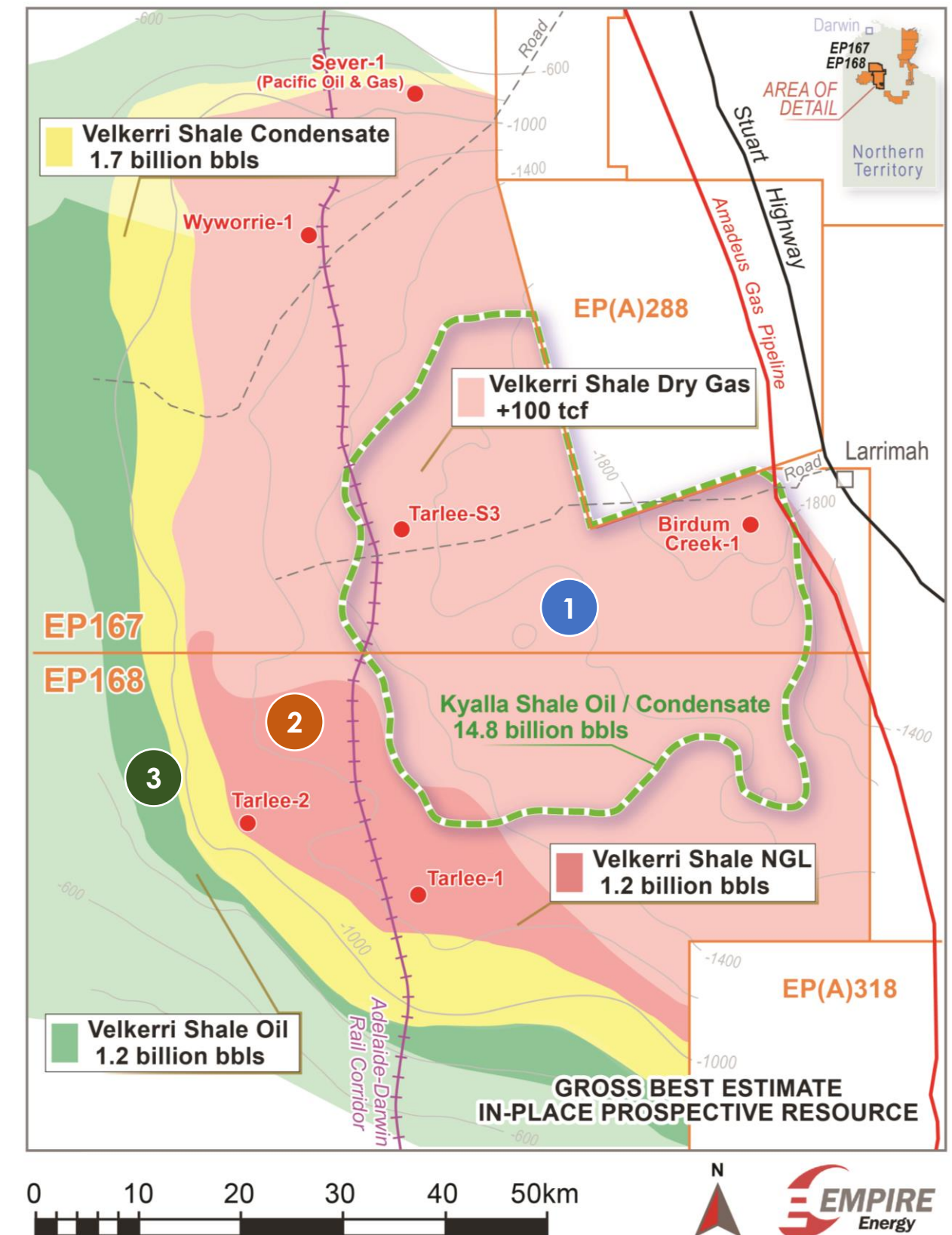


EPs 167 & 168 - Large resources areas poised for appraisal

- Initial production testing by Pangaea-EMG flowed gas to surface and confirmed hydrocarbon composition
- Thick TOC-rich shales covering more than 1.6 million acres (>6000 km²) have been confirmed with 2D seismic and spatial drilling
- Pangaea-EMG's comprehensive data provides strong confidence in the assessment of the play, and in the extent and size of the Resources
- Multiple hydrocarbon windows have been identified in core focus areas;

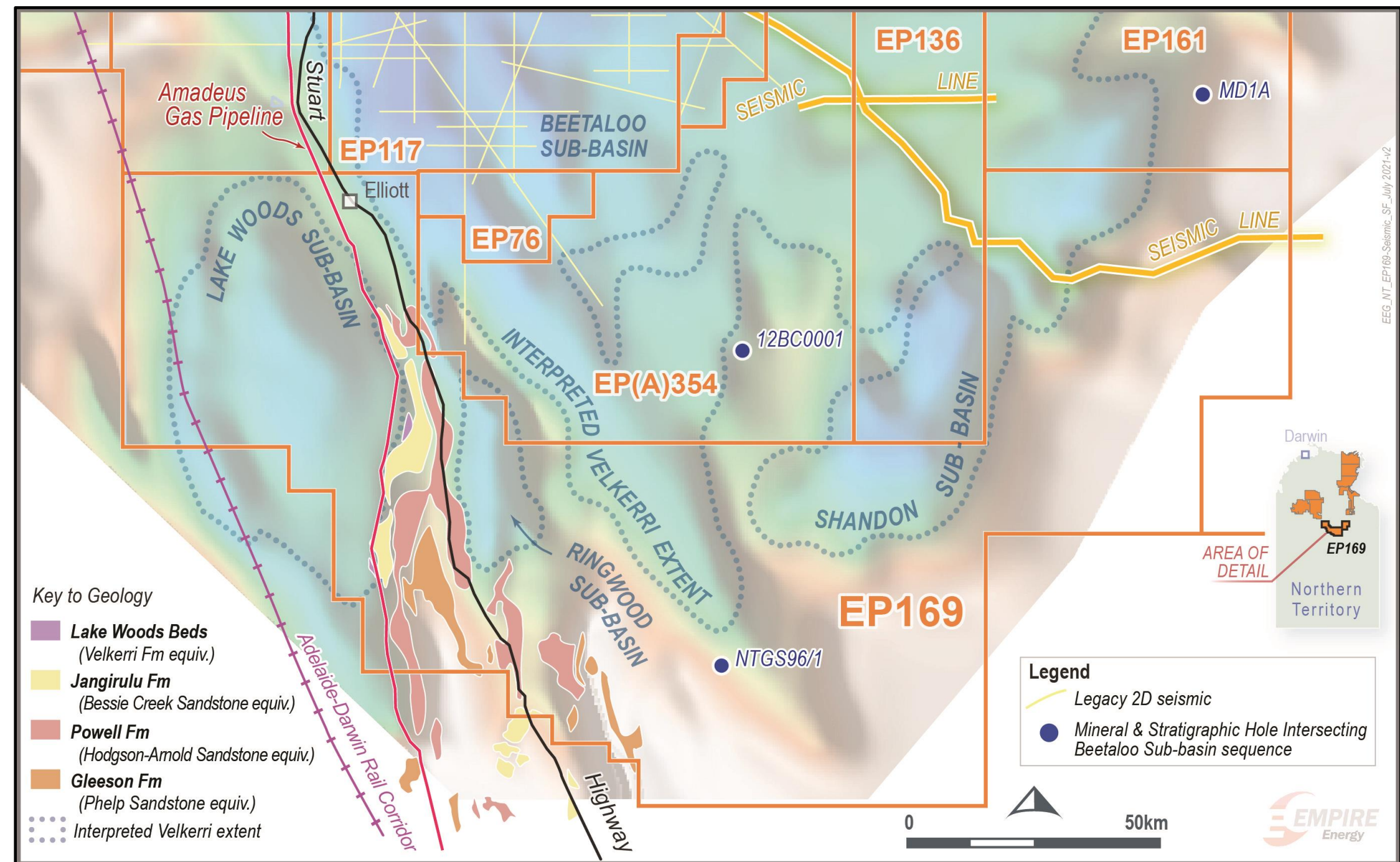
- 1 **Velkerri Dry Gas** – highest Gas-In-Place, deepest shale
- 1 **Kyalla Shale** – Oil and Condensate (overlying the Velkerri)
- 2 **Velkerri Liquids and Condensate** – highest porosity & permeability
- 3 **Velkerri Oil** – highest porosity & permeability

- Relatively favourable drilling depths, excellent reservoir properties and close-proximity to existing infrastructure important to economic viability
- Application of enhanced seismic reprocessing and learnings from recent drilling across the basin will inform Empire's future work



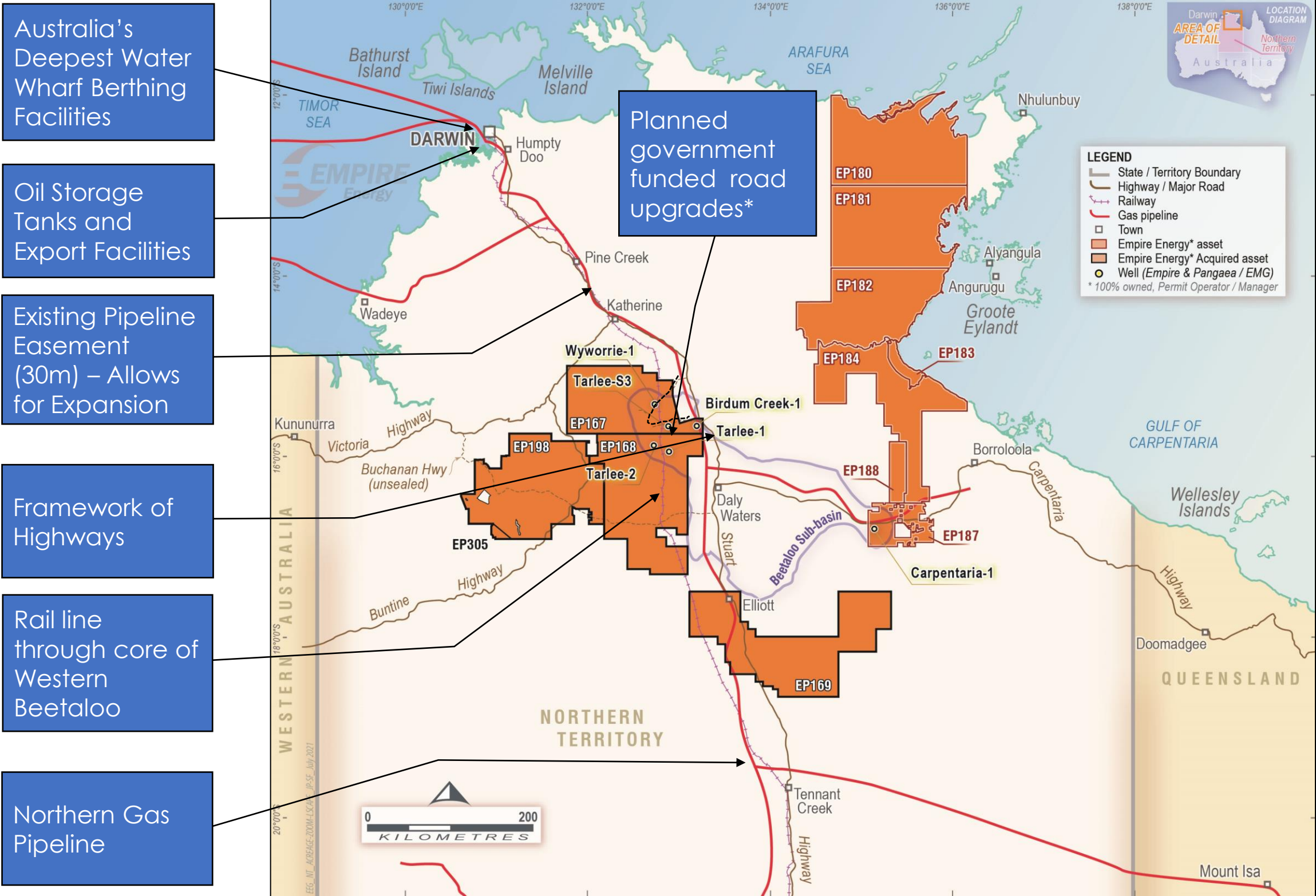
EP169: An exploration frontier across multiple sub-basins

- EP169 sits directly to the south of Origin and Santos' Beetaloo Sub-basin permits and is crossed by the Amadeus Gas Pipeline, Darwin to Adelaide rail corridor and Stuart Highway
- Potential field geophysics, recent government 2D seismic data, outcrop, and mineral holes indicate that the middle Velkerri Formation is likely present across a series of large sub-basins
- Proximity to infrastructure is excellent, and the relatively flat topography and potential for a large gas and gas liquids resource make this area an appealing exploration area



Source: FrogTech OZ SEEBASE

Principal infrastructure promotes early production strategy



*\$173.6 million committed to the Federal Government’s Roads of Strategic Importance – Northern Territory Gas Industry Roads Upgrades to upgrade the Buchanan Highway, Western Creek Road and Gorrie Dry Creek Road



Amadeus gas pipeline – connecting to Darwin & NGP to East



Adelaide-Darwin rail corridor



Stuart Highway to Darwin

A **191%** lift in gas, 2,830% lift in liquids **Prospective Resources**







Shale Unit	 Pre Acquisition						 Net to 100% Interest Acquired						 Post Completion					
	Unrisked Prospective Resources (Liquids)			Unrisked Prospective Resources (Gas)			Unrisked Prospective Resources (Liquids)			Unrisked Prospective Resources (Gas)			Unrisked Prospective Resources (Liquids)			Unrisked Prospective Resources (Gas)		
	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)
	mmbbls	mmbbls	mmbbls	bcf	bcf	bcf	mmbbls	mmbbls	mmbbls	bcf	bcf	bcf	mmbbls	mmbbls	mmbbls	bcf	bcf	bcf
Kyalla	-	-	-	-	-	-	88	378	1,571	184	857	4,891	88	378	1,571	184	857	4,891
Mid Velkerri	4	27	99	1,990	3,446	7,091	76	386	1,938	8,173	26,768	80,644	80	413	2,037	10,163	30,214	87,735
Barney Creek	-	-	-	1,633	11,053	45,380	-	-	-	-	-	-	-	-	-	1,633	11,053	45,380
Total	4	27	99	3,623	14,499	52,471	164	764	3,509	8,357	27,625	85,535	168	791	3,608	11,980	42,124	138,006

Empire P(50) Prospective Resources of **42 Tcf gas** and **791 mmbbls liquids** post-completion

A **384%** increase in 2C gas + 2C liquids **Contingent Resources**



Shale Unit	 Pre Acquisition						  Net to 100% Interest Acquired						 Post Completion					
	Contingent Resources (Liquids)			Contingent Resources (Gas)			Contingent Resources (Liquids)			Contingent Resources (Gas)			Contingent Resources (Liquids)			Contingent Resources (Gas)		
	Low Estimate (1C)	Best Estimate (2C)	High Estimate (3C)	Low Estimate (1C)	Best Estimate (2C)	High Estimate (3C)	Low Estimate (1C)	Best Estimate (2C)	High Estimate (3C)	Low Estimate (1C)	Best Estimate (2C)	High Estimate (3C)	Low Estimate (1C)	Best Estimate (2C)	High Estimate (3C)	Low Estimate (1C)	Best Estimate (2C)	High Estimate (3C)
	mmbbls	mmbbls	mmbbls	bcf	bcf	bcf	mmbbls	mmbbls	mmbbls	bcf	bcf	bcf	mmbbls	mmbbls	mmbbls	bcf	bcf	bcf
Kyalla	-	-	-	-	-	-	0.8	3.0	11.1	0.8	4.5	27.7	0.8	3.0	11.1	0.8	4.5	27.7
Mid Velkerri	-	-	-	-	41.0	86.0	0.1	0.5	3.0	57.2	153.0	388.1	0.1	0.5	3.0	57.2	194.0	474.1
Barney Creek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	41.0	86.0	0.9	3.5	14.1	58.0	157.5	415.8	0.9	3.5	14.1	58.0	198.5	501.8

Empire's 2C Contingent Resource of **199 Bcf gas** and **3.5 mmbbls liquids** post-completion

Markets for Beetaloo gas

Northern Markets: using existing infrastructure -
Local and North Queensland mining operations
and power markets

Access to Amadeus Gas Pipeline and
McArthur River Mine Gas Pipeline

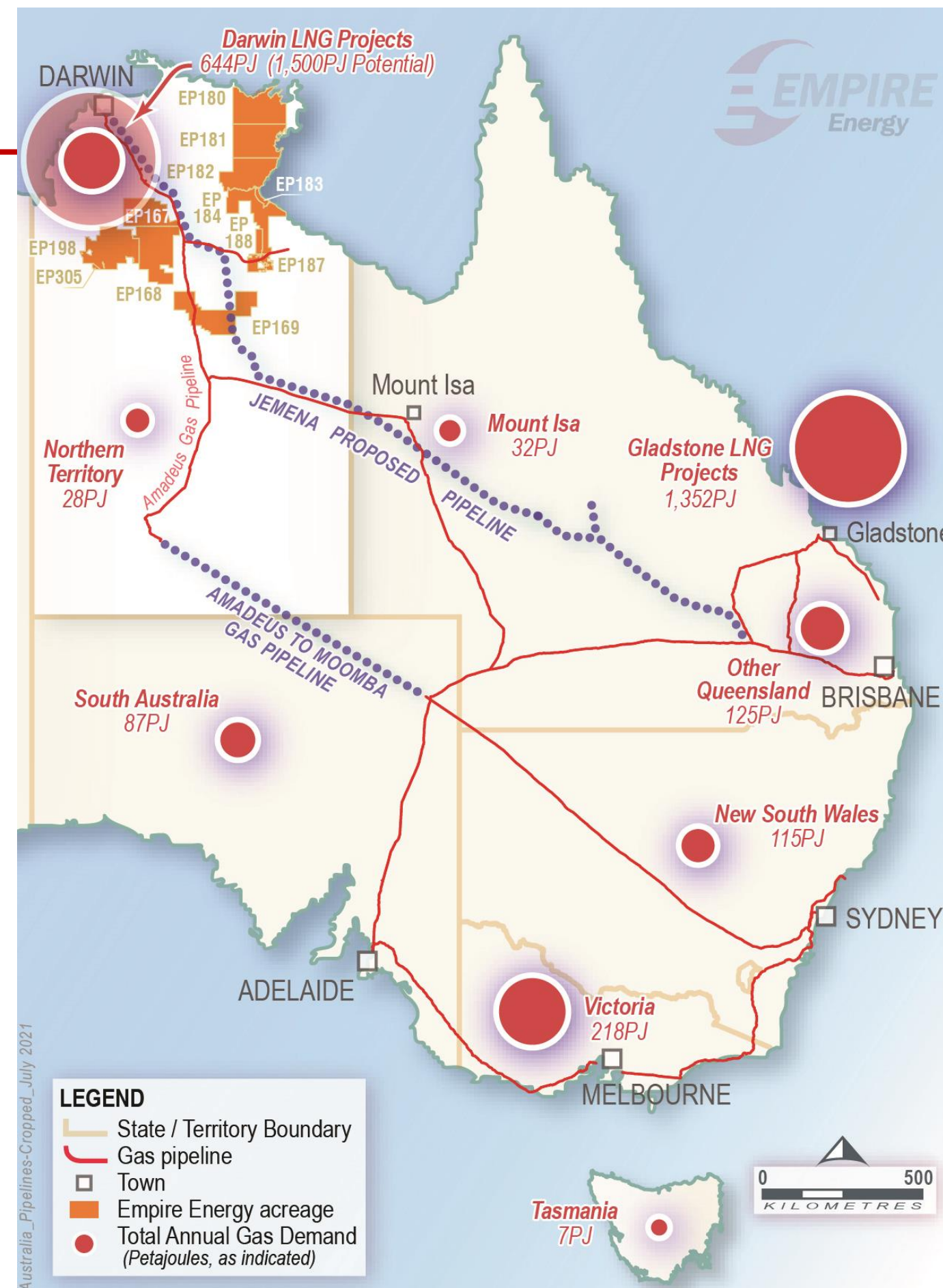
East Coast: Domestic power and industrial
markets and Gladstone LNG terminals via existing
and anticipated pipelines

AEMO forecasts potential gas shortfalls from
2023

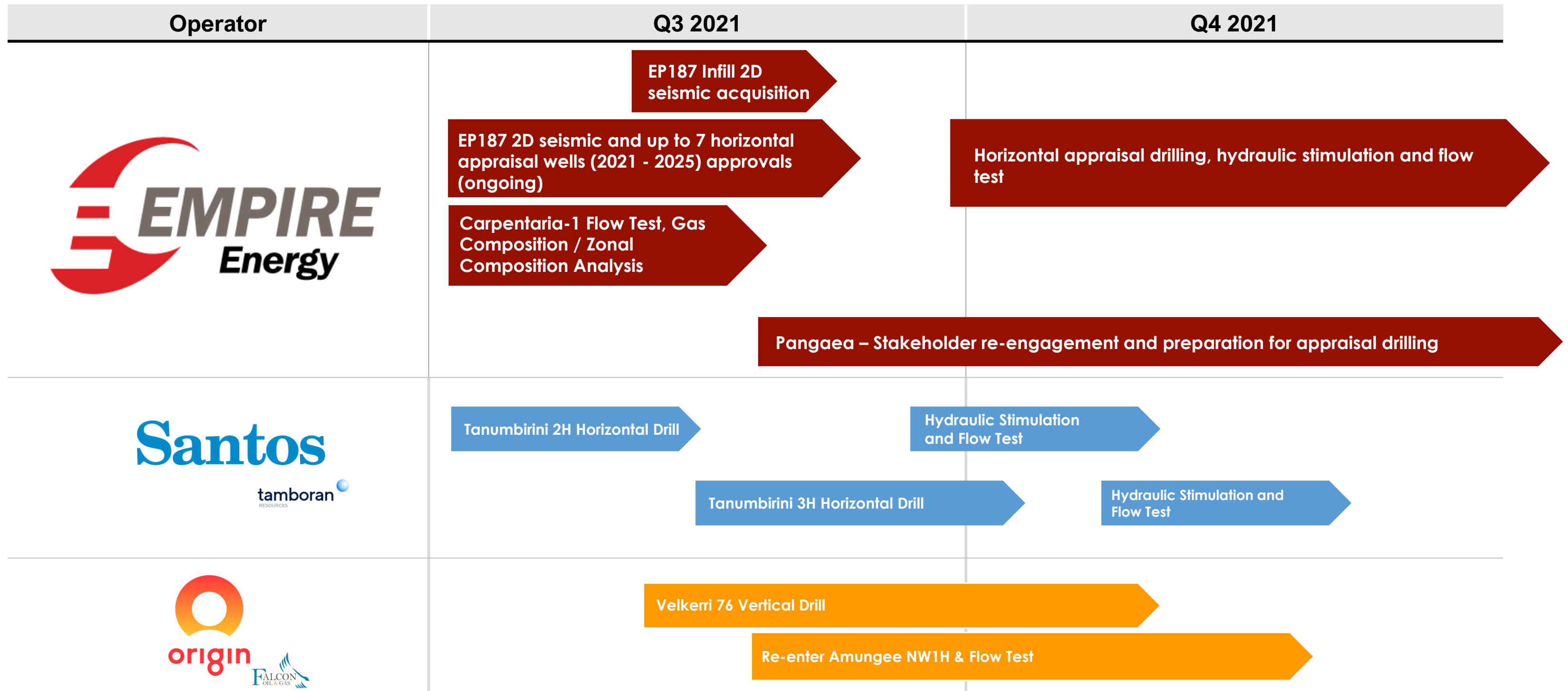
Darwin LNG export: and liquids for manufacturing
Backfill or expansion gas for LNG and
downstream petrochemical manufacturing

Ichthys LNG (INPEX): current 2 trains totaling
8.9mtpa / potential for 4 trains totaling
17.8mtpa

Darwin LNG (Santos): current 3.7mtpa /
potential for 10.0mtpa



A year of escalating activity in the Beetaloo Sub-basin





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Key Sale & Purchase Agreement Terms



Transaction Overview

- Empire and its wholly owned subsidiary Imperial Oil & Gas A Pty Limited have signed a binding Sale and Purchase Agreement (“SPA”) with Pangaea (NT) Pty Ltd as trustee of the Pangaea (NT) Unit Trust and EMG Northern Territory Holdings Pty Limited (“EMG NT”), a member of The Energy & Minerals Group (“EMG”) to acquire 100% interest in EP167, EP168, EP169, EP 305 and EP198 located onshore Northern Territory

Consideration Payable

- **Pangaea:** A\$5m cash, 140m shares in Empire, 8m options with an exercise price of A\$0.70 which will expire 3 years from their issue date
 - The number of shares to be issued to Pangaea at completion will be limited to an amount that will not result in Pangaea or its associates acquiring more than 20% of Empire. It is expected initially ~119.4m shares will be issued on completion and a further ~20.6m will be issued as Pangaea calls for their issue in accordance with the terms of the SPA
- **EMG NT:** ~A\$1.06m cash, ~29.7m shares in Empire, ~1.7m options with an exercise price of A\$0.70 which will expire 3 years from their issue date

Conditions Precedent

- Empire shareholder approval by way of an ordinary resolution to be considered at the General Meeting of Empire shareholders
- Approval of the Northern Territory Minister for Mining and Industry for the transfer of the Vendor Tenements pursuant to section 96 of the Petroleum Act 1984 (NT)
 - Submission for approval has been lodged with the Northern Territory Government
- Other industry standard conditions precedent
- Empire is targeting transaction close in mid August 2021

Other Key Terms

- **Board Representation:** Mr Paul Fudge to join the Empire board with Ms Jacqui Clarke joining as his alternative
- **Escrow:** Pangaea and EMG NT has entered into voluntary escrow arrangements covering 125m shares and ~26.5 shares, respectively. ~66.7m shares shall be escrowed for no less than 12 months and ~84.8m shares for no less than 24 months

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