



ASX:EEG

Empire Energy – Sights on Early Production in the Beetaloo



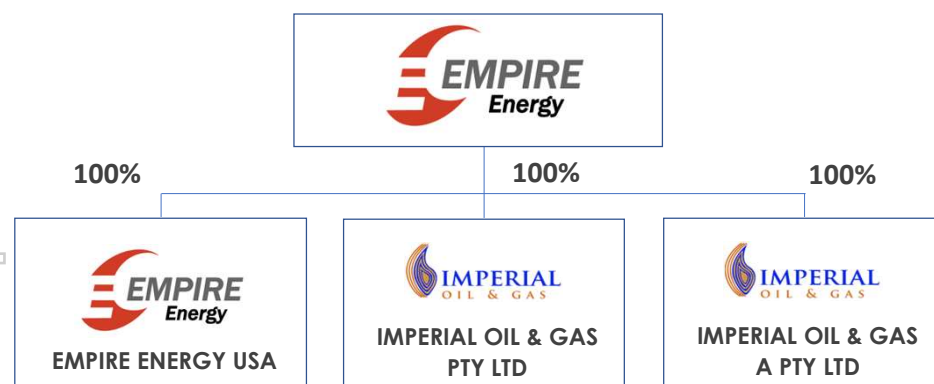
Managing Director's Presentation to the 2022 Annual General Meeting

Corporate Snapshot

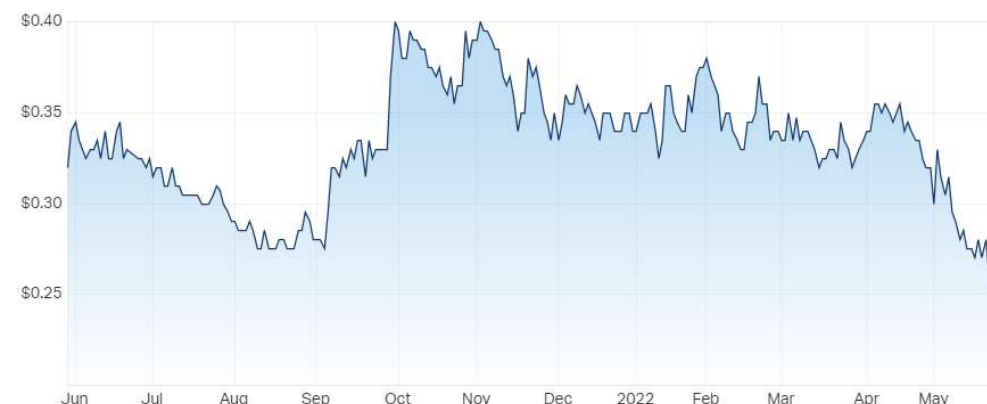


Capital Structure

Shares on issue ¹	614.0M
Share price	\$0.24
Market cap	\$147.4m
Net (debt ²) / cash	~\$9.0m
Enterprise value	~\$138.4m
Cash at bank³	~\$17.0m



ASX Share Price



Top Shareholders

Pangaea (NT) Pty Limited ⁴	19.5%
Elphinstone Holdings Pty Limited	8.7%
Global Energy and Resources	5.3%
Energy and Minerals Group	4.3%
Macquarie Bank Limited	4.3%
Board of Directors ⁵	21.6%

- Empire has 14.2m unlisted options on issue with an average exercise price of ~A\$0.63 per share. In addition, there are 14.6m 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.
- Empire has a US\$7.5 million debt facility (drawn to US\$5.71 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
- Cash as at 27 May 2022
- Pangaea shares total 140m, 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. Currently there are 119,894,868 issued shares held by Pangaea, with 20,105,132 being unissued
- Board shareholding includes Mr Paul Fudge (Pangaea) and excludes options and MD Rights

2021 Year In Review



Share Price Performance

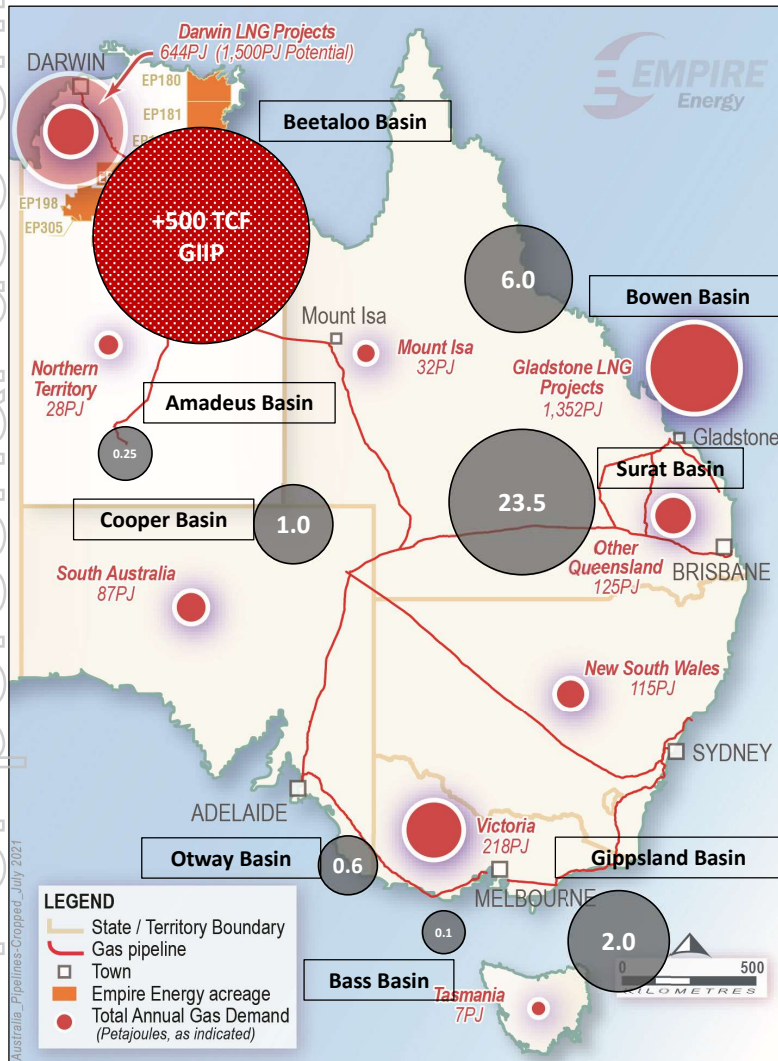


Key Events

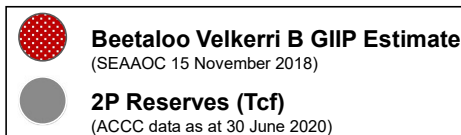
- 1. 22 February:** EP187 best estimate prospective gas resource increased to 3.5 TCF and booked maiden contingent gas resource
- 2. 11 March:** Louis Rozman appointed Non-Executive Director
- 3. 14 April:** Transformational acquisition of Pangaea's Beetaloo Sub-basin portfolio for a combination of cash, ordinary shares and unlisted options in Empire
- 4. 16 April:** Completion of a strongly supported \$30 million placement
- 5. 26 April:** EMG exercise tag along right to sell 17.5% interest in Pangaea assets
- 6. 28 June:** Carpentaria-1 vertical flow rates exceeded expectations
- 7. 8 July:** Beetaloo Cooperative Drilling Program grants approved
- 8. 16 August:** Pangaea and EMG acquisition completed. Paul Fudge appointed Non-Executive Director (Jacqui Clarke as his alternate)
- 9. 27 October:** MOU executed with APA Group
- 10. 1 November:** Gas sales and transportation MOU executed with Power and Water Corporation
- 11. 17 December:** Carpentaria-2H – successfully drilled, cased and suspended

- Cash as at 1 January 2021: \$11.1 million
- Cash as at 31 December 2021: \$25.8 million
- Current cash at bank: \$17.0 million

The Beetaloo is Australia's largest Undeveloped Gas Resource



- Total potential prospective resources in the Velkerri B shale unit of between **50 Tcf and 100 Tcf** (one of five productive shale units) based on Government estimates of **500 Tcf** gas-in-place (assuming recovery factors of between 10% and 20%)
- Andrew Liveris, former Chairman of Dow Chemicals described the Beetaloo as “the **third-largest** shale **gas** deposit on the planet”*
- The Australian Federal Government, 14 January 2021: “The Beetaloo Sub-basin has the potential to rival the world’s biggest and best gas resources...”
- **Empire (100%) 2C Contingent Resource of 554 BCF gas and 3.5 MMBBLs liquids**
- **Empire (100%) P(50) Prospective Resource of 43 TCF gas and 797 MMBBLs liquids**



Source: 2P data sourced from ACCC's Gas inquiry January 2021 interim report (published February 2021)

*The Australian newspaper- 23 May 2019

Gas Markets Critically Short



NYMEX HENRY HUB SPOT PRICE

US\$8.71 / MMBtu
(up 191% in a year)

LNG (JKM) SPOT PRICE

US\$25.09 / MMBtu
(up 148% in a year)

WALLUMBILLA SPOT PRICE

A\$35 / GJ
(up 273% in a year)

ACCC LNG NETBACK PRICE

A\$27.96 / GJ
(up 266% in a year)

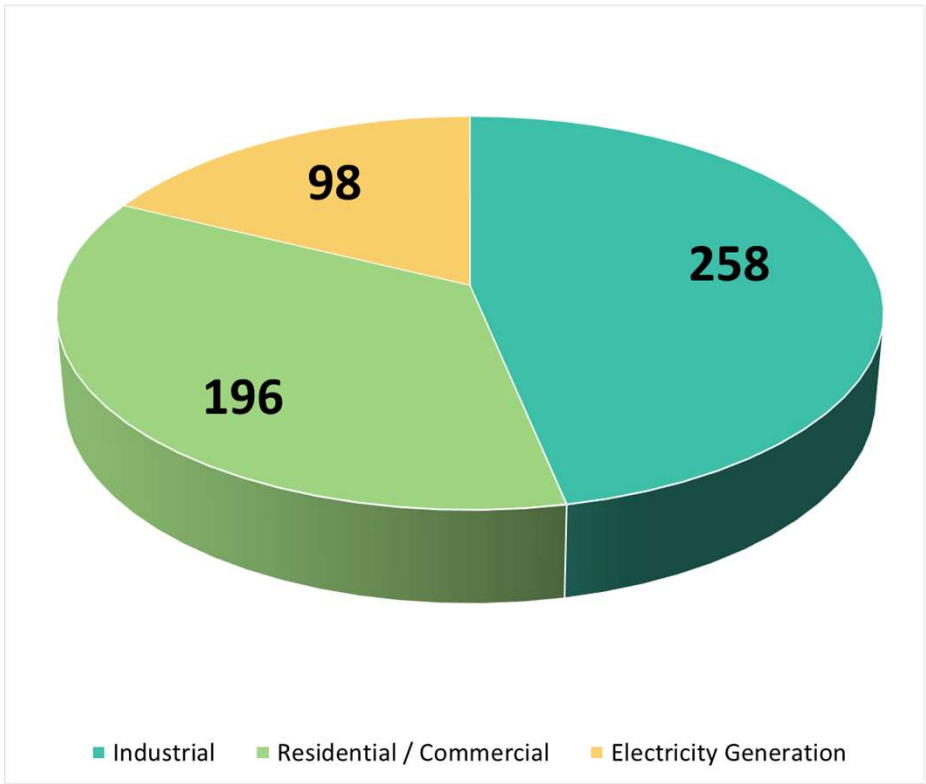
Natural Gas is Essential for Our Modern Lives



Some Common Uses of Natural Gas

Paint	Medical Supplies	Footwear	Toys
Steel and Other Metals	Cosmetics	Detergents	Nappies
Plumbing	Toothpaste	Electronics	Sporting Equipment
Flooring	Fertilizers	Bottles	Eyewear
Transportation	Paper	Clothing	Bricks and Ceramics
Heating	Furniture	Cooking	Specialist Chemicals
Food Processing	Refrigeration and Air Conditioning	Wind Turbines	Car Tyres

Australian East Coast Gas Demand, 2021 (PJ)

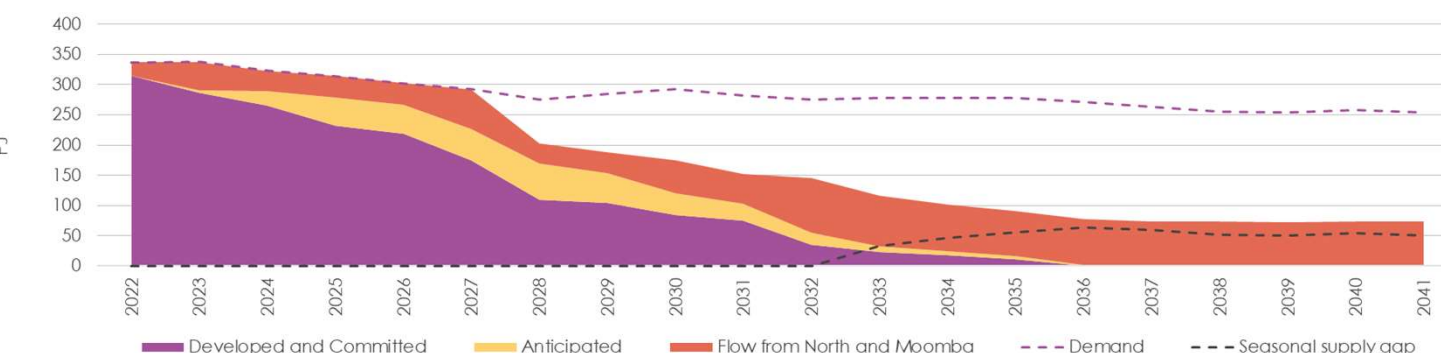


AEMO Gas Statement of Opportunities, 2022

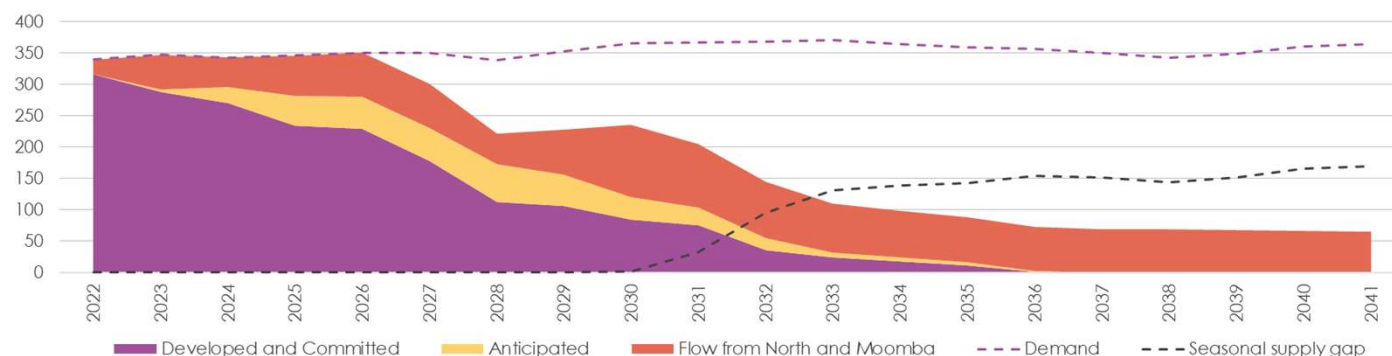
Australia's gas shortage has arrived

Australian Energy Market Operator 2022, Gas Statement of Opportunities

Step Change¹



Progressive Change²

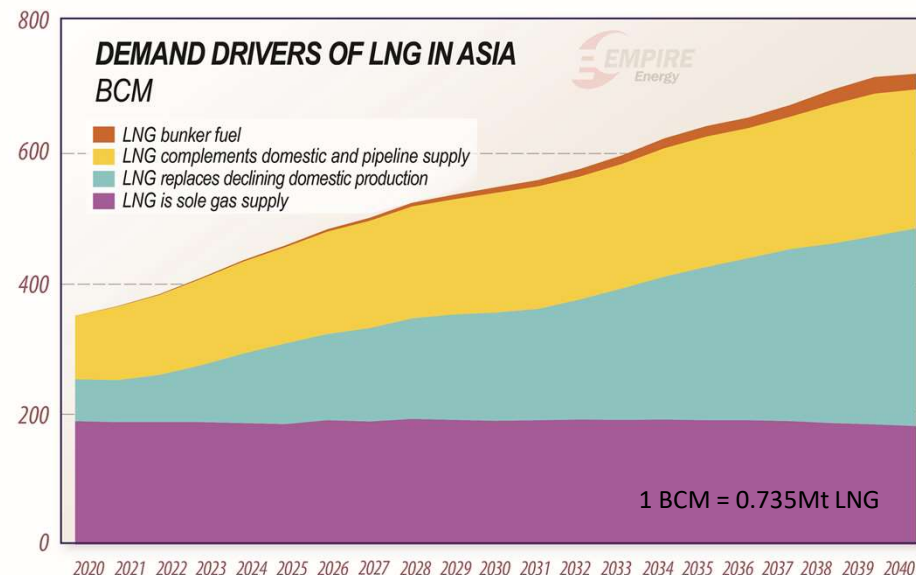
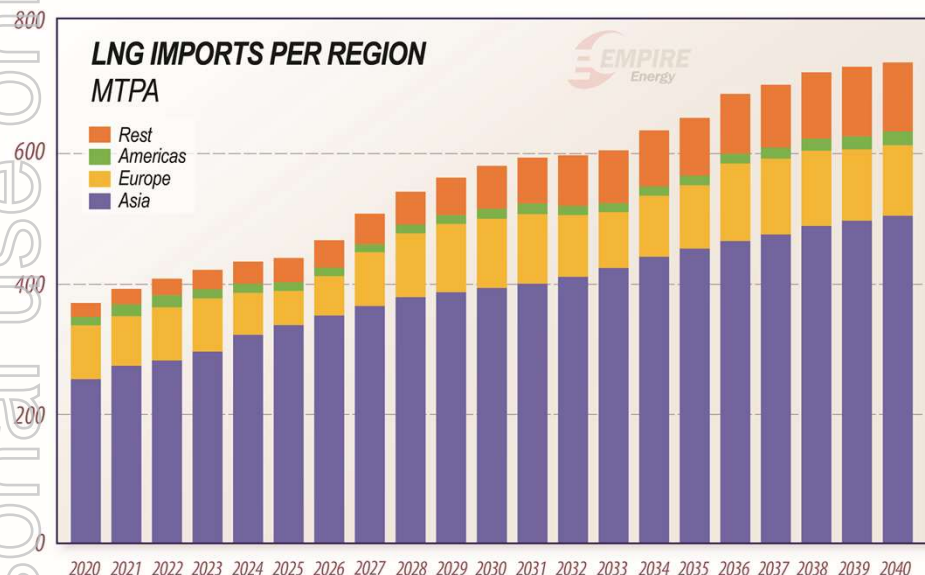


AEMO has forecast gas shortfalls for Australia's south-east (ACT, NSW, Victoria and Tasmania) under two the energy transition scenarios above

1. *Step Change* assumes tangible and rapid change, with gas demand declining quickly and significant electrification (users switching from gas to electricity)
2. *Progressive Change* assumes a slower transformation and gas consumption closer to historical levels

- The Beetaloo Sub-basin is well positioned to meet this shortfall with the large-scale gas resource and infrastructure
- Empire's Beetaloo gas has notably low CO₂ (0.5% to 1%) and high calorific content
- Wallumbilla gas price trading at \$35 / GJ on 26 May 2022
- Seasonal supply gap arising due to insufficient gas forecast to be in storage to manage winter demand spike
- **AEMO forecasts east coast LNG imports to meet shortfall (at what price?)**

Gas running strong - Asian LNG demand increasing dramatically



Graphs extracted from: Global LNG Outlook – Shell LNG Outlook 2022

- Shell estimates global LNG demand will reach **700 million tonnes by 2040 (2021: 380mt)**, as demand for natural gas continues to grow strongly in Asia and gains further traction in powering hard-to-electrify sectors, tackling air quality concerns and meeting emissions targets
- Wael Sawan, Integrated Gas, Renewables and Energy Solutions at Shell said:

“As countries develop lower-carbon energy systems and pursue net-zero emissions goals, focusing on cleaner forms of gas and decarbonisation measures will help LNG to remain a reliable and flexible energy source for decades to come.”
- While natural gas accounts for about a **quarter of global electricity generation**, **half the total natural gas produced today is consumed in sectors other than power generation**

Government supporting the Beetaloo



NT Government has primary responsibility for regulation of the Beetaloo Basin

Incoming Federal Labor Government supportive of Beetaloo development

NT Government supports the development of the onshore gas industry

- **Territory Economic Reconstruction Commission** highlighted the critical role of gas
- NT's new Chief Minister Natasha Fyles has committed to implementing the Pepper Inquiry recommendations before year-end which will allow for the **award of production licences in 2023**

Beetaloo Cooperative Drilling Program

- Executed grant agreements with the Federal Government for up to \$19.4 million for three horizontal appraisal wells
- \$1.8m cash received to date

Darwin Middle Arm Sustainable Development Precinct

- \$1.5 billion commitment made by both major parties during the election campaign to support expanded port infrastructure at Darwin
- Includes \$300 million for production of clean LNG and hydrogen; and \$550 million for renewable energy supply, CCUS and other technologies

Northern Australia Infrastructure Facility (NAIF)

- Energy/gas is a key focus sector of NAIF
- Funding increased from \$5 billion to \$7 billion

Anthony Albanese (Prime Minister): "We've been supportive of the Beetaloo Basin Exploration on the basis of looking at, of course, environmental approvals which need to be considered there, as well as the traditional owners."¹

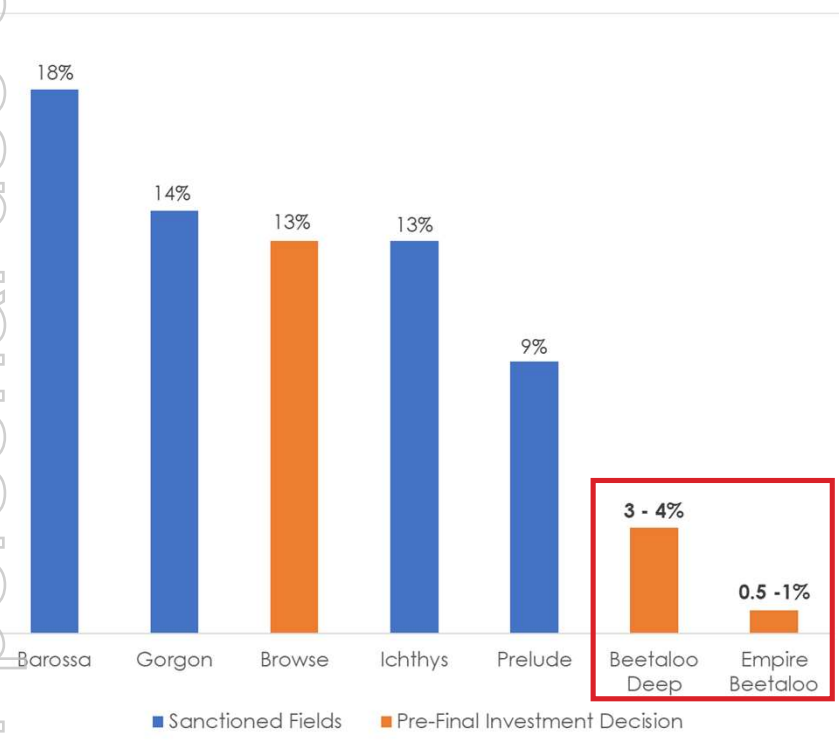
1. <https://anthonyalbanese.com.au/media-centre/alpa-darwin-doorstop-interview-strategic-roads-package>

Nicole Manison (NT Deputy Chief Minister): "We've been working closely with Labor when they were in opposition and they understand how critically important the development of the Beetaloo is, and the gas industry,"²

2. NT News "NT govt backs Beetaloo despite federal Greens saying 'no' to new gas projects" dated 24 May 2022

Beetaloo Sub-basin's ESG Advantage

Scope 1: Contained Reservoir CO2

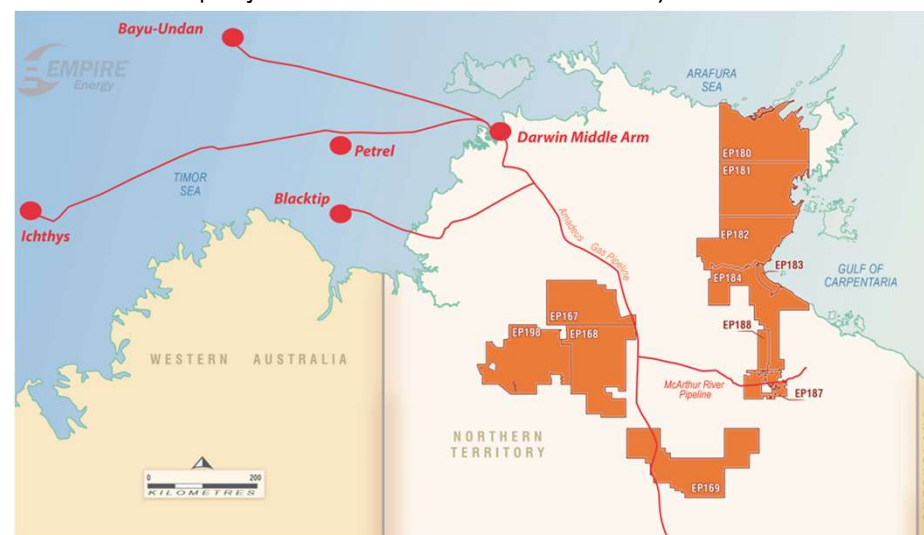


Sources:
 Strike Energy ASX release "Australian Domestic Gas Outlook, WA Gas Market Update", 23 March 2022
 Beetaloo Deep as sourced from Tamboran Resources ASX release "Operational update:
 Approximately 17 per cent upward revision to Tanumbirini 2H and 3H flow test results", dated 23 March 2022

- Federal and NT Governments have committed to Recommendation 9.8 of the Scientific Inquiry into NT fracture stimulation that **"both the NT and Australian governments must seek to ensure there is no net increase in the lifecycle greenhouse gas emissions emitted in Australia from any onshore shale gas produced in the NT"**
- Empire is advancing carbon offset strategies

Darwin Carbon Capture Utilisation and Storage Hub¹

- Potential to store ~30mt of CO2 per annum across **Bayu Undan and Petrel** enabling development of blue hydrogen and petrochemical industries
- Under the **IEA Net Zero scenario**, 7.6 billion tonnes of CO2 per year would need to be stored in CCUS by 2050, 200 times more than is being stored in the 30 or so commercial projects around the world today



● Prospective CCS fields

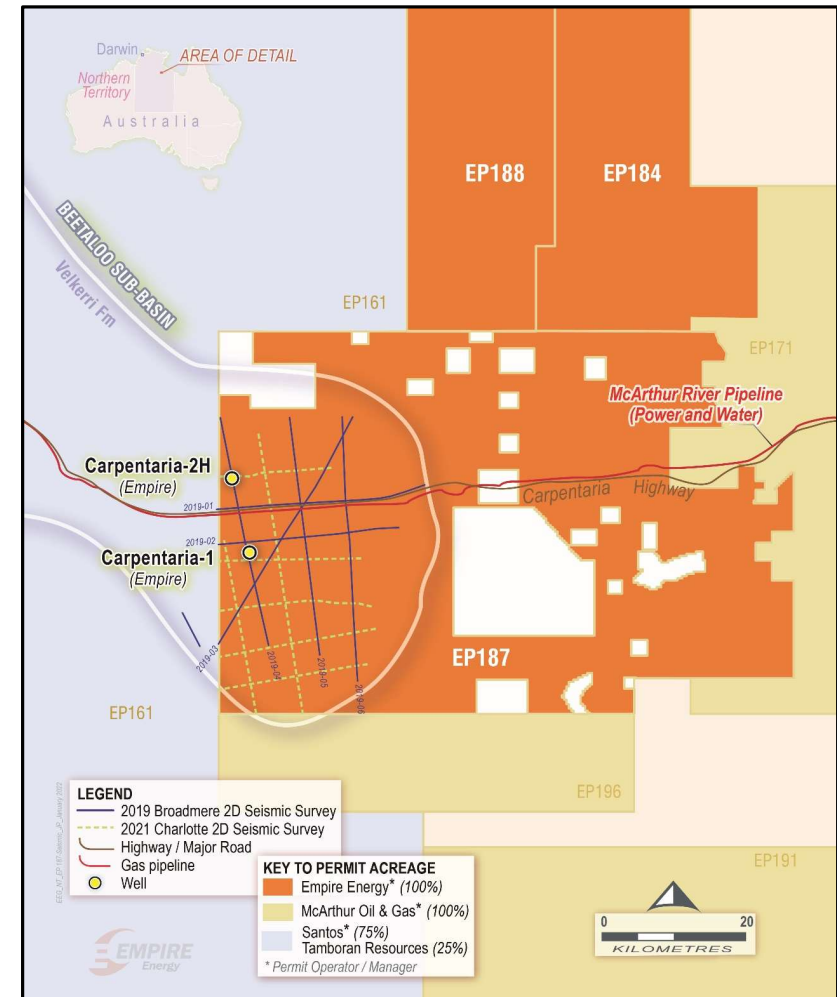
1. <https://territorygas.nt.gov.au/projects/carbon-capture-utilisation-and-storage-hub>

Two on A
stim
of B
seisr



Exploration & Appraisal Campaign Successes To Date

- Carpentaria-1 drilled to TD 1,915m intersected a **column of liquids rich gas in the Velkerri nearly 1 km thick (998m)**
- Substantial proportions of heavier-end, **higher-value liquid** hydrocarbons intersected - enhancing the economics of future production scenarios
- The Velkerri Shale is shallower than in analogue Beetaloo Basin wells and offers **lower drilling costs** in future wells
- Post-well analysis undertaken at W.D. Von Gonten & Co (Houston, Texas) in collaboration with Empire's technical team recorded **favourable rock properties**
- Carpentaria-1 four stage vertical fracture stimulation and flow testing produced a peak rate $>1.6\text{mmcf / day}$ and $\sim 0.25\text{ mmcf / day}$ average in EPT 1 and **$\sim 0.364\text{mmcf / day}$ average in EPT 2**
- October 2021: Drilling and hydraulic stimulation **of up to 7 horizontal wells across EP187 approved**
- Carpentaria-2H horizontal appraisal drilling **completed on time and budget**



Activity Growing in EP187 (100% EEG)

Seismic data and drilling results have enhanced Empire's understanding of the **Carpentaria Resource Area** and refined definition of the undrilled but highly prospective **Carpentaria East and Carpentaria South Resource Areas**

Carpentaria East and Carpentaria South have been **demonstrated to be deeper over a more extensive area** than previously mapped, thereby enhancing prospectivity and potential future productivity

Large portion of acreage at ideal depths for shale gas development

Favourable Velkerri shale depths cover 110,000 acres

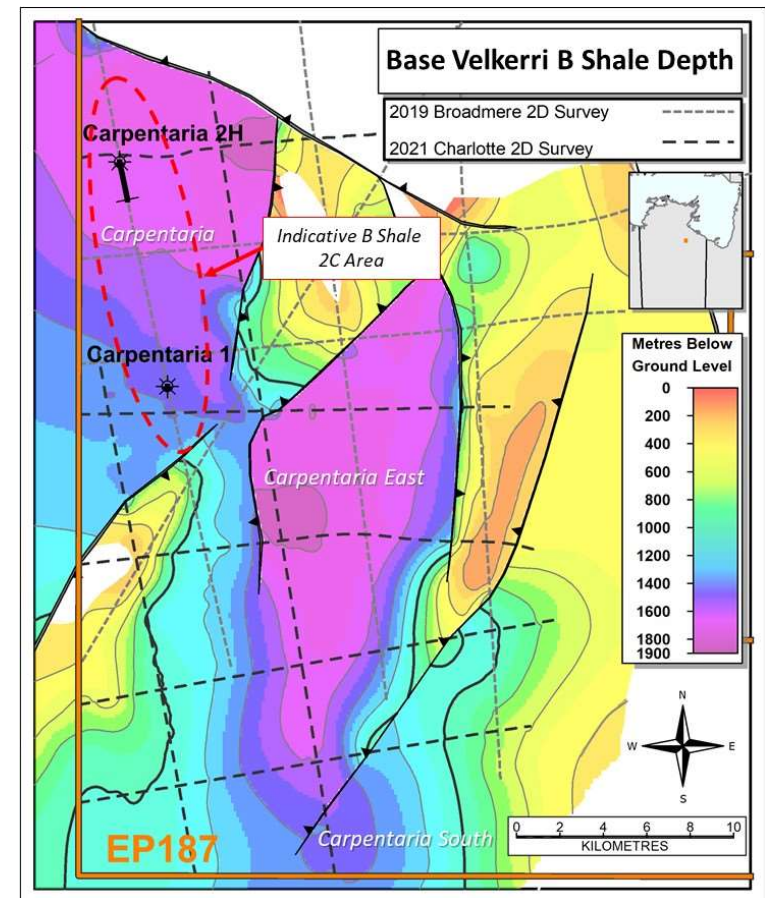
Five additional drilling locations have environment clearances across Carpentaria and Carpentaria East

Current EP187 2C Contingent Resource: **396 BCF**

Current EP187 3C Contingent Resource: **1292 BCF**

Current EP187 P(50) Prospective Resource: **~4.3 TCF**

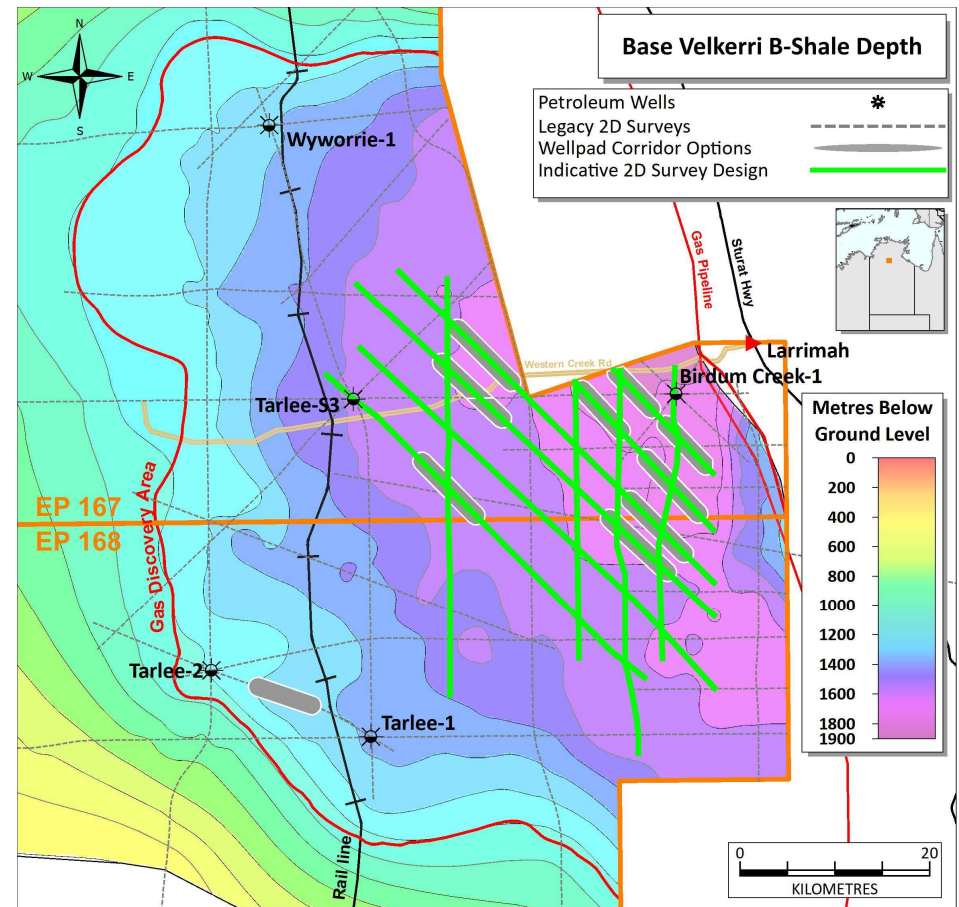
Carpentaria-2H fracture stimulation expected to commence late Q2 2022



Western Beetaloo Multi-Year Work Program Clearances Underway



- Environmental approvals submitted to the Northern Territory Regulator for:
 - The acquisition of up to ~380 km in-fill 2D seismic orientated for future horizontal wells
 - Clearance for drilling, stimulation and flow testing of up to six horizontal wells on six well pad locations within the gas discovery area
- The approvals have the potential to accommodate numerous production wells in a future commercial development scenario
- Planned appraisal activities are focused within the Gas Discovery Area (\$110 million spent to date, >1m acres)
 - Strategically located near gas pipeline, highway and train line
- Current **2C** Contingent Resource of **157.5 BCF** (+3.5 MMBLS)
- Current **3C** Contingent Resource of **415.8 BCF** (+14.1 MMBLS)
- Current P(50) Prospective Resource of **~28 TCF and 764 MMBLS**
- Land access negotiations advanced with pastoralists



EP 167 and EP 168 100% EEG

Beetaloo Sub-basin Projected Catalysts



Operator	Q2 2022	Q3 2022	Q4 2022
		<div>Carpentaria-2H Fracture Stimulation and Flow Test</div>	<div>Western Beetaloo 2D Seismic Acquisition</div>
 	<div>Tanumbirini 2H 300 Day Flow Test</div> <div>Tanumbirini 3H 300 Day Flow Test</div>		
 		<div>Amungee-2H Drill</div> <div>Amungee-3D Seismic</div>	<div>Amungee-2H Fracture Stimulation and Flow Test</div> <div>Amungee-3H Drill</div> <div>Amungee-3H Fracture Stimulation and Flow Test</div>
		<div>2D Seismic</div>	<div>Maverick-1H Drill</div> <div>Maverick-1H Fracture Stimulation and Flow Test</div>

Source: company disclosures and regulatory filings
 Certain activities are subject to regulatory approval and funding

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