Empire Energy – Beetaloo Basin – the next major shale to LNG export province

NAPE Conference Houston Presentation – February 2023
The Beetaloo is Australia’s largest Undeveloped Gas Resource

- Total potential prospective resources in the Velkerri B shale 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
Velkerri Shale is analogous to the prolific Marcellus Shale

Data from Empire’s wells, covering more than a million acres, confirms the Velkerri “B shale” reservoir properties are consistent with the prolific Marcellus Shale

- In addition to the 100 BCF/sq mile resource in the B Shale, Empire Velkerri Shale stacked play exceeds 160 BCF/sq mile
- The Velkerri shales have consistently low CO2 (<2 mole%) and have produced dry to high calorific gas

High gas concentration per sq mile

Excellent storage capacity

Thermally mature source rocks

High gas and low water saturation

Equivalent organic content

Favourable mineralogy for fracturing stimulations, high quartz and low clay

Similar level of overpressure

Slightly shallower so drill times should be reduced
# How the Middle Velkerri matches the Marcellus Shale

<table>
<thead>
<tr>
<th>Pathway to development</th>
<th>Empire’s regional core and log data confirms gas in-place and deliverability properties for the Middle Velkerri Shale</th>
</tr>
</thead>
</table>
| Gas-In-Place           | The middle Velkerri Shales show high lithological consistency and thickness  
|                        | • Thickness intervals ranges from ~40 – 100+ m for the B Shale alone  
| TOC & Thermal Maturity | The middle Velkerri Total Organic Carbon (TOC) content is regionally consistent  
|                        | • The B Shale averages 4.0% TOC, and thermal maturity ranges from oil to dry gas  
| Storage Capacity       | Excellent storage capacity and hydrocarbon (HC) saturations indicates large gas-in-place  
| HC Saturation          | • Effective porosities ranging from ~4 – 8% with high hydrocarbon saturations  
| Resource Concentration | High gas concentration equivalent to the Marcellus Shale  
|                       | • Velkerri B Shale GIP from ~40 to over 100 BCF/sq mile - stacked A, B & C Shales can exceed 160 BCF/sq mile GIP  
| Mineralogy & Rock      | Favourable mineralogy and rock mechanics for well treatments – shales are brittle and frackable  
| Rock mechanics         | • Stimulation, core and logs confirm Velkerri shales have favourable fracture stimulation characteristics - high quartz (~60%) and low non-reactive clays (20 -35%)  
| Deliverability         | Shale reservoirs are consistently over-pressured to similar level as the Marcellus Shale  
| Overpressure           | • DFIT’s, pressurised core confirm the shales are over-pressured (0.51 – 0.59 psi/ft).  
| Permeability           | Good to excellent shale permeabilities  
|                        | • DFITs indicates good permeability and is consistent with core data.  

Asian LNG Demand Increasing Dramatically

- 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
Federal Labor Government is 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 A$19.4 million for three horizontal appraisal wells
- A$7.6 million cash received to date

**Darwin Middle Arm Sustainable Development Precinct (supported by Beetaloo gas)**

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

**Northern Australia Infrastructure Facility (NAIF)**

- Energy/gas is a key focus sector of NAIF
- Total funding of A$7 billion committed

Nicole Manison (NT Deputy Chief Minister):
“There’s been a huge amount done by the other gas companies around the Beetaloo but when you have a look at the pace Empire’s going, all doing it within the rules, conditions and regulations but you can see it is advancing very well.”

1. NT News, “Empire building: Project on track with production timetable” dated 28 July 2022
Empire’s 28.9 million acre footprint

- All acreage is 100% owned and operated by Empire
- Empire is the largest net acreage holder in the Beetaloo
- Access to existing infrastructure: Stuart Highway, Darwin to Adelaide rail corridor and the Amadeus Gas Pipeline (connecting to the East via the Northern Gas Pipeline)

**Prospective Resources (2U)**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>43 TCF</td>
</tr>
<tr>
<td>Liquids</td>
<td>797 MMBBLs</td>
</tr>
<tr>
<td>Gas Equivalent</td>
<td>47.8 TCFe</td>
</tr>
</tbody>
</table>

**Contingent Resources (2C)**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>554 BCF</td>
</tr>
<tr>
<td>Liquids</td>
<td>3.5 MMBBLs</td>
</tr>
<tr>
<td>Gas Equivalent</td>
<td>575 BCFe</td>
</tr>
</tbody>
</table>
Exploration & Appraisal Campaign Successes To Date

Empire’s systematic and scientific approach to evaluate and de-risk the Velkerri Shale play in EP187 has proved up a large resource in a cost-effective manner

- Acquired the Broadmere and Charlotte 2D Seismic surveys - mapping the Velkerri shale at favorable depths over 111,000 acres in the Carpentaria and Carpentaria East areas (2019 & 2021)
- Drilled Carpentaria-1 which intersected ~1 km (3273 ft) of high calorific gas in the Velkerri Shale – enhancing the economics of future production (Oct 2020)
  - Completed a successful multistage vertical frac across all four Velkerri shales (A, Intra A-B, B and C) with sustained flow to surface - confirms stacked play
  - Post-well analysis undertaken at W.D. Von Gonten & Co (Houston, Texas). NSAI (Houston, Texas) ongoing resource certifier
- Approval granted for drilling and stimulation of up to 7 horizontal wells (Oct 2021)
- Carpentaria-2H B Shale horizontal appraisal drilling (927 m – 3040 ft) completed on time and budget (~A$11.1 million) (Oct 2021). Successfully stimulated with 51-day EPT (Aug 2022)
- Carpentaria-3H, including its 2,632 metre (8,635 ft) horizontal section (longest drilled in the Beetaloo to date) completed under time and budget (~A$11 million) (Nov 2022)
- Carpentaria-4V to grow contingent resources, drilled for A$9.8 million (Dec 2022)
- Current EP187 2C Contingent Resource: 396 BCF (NSAI engaged to provide an updated report in Q1 2023) and EP187 P(50) Prospective Resource: ~4.3 TCF
- There are hundreds of drilling locations across Carpentaria and Carpentaria East fault blocks with potential to drill multiple wells from each pad to minimise surface disturbance
Carpentaria-1 Production Test Validates Stacked Play

Sustained flow to surface from all four zones confirms stacked play, with B Shale largest contributor

- Carpentaria-1 was drilled in late 2020
- Stimulated mid-2021
  - Four stage vertical fracture stimulation and commingled flow test
  - Produced **high calorific gas with low CO₂ (<1 mole%)**

- EPT phase 1
  - Peak rate >1.6 mmscf/day
  - Average rate ~0.25 mmscf/d over 17-day test period
    - Shut-in due to COVID for 2½ months
- EPT Phase 2
  - Average rate ~0.364 mmscf/day over 10-days

**B Shale prioritized as initial target for horizontal well**
Empire’s First Horizontal Well Flow Test A Success (100% EEG)

Carpentaria-2H is the fourth horizontal well in the basin, was drilled 100% within zone, and successfully flowed gas to surface from all 21 frac stages

- Carpentaria-2H was the largest horizontal well in the Beetaloo and the biggest frac in Australian history (21 stages)
- Average 2.2 million standard cubic feet (mmscf) per day sustained flow rate achieved over the first 51 days of flow testing from 927m (3,041 ft) effective stimulated horizontal length
- Normalized rate of 2.4 mmscf per day per 1,000m of horizontal section
- Peak rate of > 11 mmscf per day achieved after a 2-day shut-in to change wellheads and monitor pressure build up following which the well returned to trend production rate as expected
- Carpentaria-2H is now shut-in temporarily to test whether ‘soak time’ may have a positive impact on long term performance as seen in other shale wells in the Beetaloo and the US
- Completed without the need for production tubing, well free-flowed through 4 ½” casing
- Gas composition data confirms significant methane and ethane contribution with very low CO2 (0.88%)
Carpentaria-3H is the longest horizontal shale well, and the largest frac job ever executed in Australia

- **Carpentaria-3H** drilled to total depth of 4,460m (14,629 ft) on time and under budget
- **Total horizontal lateral length of 2,632m (8,633 ft)**, with 2,374 m (7,786 ft) successfully placed within the target Velkerri B shale (90% in zone), with strong gas shows throughout the target zone
- **Carpentaria-3H successfully stimulated, significantly below budget**, executing all planned 40 stages across 1,989m (6,526 ft)
- A total of 12.8 million lbs of proppant placed, averaged 319,000 lbs per stage (~2,000 lbs/ft). Comparable to US Shale frac intensity
- Flow testing has commenced
Clearances are underway for a multi-year seismic, drilling and stimulation program across the >1 million acre Velkerri Shale play in EP167 / 168

- Planned appraisal activities are focused within the Gas Discovery Area where A$110 million spent to date, (acquired by Empire for A$57 million primarily in equity during 2021)
- Strategically located near gas pipeline, highway and rail line
- Environmental approvals submitted to the 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
- Land access agreements executed with pastoralists
- The approvals have the potential to accommodate numerous production wells in a future commercial development scenario
- Current 2C Contingent Resource of 157.5 BCF (+3.5 MMBBLS)
- Current 3C Contingent Resource of 415.8 BCF (+14.1 MMBBLS)
- Current P(50) Prospective Resource of ~28 TCF and 764 MMBBLS
- 2D seismic acquisition and the drilling of a horizontal appraisal well planned in 2023
A Globally Significant Resource Position

<table>
<thead>
<tr>
<th>Shale Unit</th>
<th>Contingent Resources (Liquids)</th>
<th>Contingent Resources (Gas)</th>
<th>Prospective Resources (Liquids)</th>
<th>Prospective Resources (Gas)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Estimate (1C)</td>
<td>Best Estimate (2C)</td>
<td>High Estimate (3C)</td>
<td>Low Estimate (1C)</td>
</tr>
<tr>
<td></td>
<td>mmbbls</td>
<td>mmbbls</td>
<td>mmbbls</td>
<td>mmbbls</td>
</tr>
<tr>
<td>Kyalla</td>
<td>0.8</td>
<td>3.0</td>
<td>11.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Mid Velkerri</td>
<td>0.1</td>
<td>0.5</td>
<td>3.0</td>
<td>138</td>
</tr>
<tr>
<td>Barney Creek</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>0.9</td>
<td>3.5</td>
<td>14.1</td>
<td>138.8</td>
</tr>
</tbody>
</table>

Empire 2C Contingent Resource of **554 BCF gas and 3.5 MMBBLs liquids**

Empire P(50) Prospective Resource of **43 TCF gas and 797 MMBBLs liquids**

- NSAI engaged to prepare an updated resource report in Q1 2023

Note: Refer to EEG announcements dated 16 February 2022 for Netherland, Sewell & Associates, Inc. Contingent and Prospective Resources
Access to Market & Customers

• **APA Group (ASX: APA)** and Empire have executed an MOU to explore opportunities for the development of Beetaloo mid-stream infrastructure including gas and liquids gathering, processing and pipelines

• APA will support Empire to get production to market, promptly, leveraging its existing network of gas transmission infrastructure

• ‘Northern Strategy’ will support the development of a gas-fed manufacturing industry and LNG export expansion at Darwin

• ‘Eastern Strategy’ including a new Beetaloo Pipeline to Mount Isa will allow Beetaloo gas to be transported to all Australian east coast domestic markets (Wallumbilla, Brisbane, Sydney and Melbourne) and LNG export through Gladstone

• Empire has also executed an MOU with NT Government owned utility **Power and Water Corporation** to facilitate negotiations for potential gas sales and transportation arrangements utilising the McArthur River Pipeline

• Empire’s infrastructure plans do not contemplate material investment of Empire shareholder funds in pipeline development
Pathway to Production

EXPLORATION

2021
✓ 2C Contingent Resource: 575 BCFe
✓ 2U Prospective Resources: ~48 TCFe
✓ Gas Sales & Transportation: APA Group and Power and Water Corporation MoUs Executed

APPRAISAL

2022
✓ Fracture stimulate and flow test Carpentaria-2H: to optimise design
✓ Carpentaria-3H: optimise flow rates by applying data acquired from Carpentaria-2H
✓ Carpentaria-4V: to grow EP187 Contingent Resources

DEVELOPMENT PLANNING

2023
• Execute gas sales agreements
• Obtain government approvals: NT Petroleum Production Licence over portion of EP187
• Initiate Field Development Planning: including engineering, financial analysis etc
• Arrange financing for pilot (Macquarie Bank credit facility already in place)

EARLY DEVELOPMENT / PRODUCTION

2024 - 2025
• Initial field development (~25 TJ/d)
• Book reserves
• Commence production and generate cashflow
• Plan for larger scale development to feed East Coast and LNG export markets
Appendix 1: Corporate Snapshot

Capital Structure

<table>
<thead>
<tr>
<th>Shares on issue</th>
<th>773.1M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share price</td>
<td>A$0.205</td>
</tr>
<tr>
<td>Market cap</td>
<td>A$158.5m</td>
</tr>
<tr>
<td>Net (debt²) / cash</td>
<td>~A$13.8m</td>
</tr>
<tr>
<td>Enterprise value</td>
<td>~A$144.7m</td>
</tr>
<tr>
<td>Cash at bank³</td>
<td>~A$21.3m</td>
</tr>
<tr>
<td>Total Available Liquidity³</td>
<td>~A$31.3m</td>
</tr>
</tbody>
</table>

ASX Share Price

<table>
<thead>
<tr>
<th>Top Shareholders</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pangaea Resources</td>
<td>18.1%</td>
</tr>
<tr>
<td>Elphinstone Group</td>
<td>8.3%</td>
</tr>
<tr>
<td>Global Energy and Resources</td>
<td>4.2%</td>
</tr>
<tr>
<td>Sheffield Holdings (USA)</td>
<td>4.1%</td>
</tr>
<tr>
<td>Energy and Minerals Group (USA)</td>
<td>3.4%</td>
</tr>
<tr>
<td>Macquarie Bank</td>
<td>3.4%</td>
</tr>
</tbody>
</table>

• Board of Directors owns 21.0%⁴
• Top 20 shareholders own 61.3%
• Top 50 shareholders own 70.3%

1. Empire has 78.9m unlisted options on issue with an average exercise price of ~A$0.39 per share. In addition, there are 18.7m 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$5.30 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. On 30 November 2022 also announced it had established a A$10 million revolving credit facility and A$5 million performance bonding facility with Macquarie Bank. This facility is undrawn.
3. As at 24 January 2023
4. Board shareholding includes Mr Paul Fudge (Pangaea) and vested Performance, Restricted and Service Rights

---

Footnotes:
- ² Debt includes amounts due over the next 12 months.
- ³ Total Available Liquidity includes cash, cash equivalents, current investments, and other short-term deposits.
- ⁴ Board shareholding does not include options or Share Rights.
### Appendix 2: Empire’s Board of Directors

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Background and Experience</th>
</tr>
</thead>
</table>
| Alex Underwood        | Managing Director         | • Associate Director Energy Markets Division of Macquarie Bank Limited (Sydney and Singapore)  
                        |                           | • Director Natural Resources Division of Commonwealth Bank of Australia (Singapore)  
                        |                           | • Financial Analyst BHP Billiton Petroleum (Perth)  
                        |                           | • Experience investing debt and equity in the upstream oil and gas sector and identification of value creation opportunities for upstream oil and gas development / production assets |
| Peter Cleary          | Non-Executive Director    | • Distinguished 29-year career representing Santos, the North West Shelf Venturers and BP in Asia. His executive career was in LNG, pipeline gas and chemicals operations  
                        |                           | • Member of the Executive Committee of the Australia Japan Business Co-operation Committee and the Australia Korea Business Council |
| Paul Fudge            | Non-Executive Director    | • Controlling shareholder of Pangaea  
                        |                           | • Significant investment experience in onshore Australian oil & gas, including being an early mover in the Queensland Coal Seam Gas Industry and in the Beetaloo Sub-Basin  
                        |                           | • Paul brings significant business and investment experience to the Board of Empire |
| Prof. John Warburton  | Non-Executive Director    | • Highly regarded petroleum geoscientist experienced in big fields  
                        |                           | • 30 years technical & leadership experience in leading E&P companies including BP, LASMO-Eni and Oil Search  
                        |                           | • Previously Chief of Geoscience & Exploration Excellence for Oil Search |
| Louis Rozman           | Non-Executive Director    | • Former Managing Director of CH4 Gas which merged with Arrow Energy and later acquired by PetroChina and Shell  
                        |                           | • Founding principal of Pacific Road Capital, a resources investing manager of private equity funds  
                        |                           | • Former Chief Operating Officer of AurionGold Limited  
                        |                           | • Chairman of the VALMIN Code Committee for the AusIMM and Australian Institute of Geoscientists |
| Paul Espie AO         | Chairman & Non-Executive Director | • Founding principal of Pacific Road Capital, a resources investing manager of private equity funds  
                        |                           | • Former Chairman of Oxiata Ltd during the development of the Sepon copper/gold project in Laos  
                        |                           | • Former Chairman of Cobar Mines Pty Limited after a management buyout  
                        |                           | • Former Head of Bank of America operations in Australia, New Zealand and PNG |
| Paul Fudge            | Alternate Director to Paul Fudge | • 30 years professional services experience, with over 15 years as a Partner at Deloitte.  
                        |                           | • Jacqui is a Chartered Accountant and Fellow of the Institute of Chartered Accountants, Graduate of AICD (Australian Institute of Company Directors), Chartered Tax Advisor and Justice of the Peace |
| Jacqui Clarke         | Alternate Director to Paul Fudge | • 30 years professional services experience, with over 15 years as a Partner at Deloitte.  
                        |                           | • Jacqui is a Chartered Accountant and Fellow of the Institute of Chartered Accountants, Graduate of AICD (Australian Institute of Company Directors), Chartered Tax Advisor and Justice of the Peace |
| Peter Cleary          | Non-Executive Director    | • Distinguished 29-year career representing Santos, the North West Shelf Venturers and BP in Asia. His executive career was in LNG, pipeline gas and chemicals operations  
                        |                           | • Member of the Executive Committee of the Australia Japan Business Co-operation Committee and the Australia Korea Business Council |
| Louis Rozman           | Non-Executive Director    | • Former Managing Director of CH4 Gas which merged with Arrow Energy and later acquired by PetroChina and Shell  
                        |                           | • Founding principal of Pacific Road Capital, a resources investing manager of private equity funds  
                        |                           | • Former Chief Operating Officer of AurionGold Limited  
                        |                           | • Chairman of the VALMIN Code Committee for the AusIMM and Australian Institute of Geoscientists |
| Alex Underwood        | Managing Director         | • Associate Director Energy Markets Division of Macquarie Bank Limited (Sydney and Singapore)  
                        |                           | • Director Natural Resources Division of Commonwealth Bank of Australia (Singapore)  
                        |                           | • Financial Analyst BHP Billiton Petroleum (Perth)  
                        |                           | • Experience investing debt and equity in the upstream oil and gas sector and identification of value creation opportunities for upstream oil and gas development / production assets |
Appendix 3: Industry leading Management

Robin Polson
Chief Financial Officer
- Robin has been deeply involved in the development of the Australian east coast gas industry for over 20 years.
- Extensive knowledge of the gas industry in the Northern Territory gas markets in particular, with strong relationships and experience working with key gas industry financiers, analysts, producers, transport providers, customers, and relevant regulatory bodies.
- Ex-Deloitte Partner
- Almost 30 years with big four accounting firms (Deloitte and PwC) on three continents, covering audit, corporate finance, M&A, valuation and strategy

Kylie Arizabaleta
Financial Controller
- Longest serving Empire management team member
- Prior to joining the Company, Kylie worked in the Audit division of Chartered Accounting firms as a senior and lead external auditor where she gained broad experience in Audit and other Assurance Services

Ben Johnston
Vice President Business Development
Company Secretary
- Director, Natural Resources & Energy, Commonwealth Bank of Australia
- Vice President, RBC Capital Markets energy investment banking team
- Chartered Accountant and MBA (Australian Graduate School of Management)
- Energy sector specialist across M&A, ECM and debt / project finance transactions

Sonia Harvey
VP Community and Government Relations
- Based in Darwin
- Joined Empire from the Energy Club NT where she was the founder and served as Chief Executive. In this role, she built deep relationships across Empire’s stakeholder groups, including with Northern Territory Government and Shadow Ministers and Department leaders, service providers and peers in industry.
- These relationships will be invaluable to Empire as we progress through development and seek to raise our profile in the Northern Territory.

Charles Dack
Environmental and Compliance Reporting Officer
- Environmental manager with qualifications in environmental engineering and environmental law.
- Extensive experience as the environmental regulator of the petroleum industry for the NT Government
- 6 years of the Northern Territory Government, employed as the lead Environmental Engineer for the NT Government to regulate the upstream petroleum industry.

Dr Alex Bruce
Chief Geoscientist
- PhD from the University of New South Wales (2001) in machine learning applications to geology
- 20 years experience across onshore and offshore projects from exploration to development and conventional and unconventional oil & gas
- Has held similar positions with other ASX oil & gas mid-caps including Drillsearch (acquired by Beach), AWE (now Mitsui), Roc Oil (now FOSUN) and Braggspor Energy (part of New Hope Corporation)

Daniela Garrad
Geophysicist
- Over 35 years’ experience across international and Australian projects, including everything from basin scale regional studies, exploration and detailed field evaluation and development
- Started as a seismic interpreter with Esso Australia, and since worked in technical roles for diverse companies ranging from minnows, mid-caps to majors, most recently with Oil Search Alaska.
- Special interests and expertise in structural geology and sequence stratigraphy in both carbonate and clastic sedimentary systems.
- Holds a BSc(Hons) from The University of Newcastle and is a member of PESA, the AAPG and the EAGE

Todd Hoffman
Consultant Geoscientist
- Over 15 years experience across onshore conventional and unconventional oil and gas exploration and appraisal projects, including geoscience operations
- More than 12 years working on Proterozoic shales in the Beetaloo and McArthur Basins
- Involved in large CSG and shale discoveries in the Queensland and Northern Territory
- Previous roles with privately held Pangaea Resources
Appendix 4: Industry leading Operating Team & Consulting Support

Dr Simon Hann
Principal Engineer
- Founding partner of inGauge and a well engineering professional with over twenty years’ operational experience including conventional oil and gas, geothermal, HPHT, and coal seam gas drilling and completions.
- Fourteen years’ management experience with Santos, Woodside and Shell including roles as Operations Manager, Drilling team Leader, Drilling and Completions Manager and Production Manager.

Kelvin Wuttke
Principal Engineer
- Over 24 years of industry experience ranging from conventional onshore oil & gas to CSG and international offshore operations at Santos and Chevron.
- Technical expertise includes drilling & completions design, workovers, well testing, artificial lift, pipelines and surface facilities; across conventional and CSG environments.
- Experience includes managing combined drilling, completion and stimulation projects, remediation workovers, snubbing, fracture stimulation, underbalanced operations, and a wide variety of artificial lift projects.

Jordan Bunning
Principal Engineer
- Founding member of inGauge. Over 17 years’ operational experience at Santos, Oil Search, Roc Oil and Origin in complex well execution and project management, this includes projects in conventional oil and gas, HPHT, coal seam gas and deep water bores.
- Jordan has experience in roles such as Drilling Manager, Drilling Team Leader, Senior Drilling Engineer and Drilling & Completion Engineer.
- Has been the lead in some of inGauge Energy’s most successful projects including as in situ Drilling Manager for Westwide Corporation, Comet Ridge and most recently Empire Energy’s Northern Territory Carpentaria 1 well.

Jon Bennett
Project & Construction Manager
- Jon has 25 years operational experience, including twelve years management experience of Santos in roles such as Pre-Development Manager, Construction Manager, Civil Construction Manager and several management roles in large scale Agriculture.
- Jon is an experienced professional with a strong focus on business outcomes. Offering experience in planning, design, and construction of gathering, power, wellpad, civil and other CSG facilities. Proven strengths in business and project management and driving efficiencies through innovation and simplification over a range of industries.
- In his management roles Jon has proudly achieved and maintained industry leading EHS performance across operations.

Daniel Kalinin
Stimulation Consultant
- 28 years of international experience in Russia, Turkmenistan, Kazakhstan, Mexico, the Middle East, China, and Australia.
- 20 years Schlumberger career included starting several new locations in Russia, business development in Turkmenistan & Uzbekistan, project engineer at Karachaganak, G&G stimulation support for an integrated well construction project in Mexico.
- Unconventional experience includes shale & tight gas in Saudi Arabia, Kuwait, Bahrain, Oman, China, and various basins in Australia. He has designed the fracturing stimulation of the maiden horizontal Velkerri discovery well.
- Degrees in Geology, Economics; post grad Integrated Reservoir Management from IFP & Imperial College; Redding program at Tulsa University. Holds several patents and published a few SPE technical papers.
# Appendix 5: Pathway to Development in the Beetaloo Basin

EEG is progressing towards LNG-scale production

<table>
<thead>
<tr>
<th>Year</th>
<th>Upstream</th>
<th>Processing Facilities</th>
<th>Commercialisation Options</th>
<th>Midstream</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>CARP-1 PAD: 1 x Vertical Well (Carpentaria-1)</td>
<td></td>
<td>Memoranda of Understanding ✓ (APA Group / Power and Water Corp)</td>
<td></td>
<td>Cash on Hand / R&amp;D Rebates / Beetaloo Cooperative Drilling Program Grants</td>
</tr>
<tr>
<td>2021</td>
<td>CARP-2 PAD: ✓ 1 x Horizontal Frack (Carpentaria-2H) ✓ 1 x Horizontal Well + Frack (Carpentaria-3H) CARP-4 PAD: ✓ 1 x Vertical Well (Carpentaria-4V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td>Planning and engineering work in preparedness for FID of a pilot project late 2023 / 2024</td>
<td></td>
<td>Northern Domestic Gas Markets (e.g., Mines, Power Stations, Darwin, Power and Water Corp, etc.)</td>
<td></td>
<td>R&amp;D Rebates / Beetaloo Cooperative Drilling Program Grants</td>
</tr>
<tr>
<td>2023</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2024</td>
<td></td>
<td></td>
<td>East Coast LNG / Domestic (via Amadeus Gas Pipeline, New Beetaloo Pipeline to Mt Isa) LNG export ex-Darwin (APA upgrade)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2025+</td>
<td></td>
<td></td>
<td>Beetaloo Shared Infrastructure Owned by infrastructure builder and operator Tariff paid by users, with to be a foundation shipper</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Upstream**
  - 3 to 4 New Drilling Pads
  - 2+ continuous rigs
  - 10+ Horizontals
  - 500 – 700+ mmcfd target production

- **Processing Facilities**
  - Central processing facility
  - Gathering network
  - Additional compression and treatment
  - LNG processing

- **Commercialisation Options**
  - Existing (Amadeus Gas Pipeline, McArthur River Pipeline)

- **Midstream**
  - Memoranda of Understanding ✓ (APA Group / Power and Water Corp)

- **Funding**
  - Farmout / Project Finance [?]
This presentation has been prepared by Empire Energy Group Limited ("Empire" or the "Company"). The information in this presentation is information of a general nature and is subject to change without notice. The information in this presentation does not purport to be complete, nor does it contain all of the information which would be required in a prospectus prepared in accordance with the requirements of the Corporations Act 2001 (Cth). It contains information in a summary form only and should be read in conjunction with Empire's other periodic disclosure announcements to the ASX available at www.asx.com.au.

An investment in Empire shares is subject to known and unknown risks, many of which are beyond the ability of Empire to control or predict. These risks may include, for example, movements in oil and gas prices, a failure to acquire some or all of the targeted acreage, risks associated with the development and operation of the acreage, exchange rate fluctuations, an inability to obtain funding on acceptable terms or at all, loss of key personnel, an inability to obtain appropriate licences, permits and or/other approvals, inaccuracies in resource estimates, share market risks and changes in general economic conditions. Such risks may affect actual and future results of Empire and its shares.

This presentation contains statements, opinions, projections, forecasts, and other material ("forward looking statements"). These statements can be identified by the use of words like 'anticipate', 'believe', 'intend', 'estimate', 'expect', 'may', 'plan', 'project', 'forecast', 'will', 'should', 'could', 'seek' and other similar expressions. Forward looking statements may be based on assumptions which may or may not prove to be correct. None of Empire, its respective officers, employees, agents, advisers or any other person named in this presentation makes any representation as to the accuracy or likelihood of fulfilment of the forward looking statements or any of the assumptions upon which they are based and disclaim any obligation or undertaking to revise any forward looking statement, whether as a result of new information, future event or otherwise.

Maps and diagrams contained in this presentation are provided to assist with the identification and description of Empire's lease holdings and Empire's intended targets and potential exploration areas within those leases. The maps and diagrams may not be drawn to scale and Empire's intended targets and exploration areas may change in the future.

All financial information is in Australian dollars unless stated otherwise.

The information contained in this presentation does not take into account the investment objectives, financial situation or particular needs of any recipient and is not financial product advice. Before making an investment decision, recipients of this presentation should consider their own needs and situation and, if necessary, seek independent professional advice.

To the maximum extent permitted by law, Empire and its respective officers, employees, agents and advisers give no warranty, representation or guarantee as to the accuracy, completeness or reliability of the information contained in this presentation. Further, none of Empire nor its respective officers, employees, agents or advisers accept, to the extent permitted by law, responsibility for any loss, claim, damages, costs or expenses arising out of, or in connection with, the information contained in this presentation. Any recipient of this presentation should independently satisfy themselves as to the accuracy of all information contained herein.