

**ASX:EEG**

**EMPIRE**  
**Energy**

# Quarterly Report

For the period ending 30<sup>th</sup> June 2021

Level 19, 20 Bond Street  
Sydney NSW 2000

## Highlights

The second Quarter has been productive for Empire Energy Group Limited (“Empire” or the “Company”). The Company continues to progress towards its objective to achieve commercial production and cash flows.

Major highlights of the Quarter:

- **Transformational acquisition of Pangaea and EMG NT, Beetaloo Sub-basin assets, nearly doubling Empire’s NT acreage focused on the highly prospective Beetaloo Sub-basin**
- **Post-acquisition, Empire’s best estimate Prospective Resources (2U) will total ~47 Tcfe comprising 42 Tcf gas and 791 MMbbls liquids (condensate and oil) while 2C Contingent Resources will be 220 Bcfe comprising 199 BCF gas and 3.5 MMbbls of liquids**
- **The Board and management team of Empire has been strengthened with Mr Louis Rozman completing his first full Quarter as a Director and Mr Paul Fudge and Ms Jacqui Clarke (his alternate) will join the Board once the acquisition completes**
- **The Carpentaria-1 well targeting the Velkerri shales was successfully fractured stimulated. Following completion, extended production testing produced pleasing results at a peak rate of >1.6 mmcf / day, an average flow rate of 0.25 mmcf / day over a 17-day test period during which the well was continuing to dewater, with a final rate of 0.25 mmcf / day**
- **After Quarter end, approvals were received for three grants totaling up to \$21 million under the Beetaloo Cooperative Drilling Program - funds will be applied to up to three horizontal wells on EP187**
- **Empire raised new equity capital of ~\$37.2 million (gross) at \$0.30 per Empire share**
- **The Company ended the Quarter with \$41.9 million in cash**

Other highlights:

- **The Carpentaria-1 well was shut-in on 16<sup>th</sup> July 2021 to comply with COVID-19 operating constraints - the technical team intends to recommence production testing when operating conditions allow**
- **Preparations for the drilling of Empire’s first horizontal well in EP187 are well advanced**
- **Empire’s US business executed US\$120,000 in wind and solar project land leasing contracts over its New York State oil and gas leases with negotiations for further renewable energy project leasing opportunities developing**
- **Empire and Macquarie Bank executed amendments to the Credit Facility, removing two financial covenants: the interest coverage ratio and 1P PV10 ratio. Repayments to the Credit Facility totaled US\$412,500 during the Quarter**
- **The General Meeting to consider the acquisition of the Pangaea and EMG NT assets will be held at 2.00pm (AEST) on Tuesday, 3<sup>rd</sup> August 2021**
- **Gas prices in the United States, Australia and Asia have surged to multi-year highs**

**Comments from Managing Director Alex Underwood:**

Empire has had another successful Quarter. In a stark reminder of the growing demand for gas I noted in recent weeks that the Wallumbilla Hub gas price reached an astonishing \$19.50 / GJ, the energy equivalent of a A\$117 / bbl oil price, and the Victorian price reached \$39.99 / GJ at one point. These high prices underscore the need to develop new sources of gas supply to support Australian households and industry with affordable energy. Chinese LNG demand has risen by 29% over the last 12 months, after increasing by 11% in 2020 despite COVID related economic impacts.

Our focus is on bringing Carpentaria-1 and subsequent wells into early production and cash flow by tying them in to the nearby McArthur River pipeline, once regulatory conditions allow for this. The strong flowback from our vertical fracture stimulation and flow test took us a step closer to realising this goal.

The acquisition of the Pangaea / EMG properties will double our acreage position and importantly gives us opportunities along the Amadeus Gas Pipeline which runs across the Western Beetaloo. We look forward to engaging with stakeholders in these new areas once the acquisition completes.

The Federal Government grant funding extends our reach as we look forward to drilling our first horizontal well later this year.

It's been another great Quarter and I'm grateful to our team for their significant efforts and shareholders for their support for our strategy to be one of the first operators to commence commercial production in the Beetaloo in the years ahead."

## Pangaea / EMG NT Assets Acquisition Update

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Empire released its Notice of General Meeting ("Notice") on Friday 2<sup>nd</sup> July 2021 to consider the acquisition of Pangaea (NT) Pty Limited ("Pangaea") and EMG Northern Territory Holdings Pty Limited ("EMG NT") 100% interests in EP167, EP168, EP169, EP198 and EP305 (together, the "Tenements"), located onshore Northern Territory. The Notice provides shareholders with important information on the transaction and the assets to be acquired.

Pangaea and EMG NT undertook an extensive work program across the Tenements between 2012 and 2015. More than \$110 million was spent by Pangaea and EMG NT on the Tenements, with key work program items including:

- One exploration well and four appraisal wells drilled;
- 2 stratigraphic holes drilled;
- ~1,800km of 2D seismic acquired;
- ~29,000km of high-resolution airborne surveys; and
- More than 3,500km of core samples analysed.

The work completed has identified a large prospective hydrocarbon resource and contingent resource position in EP167 and EP168, multiple hydrocarbon windows, including dry gas, liquids rich gas and oil windows.

The General Meeting will be a virtual meeting held at 2.00pm (AEST) on Tuesday, 3<sup>rd</sup> August 2021. Empire has decided to conduct the General Meeting in this way to comply with COVID-19 restrictions in New South Wales including current ‘stay at home’ orders. Shareholders can attend and participate in the General Meeting through an online platform at <https://web.lumiagm.com>. There will be no physical in-person General Meeting.

Empire has also submitted its application for Ministerial Consent to enact the transfer of ownership of the Tenements to the Northern Territory Government.

Following the completion of the transaction, Empire’s total Contingent and Prospective Resource estimate is set out below.<sup>1</sup>

Zone	Unrisked Net Contingent Resources Liquids (MMBBL)			Unrisked Net Contingent Resources Sales Gas (BCF)			Unrisked Net Prospective Resources Liquids (MMBBL)			Unrisked Net Prospective Resources Gas (BCF)		
	Estimate			Estimate			Estimate			Estimate		
	Low (1C)	Best (2C)	High (3C)	Low (1C)	Best (2C)	High (3C)	Low (1U)	Best (2U)	High (3U)	Low (1U)	Best (2U)	High (3U)
Kyalla*	0.8	3.0	11.1	0.8	4.5	27.7	88	378	1,571	184	857	4,891
Mid Velkerri*	0.1	0.5	3.0	57.2	194.0	474.1	80	413	2,037	10,163	30,214	87,735
Barney Creek*	-	-	-	-	-	-	-	-	-	1,633	11,053	45,380
<b>Total*</b>	<b>0.9</b>	<b>3.5</b>	<b>14.1</b>	<b>58.0</b>	<b>198.5</b>	<b>501.8</b>	<b>168</b>	<b>791</b>	<b>3,608</b>	<b>11,980</b>	<b>42,124</b>	<b>138,006</b>

\*Empire derived arithmetic summation of NSAI probabilistic resource estimations

## Completion

Completion of the acquisition is subject to limited remaining conditions precedent, including Empire shareholder approval at the General Meeting and Northern Territory Government approval.

If the acquisition completes as expected, Empire will welcome Mr Paul Fudge and The Energy & Minerals Group (“EMG”) as shareholders of the Company. Mr Fudge is a recognised investor in Australian gas and resources projects. EMG is a private investment firm based in Houston, Texas, USA, focused on the natural resources sector with deep experience in developing energy projects with strategic relationships across the energy value-chain. Further information on Mr Paul Fudge and EMG can be found in the Notice or on the EMG website (<https://emgtx.com/>).

As previously disclosed to shareholders, Empire expects to incur A\$10 million in completion costs associated with the transaction including cash consideration, stamp duty and advisory fees which will be funded from cash at bank.

<sup>1</sup> Detailed Contingent and Prospective Resource tables are set out in the Empire ASX release dated 27<sup>th</sup> May 2021, 2021, AGM Managing Director’s Presentation. Shareholders should also refer to the Notice of General Meeting released to ASX on 2<sup>nd</sup> July 2021.

# Northern Territory Operations Update

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## **Carpentaria-1 Fracture Stimulation and Production Testing**

As announced to shareholders on 17<sup>th</sup> and 28<sup>th</sup> June 2021, the vertical Carpentaria-1 well located in EP187, onshore Northern Territory, was hydraulically stimulated over four stages and placed on Extended Production Test (“EPT”). The four stages tested the Velkerri Formation’s four stacked targets, the A, the Intra A / B, B and C shales, being the most prospective units in the 998m column of wet gas producing shale intersected in Carpentaria-1.

Empire lodged a Discovery Notice with the Northern Territory Government during the Quarter reporting an initial peak rate of greater than 0.5 mmcf / day and an initial stabilised rate of 0.37 mmcf / day over a 72-hour test period. Following a brief shut-in an instantaneous peak rate of greater than 1.6 mmcf / day was recorded.

In response to the COVID-19 outbreak in New South Wales, Victoria and South Australia, the Northern Territory Government and Northern Land Council have implemented travel restrictions. This has impacted Empire’s EPT operations at Carpentaria-1 and prevented a crew change on site so accordingly the EPT was shut-in on 16<sup>th</sup> July 2021.

The Carpentaria-1 well averaged a flow rate of 0.25 mmcf / day over a 17-day test period during which time the well was dewatering. The final production flow rate recorded was 0.25 mmcf / day prior to shut-in of the well. Empire intends to re-start the EPT after travel restrictions are eased. There are some improvements planned to the artificial lift system at Carpentaria-1 which will allow Empire to decrease bottom hole pressure further when production testing recommences to better test the maximum production potential for this well.

During the EPT, samples of the produced hydrocarbon gases were taken at regular time intervals. These are now being analysed for gas / liquids composition. Tracers returned with the gas will also be analysed in the coming weeks to determine zonal contributions from each of the four Velkerri shale targets. This vital information will guide the target selection for the Carpentaria-1 horizontal well to be drilled this year, subject to approvals.

Onsite gas detection also indicates that produced CO<sub>2</sub> was below 1% for the entire test period, a low proportion compared to many fields around the world.

The continuity of shales is far greater laterally than vertically making horizontal wells a far more effective means of tapping the strata for gas, than can be achieved with a few vertical stimulation stages. Our technical team is now carrying out analysis to optimise the design and staging of the first horizontal well.

In the prolific US shale plays horizontal wells dominate production. For example, in the Marcellus Shale, which produces over 30% of America’s natural gas, over 99% of gas is produced from horizontal wells, and around 93% of production in the Permian Basin comes from horizontal wells<sup>2</sup>. Although each shale basin is different, the length of horizontal wells, the

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<sup>2</sup> EIA.gov 2019 Horizontally drilled wells dominate U.S. tight formation production.

number of fracture stages in a typical well and the production productivity per stage has steadily increased over recent years, resulting in increasing production and capital efficiency.

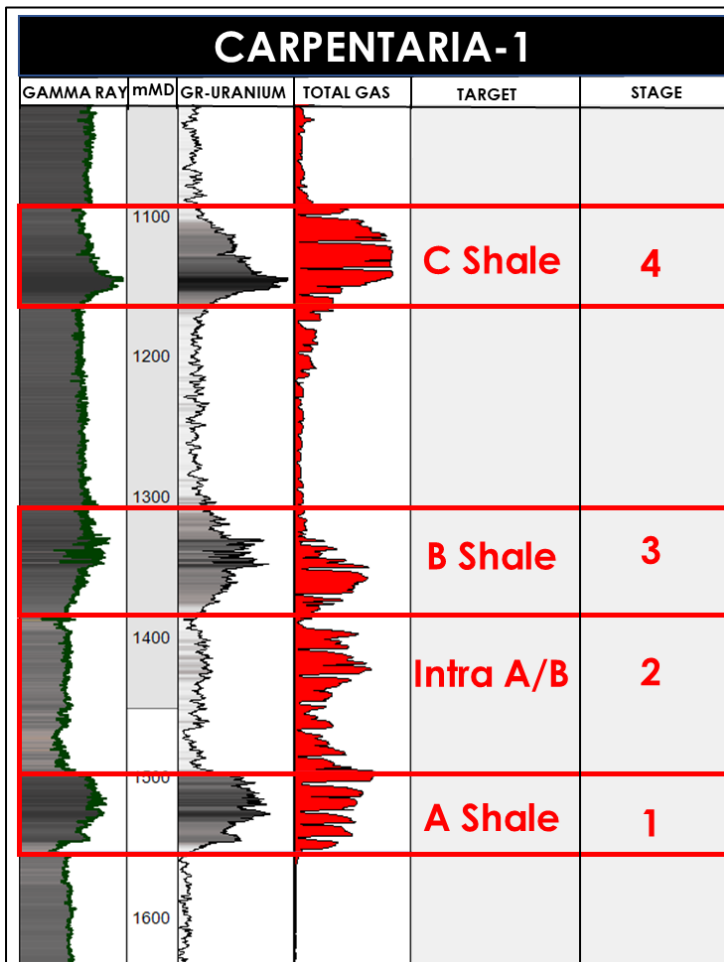
The Carpentaria-1 production flow test results compare favourably with US vertical shale wells. Empire's technical team is now on a similar journey as US shale drillers in developing Beetaloo-specific horizontal drilling practices and completions.



Coil Tubing Unit rigged up during well cleanout operations



Senior Stimulation Engineer Daniel Kalinin inspecting gas bubbling in freshly sampled flowback fluid

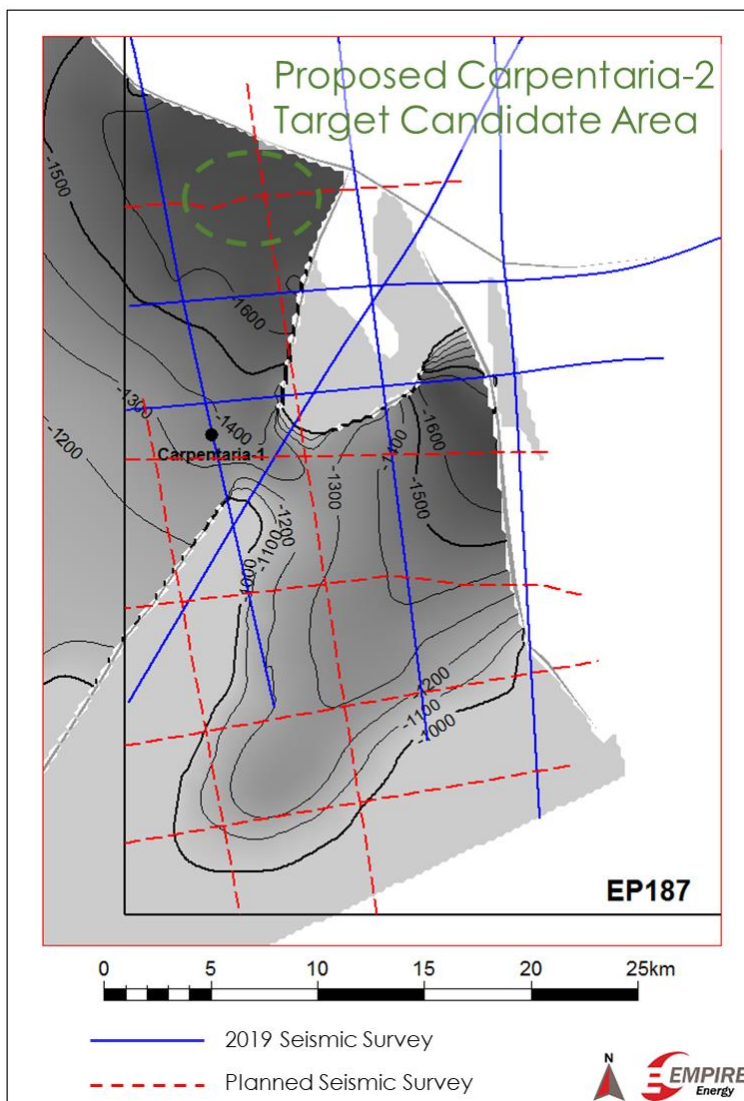


Left: Vertical and Carpentaria-1 Well fracture stimulation targets

Empire's Environment Management Plan ("EMP") for infill 2D seismic acquisition and the drilling of up to 7 horizontal wells is being considered by the Northern Territory Government.

Subject to approval of the EMP, Empire is planning to carry out a ~165-kilometre 2D seismic survey in the EP187 permit. This seven-line survey will further delineate the continuity of the Velkerri shale resource in EP187.

Following processing and interpretation of the 2D seismic data, Empire presently intends to use the information to drill Carpentaria-2, a horizontal appraisal well approximately ten kilometres north of the Carpentaria-1 well in an area where the Velkerri is shown to be up to 260 metres deeper.



Left: Proposed EP187 2021 seismic survey and Carpentaria-2 Target Area

With the expected completion of the Pangaea and EMG NT acquisition, the Empire team is carrying out analysis and planning for this new Beetaloo Sub-basin acreage. Extensive work programs have been undertaken in those permits and data is currently being integrated to generate production strategies and preferred horizontal drilling locations for the development of these assets. The Empire team is also preparing to re-engage with the stakeholders including pastoralists and Traditional Owners around the core EP167 / EP168 areas this year, ahead of proposed on-ground activities commencing in 2022.

### Recent COVID-19 Outbreak

The proposed on-country meeting which was to be held on 30<sup>th</sup> June 2021 between Empire, the Northern Land Council and Traditional Owners in Borroloola, Northern Territory was postponed to protect traditional owners and the local community from the risk of COVID-19 transmission. The meeting will be rescheduled once restrictions are lifted.

### Empire Hosts Carpentaria-1 Site Visit for Northern Territory Government

On 1<sup>st</sup> June 2021, Empire hosted a site visit to the Carpentaria-1 well site for a party of Northern Territory Government Members of the Legislative Assembly and Department senior leaders which included Northern Territory Deputy Chief Minister and Mining and Industry Minister Nicole Manison. While onsite Minister Manison said:

“It was great to see the site and the hard work going on to progress onshore gas in the Territory,”

“Seeing Empire’s work firsthand, they demonstrated their commitment to sustainable environmental practices, safety and working with Traditional Owners.”<sup>3</sup>

Empire looks forward to welcoming future stakeholders to site as the Carpentaria project progresses.



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<sup>3</sup> NT News, 3 June 2021, ‘It was great to see the site and the hard work going on’: Empire’s Beetaloo basin gas hunt begins’ by Gary Shipway

### **Australian Government's *Beetaloo Cooperative Drilling Program***

Empire announced on 8<sup>th</sup> July 2021 that the Federal Government had approved up to \$21 million in grant funding to Empire under the *Beetaloo Cooperative Drilling Program* ("the Program"). The funding provided in three grants will be used to support the drilling and flow testing of up to three fracture stimulated horizontal appraisal wells in Empire's 100% owned EP187 tenement.

The Program provides for \$50 million of funding towards exploration activity to be carried out by the end of 2022. The maximum amount of grant funding under the Program is \$7.5 million per well, capped at 25% of the cost of each well and three wells per venture. Activities that support drilling such as seismic acquisition and flow testing are also eligible under the Program.

Empire was the first company to be awarded funding under the Program. Negotiation of a grant agreement with the Government is progressing.

The Australian Senate Environment and Communications References Committee has established an inquiry, with the following terms of reference: "Oil and gas exploration and production in the Beetaloo Basin, with particular reference to the Industry Research and Development (Beetaloo Cooperative Drilling Program) Instrument 2021, which provides public money for oil and gas corporations". The inquiry seeks to examine whether the Federal Government's Beetaloo spending is worthwhile. The committee is due to present an interim report on 24<sup>th</sup> August 2021.

Empire has made submissions to the Senate inquiry which can be found on the Senate Inquiries website and appeared at the hearing on 28<sup>th</sup> July 2021.<sup>4</sup> In an apparently related development, environmental advocates launched legal proceedings against the Program on 29<sup>th</sup> July 2021. Empire and its subsidiaries are not parties to those proceedings.

### **Generational Reforms to the *Aboriginal Land Rights (Northern Territory) Act 1976***

On 12<sup>th</sup> June 2021, Australian Federal Minister for Indigenous Australians, the Hon Ken Wyatt AM, MP announced a package of generational reforms to the Aboriginal Land Rights (Northern Territory) Act 1976 (ALRA) co-designed with the Northern Territory Land Councils to activate the potential of indigenous land in the Northern Territory. The centrepiece of the reforms is a new Aboriginal-controlled corporate Commonwealth entity, funded from the Aboriginals Benefit Account (ABA), to decide on and administer grants and investments in the Northern Territory.

- Ken Wyatt commented: "Putting the investment decisions into the hands of Aboriginal people will see more of the growing ABA balance put to work for Aboriginal Territorians, according to their priorities."; and
- Mr Sammy Bush-Blanasi, Chair of the Northern Land Council said, "This is a historic moment for Aboriginal Territorians – we will finally have control over how money generated from mining on our land is spent. This will allow Aboriginal people to invest

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<sup>4</sup>[https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Environment\\_and\\_Communications/BeetalooBasin/Submissions](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/BeetalooBasin/Submissions)



in more Aboriginal jobs and support culture and community for our grandchildren and beyond.”<sup>5</sup>

## Other Corporate News

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### Successful Capital Raisings

During the Quarter, Empire completed capital raising activities to raise ~\$37.2 million (gross) comprising:

- Two-tranche placement (“Placement”) to raise \$30 million (gross) at \$0.30 per share. Settlement of the 39,318,829 Tranche 1 shares and 60,681,171 Tranche 2 shares occurred on 22<sup>nd</sup> April 2021 and 1<sup>st</sup> June 2021, respectively;
- Directors’ placement (“Directors’ Placement”) to raise ~\$1.2 million at \$0.30 per share. Empire Directors Paul Espie AO, Peter Cleary, Louis Rozman and Professor John Warburton participated in the Directors’ Placement. Settlement of the 3,940,333 Directors’ Placement shares occurred on 1<sup>st</sup> June 2021; and
- Share Purchase Plan (“SPP”) to raise \$6 million at \$0.30 per share. Settlement of the 20,000,186 SPP shares occurred on 18<sup>th</sup> May 2021. As a result of the strong demand for the SPP, the Board of Empire exercised its discretion to increase the size of the SPP to \$6 million (from \$3 million) to accommodate >400 Empire shareholders who demonstrated their support for the Company through participation in the SPP.

### Appointment of Sonia Harvey as Vice President, Community and Government Relations

Empire’s management team has been strengthened with the appointment of Sonia Harvey as Vice President, Community and Government Relations, based in Darwin.

Ms Harvey has joined Empire from the Energy Club NT (<https://energyclubnt.com.au/>) where she was the founder and served as Chief Executive. In this role, she has built deep relationships across Empire’s stakeholder groups including with Northern Territory Government and Shadow Ministers and Department leaders, service providers and peers in our industry. These relationships will be invaluable to Empire as we progress through to development and seek to raise our profile in the Northern Territory.



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<sup>5</sup> <https://ministers.pmc.gov.au/wyatt/2021/generational-reform-empower-aboriginal-territorians>

## 2021 Annual General Meeting

Empire held its 2021 Annual General Meeting on 27<sup>th</sup> May 2021 in Sydney. All resolutions supported the Board's recommendations by a strong majority.

## Broker Research Coverage

Morgans retained its Speculative Buy recommendation and upgraded its target price to \$1.14 per share (previously \$0.643 per share) following the announcement of the Pangaea acquisition.

Taylor Collison retained its Speculative Buy recommendation and increased its target price to \$0.81 per share (previously \$0.58 per share). The target price increase reflects Empire's Pangaea acquisition resulting in a larger acreage position and 2C resource.

Research as a Service (RaaS) also updated its research and values Empire shares at \$0.98 per share.

Research reports can be found on Empire's website <https://empireenergygroup.net/research-analyst-reports/>

## Empire Tenements

There have been no changes to the petroleum tenements held by Empire and its subsidiaries since last quarter. Empire's petroleum tenements will include the Pangaea / EMG NT Tenements once the transaction completes.

A full list of tenements as at 31<sup>st</sup> December 2020 can be found on Empire's website:

[https://asx.api.markitdigital.com/asx-research/1.0/file/2924-02359374-2A1290238?access\\_token=83ff96335c2d45a094df02a206a39ff4](https://asx.api.markitdigital.com/asx-research/1.0/file/2924-02359374-2A1290238?access_token=83ff96335c2d45a094df02a206a39ff4)



Well head at Carpentaria-1

## Developments Across the NT Petroleum Sector

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- **On 30<sup>th</sup> April 2021, Santos (ASX: STO) announced it had completed the sell-down of 25 per cent interests in Bayu-Undan and Darwin LNG to SK E&S, which is also a partner in the Barossa gas field.** Santos and SK E&S have also signed a Memorandum of Understanding to jointly investigate opportunities for carbon-neutral LNG from Barossa;<sup>6</sup>
- **On 3<sup>rd</sup> May 2021, Santos (ASX: STO) announced it had signed a Memorandum of Understanding with Eni to cooperate on opportunities in northern Australia and Timor-Leste.** The areas of cooperation include assessing the synergies of sharing possible infrastructures associated with gas field developments around Barossa and Evans Shoal, pipeline to Darwin and onshore associated gas processing leading to LNG expansion developments.
  - Kevin Gallagher, Santos Managing Director said: “As I said when I was in Darwin to announce our FID decision for Barossa, we have approval for two more trains at DLNG and we are open to third party gas opportunities”;<sup>7</sup>
- **On 11<sup>th</sup> May 2021, Tamboran Resources Limited (ASX: TBN) announced that the Tanumbirini #2H horizontal gas well in EP161 had commenced drilling operations.** Tanumbirini #2H will target ~4,800 metres total depth and will be hydraulically fracture stimulated with 10 to 20 stages across the Mid-Velkerri B Shale horizontal sections with an extended flow test to follow. Drilling is anticipated to complete in Q3 2021;<sup>8</sup>
- **On 25<sup>th</sup> May 2021, Central Petroleum (ASX: CTP) announced it had entered into a binding agreement with New Zealand Oil & Gas (ASX: NZO) and Cue Energy Resources (ASX: CUE) to sell 50% of its current working interest in its Amadeus Basin producing assets for total consideration valued at ~\$85 million.** The assets being sold under the transaction consist of 50% of Central’s interests in its producing assets in the Northern Territory, namely, Mereenie Oil and Gas Field, Palm Valley Gas Field and Dingo Gas Field. The transaction comprises a \$40 million payment by way of “carried” funding for Central’s share of near-term development, appraisal and exploration activities, including a committed two-well exploration program at Palm Valley and Dingo to commence this year;<sup>9</sup>

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<sup>6</sup> Santos ASX release entitled “Santos completes Bayu-Undan and Darwin LNG sell-down to SK” dated 30<sup>th</sup> April 2021

<sup>7</sup> Santos ASX release “Santos and Eni sign MOU to collaborate in northern Australia and Timor-Leste” dated 3<sup>rd</sup> May 2021

<sup>8</sup> <https://www.tamboran.com/wp-content/uploads/2021/05/Tamboran-Resources-Press-Release-11th-May-2021.pdf>

<sup>9</sup> Central Petroleum ASX release “Central sale underwrites significant investment in the Amadeus Basin”

- **On 22<sup>nd</sup> June 2021, Origin Energy (ASX: ORG) announced that activity had resumed at the Kyalla 117 well site near Daly Waters in the Beetaloo Sub-basin.** Origin is focused on flow testing the well and extended production testing to understand the deliverability of the well. Origin General Manager for Beetaloo and Growth Assets Chris White commented:
  - “Analysis of the initial Kyalla results showed valuable liquids rich gas is present.”
  - “We’re preparing to drill a new vertical well, also targeting liquids rich gas, into a second shale formation called the Velkerri later this year. We also plan to complete a further production test at the Amungee NW 1H well,”<sup>10</sup>
- **After Quarter end, on 2<sup>nd</sup> July 2021, Tamboran Resources Limited completed an initial public offering and now trades under the ASX ticker TBN.**



Work crew at Carpentaria-1 site

<sup>10</sup> <https://originbeetaloo.com.au/origin-back-on-the-ground-in-the-beetaloo/>

## US Operations Update

Empire's US operations reported a positive EBITDA for Q2 2021 of US\$16k (Q1 2021: US\$61k).

The average daily production for Q2 2021 was 4,549 Mcfe / day vs. Q2 2020 4,652 Mcfe / day, representing a decrease of 2.2% year-on-year. The weighted average sales price for gas after hedging was US\$2.47 / Mcf (Q1 2021: US\$2.77 / Mcf).

During the Quarter, Empire entered into agreements with renewable energy project developers to allow for the construction of wind and solar projects on land where Empire holds leases. Leasing payments to Empire to facilitate this work total US\$120,000 of which US\$45,000 was received in the period from developers of two separate 30-acre solar projects. Empire is also in varying stages of negotiation for leasing an additional >2,000 acres to solar proponents.

US natural gas prices referenced to Henry Hub have rallied materially to around US\$4 / Mcf at the time of writing, a multi-year high for this time of year. A positive impact on US cash flow is expected to flow through in the next quarter due to the lag between production and billing.

Description	3 months to 30 Jun 2021	3 months to 30 Jun 2020	YTD FY 2021	YTD FY 2020
<b>Net Oil Production (Bbls)</b>				
Appalachia	1,045	105	1,287	442
<b>Net Natural Gas Production (Mcf)</b>				
Appalachia	407,717	422,740	810,634	875,168
<b>Net Gas Equivalent (Mcf):</b>				
Appalachia	413,987	423,370	818,356	877,820
<b>Mcf/d</b>	<b>4,549</b>	<b>4,652</b>	<b>4,521</b>	<b>4,572</b>
<b>Weighted Avg Sales Price (US\$/Mcf)</b>				
Before Hedge	2.64	1.43	2.70	1.86
After Hedge	2.47	2.12	2.61	2.47
<b>Lifting Costs (incl. taxes):</b>				
Total Natural Gas Equivalent (US\$/Mcf)	1.09	1.17	1.17	1.12

*Revenue estimates have been made for the last 2 production months of the quarter under review due to customer payment/invoice cycles. As such, there may be changes to production, revenues and operating ratios for the previous quarter as final production statements are received.*

## Balance Sheet & Liquidity

Empire's cash balance as at 30<sup>th</sup> June 2021, was \$41.9 million, of which \$40.4 million was held in Australian dollars, and US\$1.0 million was held in United States dollars.

On 4<sup>th</sup> May 2021, Empire and Macquarie Bank executed a sixth amendment and reinstatement to the Credit Facility. The amendment removes two financial covenants: the interest coverage ratio and 1P PV10 ratio. There were no amendment fees payable for these changes. Amortisation will remain in accordance with the existing schedule (100% of US free cash flow subject to minimum US\$550,000 per annum payable quarterly). During the Quarter, Empire made repayments totalling US\$412,500 with outstanding balances under the Credit Facility now totalling US\$6,125,020.

To provide a level of cash flow stability, the Company has in place a prudent gas hedging policy comprising put options and swaps as set out in the table below:

Period	Volume mmbtu/month	Hedge Type	Strike Price US\$/mmbtu	Premium US\$/mmbtu
Jul 21 to Dec 21	25,000	Put Options	\$2.50	\$0.23
Jul 21 to Dec 21	25,000	Put Options	\$2.50	\$0.37
Jul 21 to Dec 21	25,000	Put Options	\$2.50	\$0.41
Jul 21 to Sep 21	50,000	Swap	\$2.85	N/A
Oct 21 to Dec 21	50,000	Swap	\$3.10	N/A
Jan 22 to Dec 22	25,000	Put Options	\$2.50	\$0.35
Jan 22 to Dec 22	50,000	Put Options	\$2.50	\$0.41
Jan 23 to Dec 23	25,000	Put Options	\$2.50	\$0.41

During the Quarter, the Company made payments to related parties of \$211,074. These payments comprised the Managing Director's salary and annual cash short term incentive payment for FY2020 and Non-Executive Directors' fees paid in cash.

### Liquidity

Quarter Ended	30/06/2021	31/03/2021	31/12/2020	30/09/2020
Cash (A\$)	\$41,899,250	\$11,353,728	\$14,425,435	\$21,019,593
Debt (A\$) <sup>11</sup>	\$(8,604,233)	\$(9,051,670)	\$(8,500,909)	\$(10,168,261)
<b>Net Cash /(Debt)<sup>12</sup></b>	<b>\$33,295,017</b>	<b>\$2,302,058</b>	<b>\$5,924,526</b>	<b>\$10,851,332</b>

### Capital Expenditure

Description	3 months to 30/06/2021	3 months to 30/06/2020	YTD FY 2021	YTD FY 2020
Exploration (A\$)	2,648,295	358,690	5,443,548	1,194,342
Property, plant & equipment (A\$)	-	56,123	95,449	68,427
<b>Capitalised Expenditure (A\$)</b>	<b>2,648,295</b>	<b>414,813</b>	<b>5,538,997</b>	<b>1,262,769</b>
Other exploration costs (expensed) (A\$)	460,299	26,532	518,007	47,208

<sup>11</sup> Note: Debt is comprised of US\$ US\$6,125,020 owing under the Senior Secured Facility with Macquarie Bank Limited and US\$343,602 under the PPP with PNC Bank

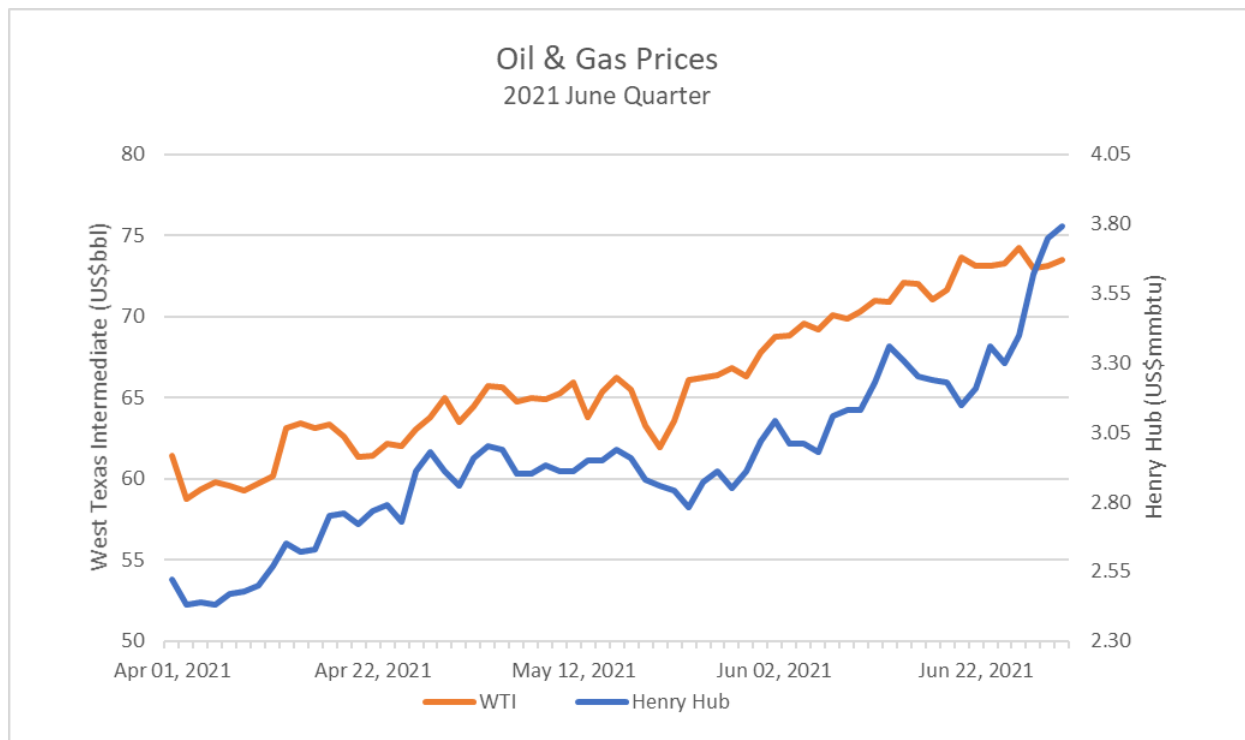
<sup>12</sup> Note: Net Cash / (Debt) is defined as AUD equivalent cash minus AUD debt for the purposes of this calculation

# Energy Markets Update

## Oil & gas commodity prices continued to appreciate over the Quarter as the global economy recovers from COVID-19

Oil prices have risen on expectations of tight supply concerns. On 5<sup>th</sup> July 2021, OPEC+ (OPEC and partner countries) abandoned its meeting following an unresolved dispute between Saudi Arabia and UAE, with members not reaching a deal to increase production. Increased global economic activity and easing of COVID-19 pandemic restrictions has also contributed to rising energy use and demand from the petrochemical industry for manufacturing. On 18<sup>th</sup> July 2021, OPEC+ did reach a deal to increase oil supply by 2 MMbbl / day from August until December 2021 to help stabilise the market.<sup>13</sup>

In its July 2021 Short-term Energy Outlook (Natural Gas), the US Energy Information Administration (“EIA”) forecast that higher prices for gas will result in lower demand from the power sector. The fall is being offset by growing LNG project demand (further LNG trains are expected to be commissioned in 2022 at the US Sabine Pass LNG and Calcasieu Pass LNG projects) and rising demand in the residential and commercial sectors amid relatively flat gas production.<sup>14</sup> The Henry Hub gas price has been trading above US\$4.00 MMbtu since 20<sup>th</sup> July 2021 as the US experiences a period of sustained hot weather and continued strong demand from US Gulf Coast LNG export terminals resulting in US summer gas prices being at the highest in seven years.<sup>15</sup>

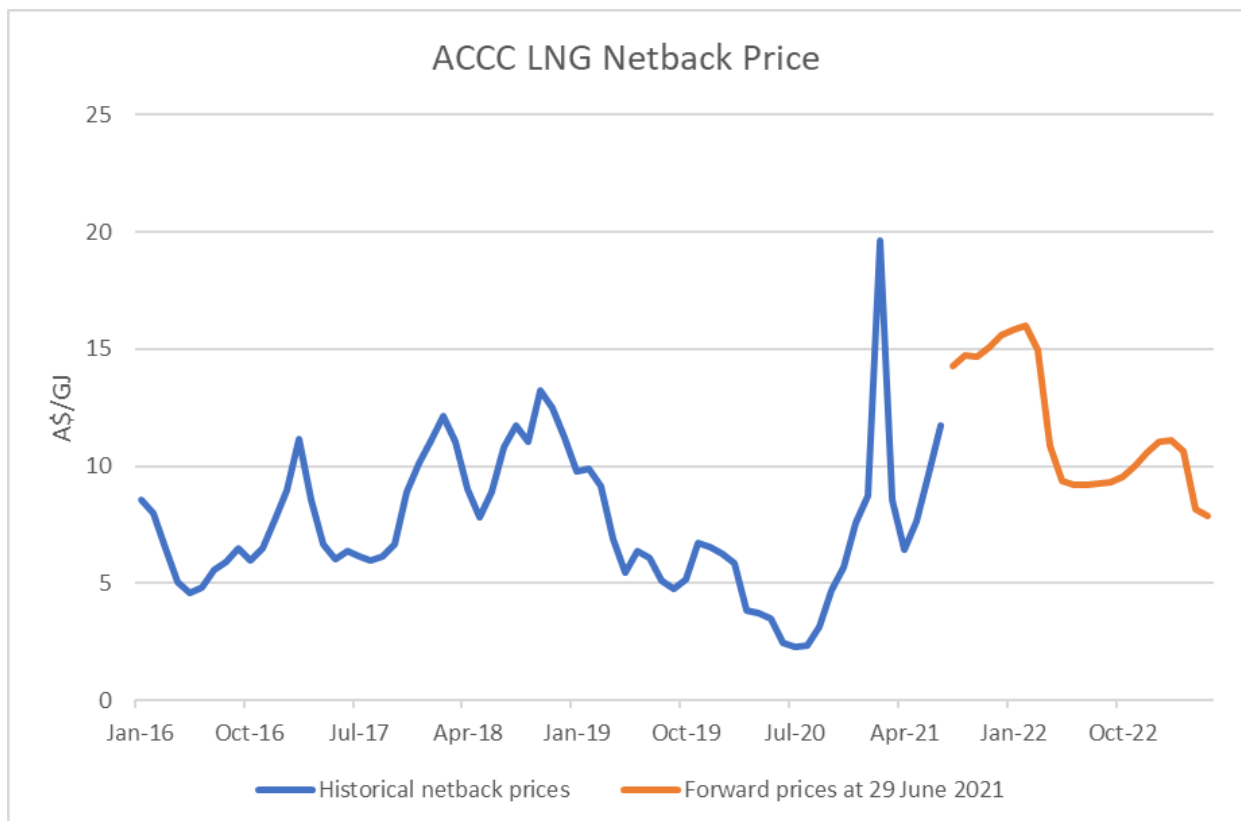


<sup>13</sup> <https://www.bbc.com/news/business-57882449>

<sup>14</sup> <https://www.eia.gov/outlooks/steo/report/natgas.php>

<sup>15</sup> <https://www-houstonchronicle-www.houstonchronicle.com/business/energy/amp/Summer-U-S-natural-gas-prices-are-the-highest-16332171.php>

LNG prices continued to rally over the Quarter, on many factors including: (i) a colder and longer Northern Hemisphere winter for 2021/22 increasing demand and reducing gas held in storage; (ii) high temperatures now being experienced in the Northern Hemisphere increasing power demand for cooling; (iii) commodity traders seeking to replenish gas inventories ahead of the coming winter; and (iv) Asia’s accelerating economic recovery. Reuters reported 2<sup>nd</sup> July 2021 that the estimated average LNG price for August delivery into Northeast Asia was ~US\$14mmbtu, a level not reached for this time of the year since 2013.<sup>16</sup> Higher gas prices are also reflected in the domestic Wallumbilla gas price which was trading at \$15.66/GJ as at 27<sup>th</sup> July 2021.<sup>17</sup> The Victorian Declared Wholesale Gas Market price spiked to \$39.99/GJ on the afternoon of 17<sup>th</sup> July 2021 following ongoing technical problems at the Bass Strait Joint Venture’s Longford gas plant during a period of increased demand due to cold weather and the Callide power station outage in Queensland.<sup>18</sup>



According to three-quarters of US oil and natural gas executives surveyed by the Federal Reserve Bank of Dallas in June, underinvestment in the sector and a focus on the energy transition will create a global oil supply shortage in two to four years.<sup>19</sup> Analysis by Rystad Energy suggests oil and gas proven reserves held by “Big Oil” (BP, Chevron, Eni, ExxonMobil, Royal Dutch Shell, Total Energies) could run out in less than 15 years as production is not being replaced by new discoveries. This could result in challenges for Big Oil maintaining present production levels in future years.<sup>20</sup>

<sup>16</sup> <https://www.reuters.com/business/energy/asian-lng-prices-spike-14mmbtu-demand-remains-robust-2021-07-02/>

<sup>17</sup> <https://www.aemo.com.au/energy-systems/gas/gas-supply-hub-gsh/data-gsh/data-dashboard>

<sup>18</sup> Australian Financial Review, 18 July 2021 “Longford disruption ups pressure on east coast gas as prices pike” by Angela Macdonald-Smith

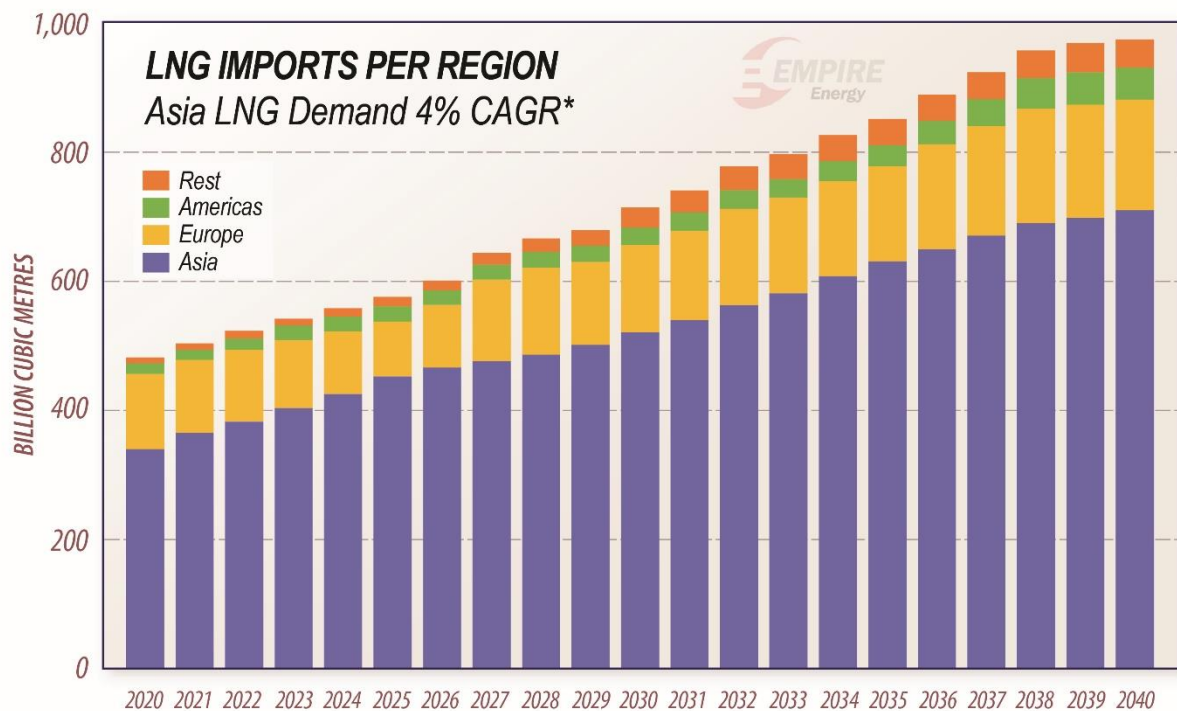
<sup>19</sup> <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/062321-most-us-upstream-execs-expect-global-oil-supply-gap-by-2025-dallas-fed-survey>

<sup>20</sup> <https://www.rystadenergy.com/newsevents/news/press-releases/big-oil-faces-major-reserves-challenge-as-new-discoveries-fail-to-replace-production/>



The International Gas Union released its 2021 World LNG Report during the Quarter. Information presented in the report highlighted the strong outlook for LNG. Global LNG trade totalled 356.1 million tonnes of LNG in 2020 with the Asia Pacific, accounting for more than 70% of global LNG imports. During 2020, Myanmar and Croatia joined the ranks of LNG importers and there are now 39 markets globally equipped with LNG receiving capabilities. As of February 2021, 147.3mtpa (vs. 850.1mtpa current global regasification capacity) of new LNG regasification capacity (required for LNG imports) was under construction, some of which is in new importing markets such as Vietnam. The total number of active LNG vessels globally reached 572 at the end 2020 with a further 130 under construction.<sup>21</sup>

Royal Dutch Shell's (Euronext / LSE: RDS), Shell LNG Outlook 2021 further supports attractive LNG dynamics for gas producers. Shell estimates global LNG demand will reach 700 million tonnes by 2040, 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. Shell forecasts 65% of the growth in natural gas use to 2040 will come from non-power sectors such as marine bunkering, heavy manufacturing and road transport. China for example, consumed ~13 million tonnes of LNG in 2020 in the heavy-duty road transport sector.<sup>22</sup>



\* CAGR: Compound annual growth rate  
Source: 'Shell LNG Outlook 2021', March 2021

On 2<sup>nd</sup> July 2021, Chevron (NYSE: CVX) announced as operator of the Gorgon LNG Project, located on the North West Shelf, Western Australia, that it and its joint venture participants would proceed with the ~US\$4 billion Jansz-IO Compression (J-IO) project. The project represents Chevron's most significant capital investment in Australia since the sanctioning of the Gorgon Stage 2 project in 2018.<sup>23</sup>

<sup>21</sup> International Gas Union, 2021 World LNG Report

<sup>22</sup> <https://www.shell.com/energy-and-innovation/natural-gas/liquefied-natural-gas-lng/lng-outlook-2021.html#iframe=L3dlYmFwcmVTE5HX091dGxvb2svMjAyMS8>

<sup>23</sup> <https://australia.chevron.com/news/2021/jansz-io-compression-project-to-proceed>

## The role of Natural Gas in an Energy Transition World

The December 2020 quarterly update of Australia's National Greenhouse Gas Inventory (NGGI) by the Australian Department of Industry, Science, Energy and Resources released in May 2021 estimated Australia's greenhouse gas emissions (GHG) for 2020 were 499 million tonnes of carbon dioxide equivalent (CO<sub>2</sub>e).<sup>24</sup> The 2020 result means Australia appears to be on track to meet its 2015 Paris Agreement commitments to lower its 2005 benchmark emissions by 26 to 28 per cent by 2030 with emissions now 20.1 per cent below the 2005 level. Australian Federal Energy Minister Angus Taylor MP said the emissions reduction equates to "taking all of Australia's 14.7 million cars off the road for 15 years".<sup>25</sup> Much of the fall can be attributed to rising renewable energy penetration in Australia's electricity sector which has experienced a 20.9 per cent decline in emissions since its June 2009 peak. Gas is expected to play an important role in supporting increasing renewables build out due to its long-duration 'firming' and energy security role in that sector.

In a speech to the recent Australian Petroleum Production and Exploration Association (APPEA) Conference held in Perth, Australian Federal Labor's Shadow Minister for Resources, Madeleine King MP, demonstrated support for the gas industry in a carbon constrained world:

- gas is "a critical feedstock for Australia's manufacturing industry, as well as in electricity generation";
- "It is important that people are aware that the Beetaloo is a world-class, low-carbon gas basin"; and
- "The reality is this: the inevitable global transition to net zero emissions presents a massive economic opportunity for Australia and its natural commodities, including natural gas – therefore, good climate policy is good jobs policy".<sup>26</sup>

In the 2021-22 Budget, the Australian Federal Government committed up to \$600 million for Snowy Hydro Limited to construct a 660MW open cycle gas turbine at Kurri Kurri in the Hunter Valley. This project, together with EnergyAustralia's newly sanctioned 316MW Tallawarra B open cycle gas plant located on Lake Illawarra, is intended to secure reliability and affordability of electricity for consumers in New South Wales, in preparation for the pending closure of AGL's Liddell coal-fired power station.<sup>27</sup>

On 10<sup>th</sup> July 2021, INPEX (JP: 1605), Operator of the Ichthys LNG Project at Darwin announced it had received its first shipment of carbon-neutral LNG at its Naoetsu LNG Terminal in Joetsu City in Niigata Prefecture, Japan from Ichthys. The carbon footprint of the LNG shipment was offset using carbon credits which were applied to greenhouse gas emissions across the Ichthys Project's entire natural gas supply chain including upstream

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<sup>24</sup> <https://www.industry.gov.au/data-and-publications/national-greenhouse-gas-inventory-quarterly-update-december-2020>

<sup>25</sup> Australian Financial Review, 30 May 2021 "Australian carbon emissions fell 5pc in 2020 on energy advances" by Jacob Greber

<sup>26</sup> The Guardian, 17 June 2021 "Federal Labor's Madeleine King defends gas as 'critical' to Australia's needs" by Katharine Murphy

<sup>27</sup> <https://www.minister.industry.gov.au/ministers/taylor/media-releases/protecting-families-and-businesses-higher-energy-prices>

production, liquefaction, transportation, regasification, marketing and combustion by customers in Japan.<sup>28</sup>

This ASX release has been authorised by the Empire Board of Directors.

For queries about this release, please contact:

Alex Underwood, Managing Director

Ph: (02) 9251 1846

[info@empiregp.net](mailto:info@empiregp.net)

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<sup>28</sup> <https://www.inpex.co.jp/english/news/assets/pdf/20210710.pdf>

## About Empire Energy

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Empire Energy holds over 14.5 million acres of highly prospective exploration tenements in the McArthur and Beetaloo Basins, Northern Territory. Work undertaken by the Company since 2010 demonstrates that the Eastern depositional Trough of the McArthur Basin, of which the Company holds around 80%, has enormous conventional and unconventional hydrocarbon potential. The Beetaloo Sub-basin, in which Empire holds a substantial position, has world-class hydrocarbon volumes in place and a ramp up in industry activity to appraise substantial discoveries already made by major Australian oil and gas operators is ongoing.

Empire announced the transformational acquisition of Pangaea Resources on 14<sup>th</sup> April 2021, further cementing Empire's position as a leading onshore Northern Territory oil and gas explorer and developer focused on the Beetaloo Sub-basin.

Empire Energy is an experienced conventional oil and natural gas producer with operations in the Appalachia region of the USA (New York and Pennsylvania). Empire has been successfully developing and producing oil and gas since 2006.



Carpentaria-1 Site

### Registered Office

Level 19, 20 Bond Street  
Sydney NSW 2000

**Phone:** +61 2 9251 1846

**Facsimile:** +61 4 9251 1022

**Website:** [empireenergygroup.net](http://empireenergygroup.net)

### Media and Investor Enquiries

Julian Malnic and Nick Kell

**Phone:** +61 2 9251 1846

### Empire Energy Group Limited

ABN 29 002 148 361

### Securities Exchange

ASX: EEG

### Share Registry

Computershare Investor Services

Phone: 1300 850 505