

ASX:EEG

Quarterly Report

For the period ending 31st March 2021



Level 19, 20 Bond Street
Sydney NSW 2000

Highlights

During Q1, Empire Energy Group Limited (“Empire” or the “Company”) announced a 47% upgrade to its best estimate Prospective Gas Resource to 3.5 TCF (47% increase) and a maiden best estimate Contingent Gas Resource of 41 BCF within EP187. Empire also made material progress during the quarter planning for an active field season this year.

After quarter end, the Company agreed, subject to customary conditions precedent, to acquire the Beetaloo Basin properties of Pangaea Resources, making Empire one of the largest acreage holders in the Greater McArthur Basin and Beetaloo Sub-basin. Key highlights include:

- **Empire’s best estimate Prospective Resources have nearly trebled to ~41 TCFe comprising 37 TCF gas and 657 MMbbls liquids (condensate and oil)**
- **2C Contingent Resources have increased by more than 350% comprising 171 BCF gas and 2.9 MMbbls of liquids**
- **The Energy Minerals Group (“EMG”), Pangaea’s joint venture partner in the acquired acreage, has elected to exercise its Tag Along Right to divest its 17.5% interest in the Pangaea tenements to Empire on the same terms as Pangaea completing Empire’s 100% buy out. The EMG acquisition will further increase Empire’s prospective and contingent petroleum resources**
- **\$30 million (gross) was raised in a two-tranche placement at \$0.30 per share to fund the acquisition and further work program activities including horizontal appraisal drilling**
- **Empire has also launched a Share Purchase Plan which closes on 7th May 2021**
- **An Environment Management Plan for up to 7 horizontal wells (including Carpentaria-1 horizontal section) on up to six new well pads and 2D infill seismic on EP187 has been accepted by the NT Government for final assessment**

Highlights of the quarter:

- **Mr Louis Rozman appointed a Non-Executive Director of the Company taking the seat of Mr John Gerahty who has retired from the Board**
- **NSAI certified a best estimate prospective resource for EP187 of 3.5 TCF of gas and 27 MMbbls of condensate and Empire’s maiden best estimate contingent resource of 41 BCF gas in the immediate vicinity of the Carpentaria-1 well location in EP187**
- **The Company ended the Quarter with \$11.4 million in cash. Current cash balance is \$22.4 million following settlement of Tranche 1 of the placement**

Comments from Managing Director Alex Underwood:

Empire is entering an exciting new phase following the transformational acquisition of Pangaea Resources and our work programs focused on leading the Beetaloo Basin into production.

The acquisition of Pangaea and EMG's Northern Territory properties represents a significant milestone in the history of Empire and strengthens our rapid commercialisation plans. Holding material acreage on both sides of the Beetaloo provides drilling location optionality and presents the opportunity to supply gas to both the Amadeus and McArthur River Mine Gas Pipelines.

We look forward to being back in the field now that the Wet Season is reaching its conclusion with expected operations to begin in early June. We look forward to updating shareholders as on-ground appraisal work progresses.

I would like to thank our team at Empire including our operational team at inGauge Energy for their achievements over the last Quarter which are detailed in this report.

I would also like to thank our new and existing shareholders for their support in our recent capital raising and I encourage shareholders to participate in the Share Purchase Plan.

Acquisition of Pangaea Resources NT Assets

After Quarter end, Empire announced that it had signed a binding Sale and Purchase Agreement with Pangaea (NT) Pty Limited as trustee of the Pangaea (NT) Unit Trust ("**Pangaea**") to acquire Pangaea's Beetaloo Sub-basin portfolio for:

- \$5 million in cash;
- 140 million new Empire shares to be issued to Pangaea; and
- 8 million options with an exercise price of \$0.70 per share maturing three years after issuance.

The transaction is subject to customary conditions precedent including Northern Territory Ministerial approval and shareholder approval at any Extraordinary General Meeting to be conducted following preparation of an independent expert's report assessing the fairness and reasonableness of the transaction for Empire shareholders.

Assets Acquired

Empire has agreed to acquire an 82.5% interest in Exploration Permits EP167, EP168, EP169, EP198 and EP305 (together the "**Vendor Tenements**") from Pangaea, a company founded and owned by Mr Paul Fudge, an established company builder and hydrocarbon project operator.

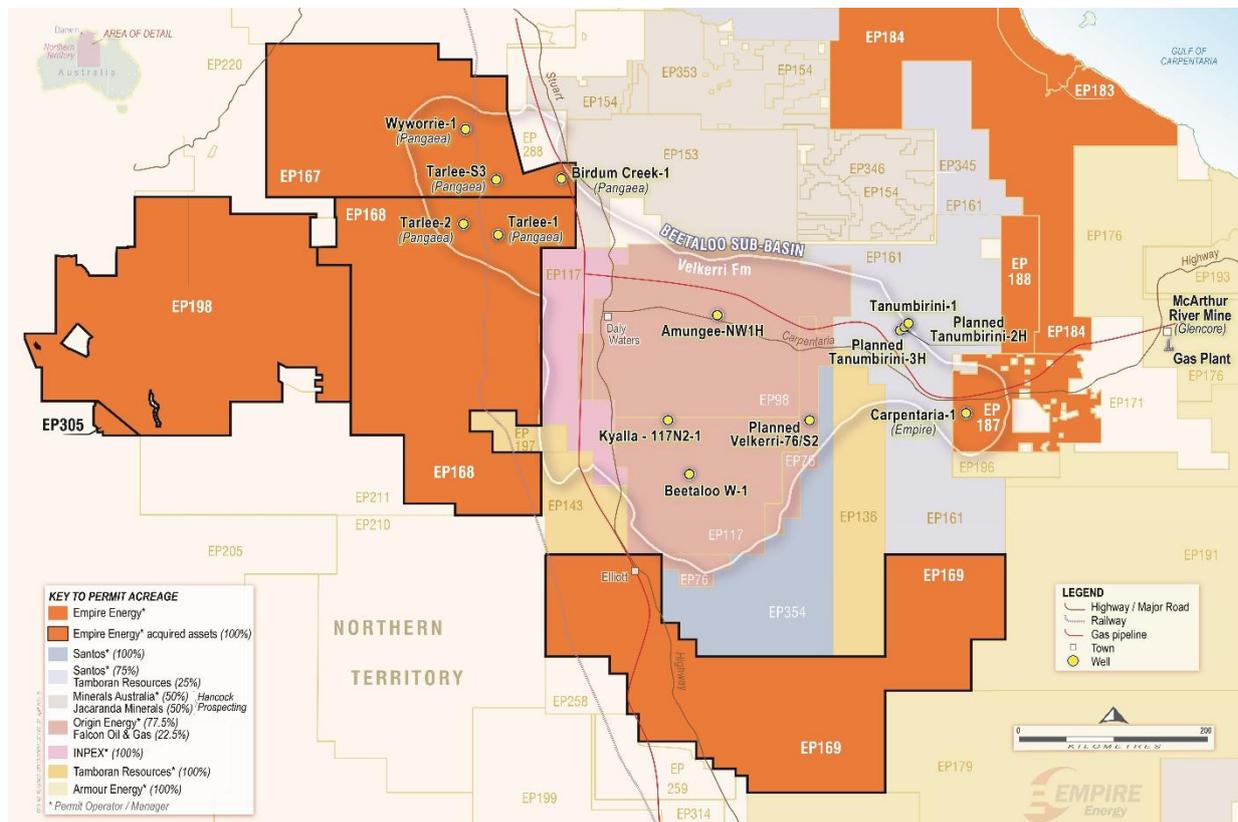
The Vendor Tenements complement our existing acreage in the Northern Territory's the Greater McArthur Basin and Beetaloo Sub-Basin. Netherland, Sewell and Associates, Inc ("**NSAI**") has independently assessed a best estimate Prospective Resource of 22.8 TCF gas and 630 MMbbls liquids net to the acquired 82.5% interest in the Vendor Tenements.

NSAI has also independently assessed 2C Contingent Resources in the Pangaea interests in the Vendor Tenements of 130 BCF gas and 2.9 MMbbls liquids.

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

Zone	Unrisked Net Contingent Resources Oil (MMBBL)			Unrisked Net Contingent Resources Sales Gas (BCF)			Unrisked Net Prospective Resources Oil (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*	0.7	2.5	9.2	0.7	3.7	22.9	72.8	311.5	1,296	152	707	4,035
Velkerri*	0.1	0.4	2.5	47.2	167.2	406.2	66.7	345.5	1,698	8,732	25,530	73,622
Barney Creek*	-	-	-	-	-	-	-	-	-	1,633	11,053	45,380
Total*	0.7	2.9	11.6	47.9	170.9	429.0	139.5	657.1	2,994	10,517	37,290	123,037

*Empire derived arithmetic summation of NSAI probabilistic resource estimations. Note: enlarged Empire net NSAI contingent and prospective resource position is subject to change pursuant to the EMG transaction (see below)



Empire Energy’s Beetaloo Sub-basin portfolio including the acquired Pangaea acreage

¹ Shareholders should refer to Empire’s ASX release dated 14th April 2021 for a complete analysis of Contingent and Prospective Resources

A transformational acquisition for Empire

The transaction is transformational for Empire and will support our goal to reach commercialisation through:

- **An enhanced opportunity to create the leading onshore NT energy company:** the acquisition of Pangaea increases Empire's 2C contingent resource to ~171 BCF and best estimate prospective resource to ~37 TCF of gas and 657 MMbbls of oil;
- **Enhanced drill ready location inventory:** ~\$110 million (gross) has been spent on the Pangaea properties to date providing Empire with an inventory of appraisal and horizontal drilling locations across a well-defined subsurface data set; and
- **Further pathways to gas markets:** Pangaea's assets are located adjacent to the Amadeus Gas Pipeline, which connects to Darwin and to the Northern Gas Pipeline and on to east coast markets. This complements Empire's plans to produce gas from its Carpentaria Project into the McArthur River Mine Gas Pipeline. Pangaea's acreage is in close proximity to existing road and rail infrastructure, which materially enhances accessibility for development work at the earliest time.

The Energy and Minerals Group interests acquisition

Empire announced on 26th April 2021 that Pangaea's joint venture partner in the Vendor Tenements, The Energy & Minerals Group, an energy and natural resources focused private investment firm headquartered in Houston, Texas had elected to vend its 17.5% interest in the Vendor Tenements into the Pangaea transaction on the same pro rata terms as the Pangaea interests.

Following completion of the acquisition of Pangaea's and EMG's interests in the Vendor Tenements, Empire will be the 100% owner of EP167, EP168, EP169, EP198 and EP305.

Empire is working with Pangaea and EMG to update the Sale and Purchase Agreement so that all parties become signatories to the agreement.



Above: These images supplied by Pangaea show live oil under UV light in core samples taken from the Kyalla Formation intersected in Tarlee-1 well



Left: This image supplied by Pangaea shows bleeding gas in freshly drilled core from the Tarlee-S3 well

Northern Territory Operations Update

During the Quarter, W. D. Von Gonten & Co (“WDVG”) completed a series of laboratory tests on the core samples across the Middle Velkerri Shale sequences taken from Empire’s Carpentaria-1 well located in EP187. The results confirmed the rock characteristics of the target shales which compare favourably to the premier US shale basins. Empire’s shales in the target Velkerri Formation were found to be thicker and containing more liquid hydrocarbons than expected prior to drilling.

The technical results from WDVG were subsequently incorporated by NSAI in calculations for the update of the independent resource report for Empire’s 100% owned and operated EP187, located in the Beetaloo Sub-basin, Northern Territory. The results of the drilling program and core analysis program drove material increases in assessed hydrocarbons and a maiden Contingent Resource assessment.

NSAI certified a best estimate prospective resource of 3.5 TCF gas and 27 MMbbls condensate across EP187 and a maiden best estimate Contingent Resource of 41 BCF in the immediate vicinity of the Carpentaria-1 well location. The results of the NSAI EP187 report have been summarised by Empire in the table below.²

Area	Contingent Resource (100%) Net Sales Gas (BCF)			Unrisked Gross (100%) Prospective Sales Gas Resources (BCF)			Unrisked Gross (100%) Prospective Condensate Resources (MMBBL)		
	Estimate			Estimate			Estimate		
	Low (1C)	Best (2C)	High (3C)	Low (1U)	Best (2U)	High (3U)	Low (1U)	Best (2U)	High (3U)
Carpentaria*	-	41	86	1,198	1,988	3,863	3	17	58
Carpentaria East*	-	-	-	792	1,458	3,228	1	10	41
Total*	-	41	86	1,990	3,446	7,091	4	27	99

*Empire derived arithmetic summation of NSAI probabilistic resource estimations.

2021 Work Program for EP187

Empire has started preparations for the fracture stimulation and flow testing of the vertical Carpentaria-1 well in EP187 which is due to commence in early June 2021. Schlumberger Australia Pty Limited (“**Schlumberger**”) has been contracted to execute the fracture stimulation and provide associated services including flowback and production testing.

Long lead items have been ordered and are on their way to site.

Civil works to extend the well pad will commence imminently and will be monitored by Traditional Owner Cultural Monitors to ensure that no sacred sites are disturbed consistent with Empire’s long-standing practice of working closely and respectfully with Traditional Owners.

The fracture stimulation and flow testing of Carpentaria-1 will assist Empire to ascertain the most productive shale sequence for future horizontal well planning and design, understand gas composition and, in the success case, to build Contingent Resources.

Empire has received Northern Territory Government approvals to commence the program which is fully funded from existing cash resources.

Empire has submitted an Environment Management Plan (“EMP”) to the Northern Territory environmental regulator for further appraisal activities which, once approved, can be carried out over the next 5 years in EP187 comprising:

- 165km infill 2D seismic in EP187 to further delineate the Velkerri shale;
- Civil works including the construction of up to 6 well pads (a combination of single well and multi-well pads with the ability to drill up to 4 wells from each pad);
- Installation of water production and monitoring bores;

² Shareholders should refer to Empire’s ASX release dated 22nd February 2021 for a complete analysis of Contingent and Prospective Resources for EP187

- Drilling up to 7 wells including a horizontal section from the existing Carpentaria-1 vertical well and up to 6 new horizontal wells;
- Evaluation, logging, testing and coring of each well including diagnostic fracture injection tests; and
- Hydraulic stimulation and flow testing of each well.

The EMP has been accepted for final assessment and Empire expects an outcome in the coming months.

Australian Government *Beetaloo Strategic Basin Plan*

On 18th March 2021, the Australian Government launched the *Beetaloo Cooperative Drilling Program* which is a key component of its *Beetaloo Strategic Basin Plan*. The program aims to accelerate drilling activity in the Beetaloo Sub-basin and demonstrates the Australian Government's commitment to the development of this strategically important resource.

The Australian Government has announced a total of \$50 million in grant funding for activities carried out by operators prior to the end of 2022.

Grant funding is capped at \$7.5 million per well for up to 3 wells per applicant to meet 25% of eligible project expenditure.

Empire has submitted three applications for grant funding to offset the cost of the drilling of up to 3 fracture stimulated horizontal wells and flow testing and associated activities including further seismic acquisition to de-risk drilling locations.

As an additional part of the *Beetaloo Strategic Basin Plan*, the Australian Government has announced \$174 million in funding to upgrade roads that traverse the Beetaloo Sub-basin, including Empire's existing and recently acquired properties, to improve road safety, road reliability during the Wet Season and to boost regional economic productivity. This initiative will improve access for the onshore gas sector and a wide range of industries, such as the pastoral industry, while improving access for local communities.



L to R: Senator Sam McMahon, Prime Minister Scott Morrison, Managing Director Alex Underwood and NT Opposition leader Lia Finocchiaro

Other Corporate News

Successful Capital Raising

On 16th April 2021, Empire announced it has successfully raised \$30 million (gross) at \$0.30 per share through a strongly supported two-tranche placement to institutional and sophisticated investors (“**Placement**”). Empire is now fully funded for fracture stimulated horizontal appraisal drilling, consistent with the Company’s rapid commercialisation strategy.

Settlement of the 39,318,829 Tranche 1 shares occurred on 22nd April 2021 and these shares were admitted to trading on 23rd April 2021.

Settlement of the 60,681,171 Tranche 2 shares is conditional on shareholder approval under ASX Listing Rule 7.1. Empire will seek shareholder approval at its forthcoming 2021 Annual General Meeting.

Additionally, Directors of Empire have agreed to subscribe for \$1.2 million of new shares at the same price as the Placement price, subject to shareholder approval.

Share Purchase Plan (SPP)

Empire has launched a Share Purchase Plan to give all shareholders the opportunity to participate in the capital raising activities on the same terms as institutional and sophisticated investors. The SPP aims to raise \$3 million. Empire may decide to scale back applications under the SPP, or to increase the size of the SPP.

The SPP offer booklet and application form were mailed to shareholders on 23rd April 2021. Shareholders who are interested in participating should read the offer booklet and have their application form and monies returned by 7th May 2021.

A timeline of key SPP events is set out below:

Record Date (the date that eligibility to participate in the SPP is determined)	7.00pm on Thursday, 15 th April 2021
Opening Date	9.00am on Monday, 26 th April 2021
Closing Date	5.00pm on Friday, 7 th May 2021
Announce results of SPP (including scaleback policy if applicable)	By Wednesday, 12 th May 2021
Issue of SPP Shares	Tuesday, 18 th May 2021
SPP Shares commence trading on ASX	Wednesday, 19 th May 2021

Appointment and Retirement of Non-Executive Directors

During March 2021, Empire welcomed Mr Louis Rozman to the Board. Mr Rozman has had a distinguished career in the natural resources sector across operations, development and project financing.

Mr Rozman is a mining engineer and executive with 40 years' experience in operating and constructing projects in Africa, Australia and Papua New Guinea. Mr Rozman was the Chief Operating Officer of AurionGold Limited and was instrumental in the growth and development of its predecessor, Delta Gold Limited. He was the Chief Executive Officer of CH4 Gas Limited, during its pioneering coal seam gas development in Queensland.



His experience in construction, project management, joint ventures and project financing will be invaluable to Empire as we mature our Northern Territory assets.

Mr John Gerahty also retired from the Board during the quarter. Mr Gerahty played a key role in the Company's new strategy focused on the Northern Territory and recapitalisation which has allowed the Company to become one of the most active in the Beetaloo Sub-basin. The Company thanks Mr Gerahty for his service.

Broker Research Coverage

Blue Ocean Equities updated its Price Target to \$1.10 (previously \$0.80) following the release of Empire's updated NSAI report for EP187.

Morgans retained its Speculative Buy recommendation and upgraded its Target Price to \$0.643 per share (previously \$0.525 per share) also following the NSAI report.

Taylor Collison retained its Empire Target Price of \$0.58 per share in March. Taylor Collison has a BUY recommendation for Empire shares. Taylor Collison highlighted the capacity for positive revisions upon the successful outcomes that could be provided by the Carpentaria-1 testing and evaluation campaign, particularly any confirmation of liquids rates on a flowing gas basis.

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

Change of Reporting Currency

Empire has changed its reporting and functional currency from United States dollars to Australian dollars for the year ending 31st December 2020 and thereafter.

Indigenous Art Project

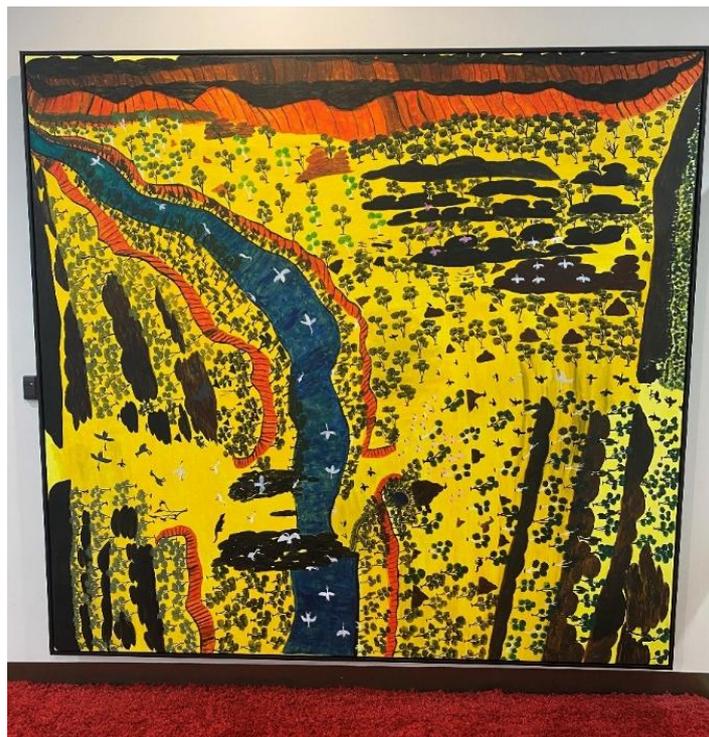
Empire has engaged Karen Brown Fine Art, based in Darwin NT to provide advice on a plan to provide local and national opportunities for established and emerging indigenous artists, particularly those artists that are Traditional Owners of the areas in which Empire operates.



Above: Managing Director, Alex Underwood, with artist Stewart Hoosan talking about one of his works



Above: Painting by STEWART HOOSAN
Karljarjangu Lagoon
Foelsche river, 2020
acrylic on canvas



Right: Painting by
NANCY MCDINNY
Calvert Hill and
Fletcher River, 2019
acrylic on canvas

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 assets once the transaction completes.

A full list of tenements as at 31st December 2020 can be found here:

https://asx.api.markitdigital.com/asx-research/1.0/file/2924-02359374-2A1290238?access_token=83ff96335c2d45a094df02a206a39ff4

Developments Across the NT Petroleum Sector

- **On 19th January 2021, Origin Energy announced that it had lodged a discovery notice to the Northern Territory Government for the Kyalla 117 N2-1H ST2 exploration well near Daly Waters in the Beetaloo Sub-basin.** Origin Executive General Manager Integrated Gas, Mark Schubert said, "We are encouraged by the early results from the well, which has met our primary objective to flow liquids rich gas from the Kyalla formation."³
- **Santos announced in its Q4 2020 Quarterly released 21st January 2021 that results of the Tanumbirini-1 production test had significantly exceeded expectations, with an initial peak gas flow rate more than 10 mmscf/d and an average rate of 1.1 mmscf/d during the 19-day test period.**⁴
- **On 22nd January 2021, Falcon Oil & Gas Limited (TSXV: FO AIM: FOG) announced the first gas composition data obtained during unassisted flow of the Kyalla 117 well in the Beetaloo Sub-basin.** The initial analysis of natural gas by gas chromatography confirmed a liquids-rich gas stream low in CO₂ with an elevated C₃+ gas component of ~14.4 mol% which met pre-drill expectations.⁵
- **On 18th February 2021, Santos confirmed in its 2020 Full-year results that it had contracted a rig to drill two horizontal wells in its McArthur-Beetaloo Project commencing Q2 2021.**⁶
- **On 19th March 2021, Falcon Oil & Gas provided details of its 2021 work program in the Beetaloo Sub-basin with its joint venture partner, Origin Energy.** The 2021 work program is expected to include the following:

³ <https://originbeetaloo.com.au/origin-confirms-the-discovery-of-hydrocarbons-at-the-kyalla-117-n2-1h-st2-exploration-well/>

⁴ Santos Fourth Quarter Report dated 21st January 2021

⁵ <https://falconoilandgas.com/2021/01/22/gas-composition-data-confirm-kyalla-liquids-rich-gas-play/>

⁶ Santos Full-year Results dated 18th February 2021

- Resume clean-up operations of Kyalla 117 and commence an extended production test
- Drill Velkerri 76 S2-1 vertical well targeting the liquids rich window of the Velkerri Shale
- Perform a production test at Amungee NW-1H⁷
- **On 30th March 2021, Santos, the operator of the Barossa joint venture, announced final investment decision (FID) had been made to proceed with the US\$3.6 billion gas and condensate project, located offshore the Northern Territory.** Barossa FID also results in commencement of the US\$600 million investment in the Darwin LNG life extension and pipeline tie-in projects, which is expected to extend the facility life for ~20 years.⁸
- **Central Petroleum (ASX: CTP) announced on 30th March 2021 that it had contracted a rig to recompleat four existing wells and drill two new development wells at the Mereenie Oil and Gas field, located onshore in the Amadeus Basin Northern Territory.** The Mereenie field activities are intended to return field production capacity towards 45TJ/d from the current 32TJ/d.⁹
- **Santos announced in its 2021 First Quarter Report that well pad preparation is underway to support the drilling, fracture stimulation and flow testing of two horizontal wells later this year in the McArthur/Beetaloo.** The wells will target the Velkerri shale and follow the successful flow test in the vertical Tanumbirini-1.¹⁰



Darwin LNG, Darwin Northern Territory

⁷ <https://falconoilandgas.com/2021/03/19/planned-2021-work-programme-beetaloo-sub-basin/>

⁸ Santos ASX release 'Santos announces FID on the Barossa gas project for DLNG' dated 18th February 2021

⁹ Central Petroleum ASX release 'Mereenie Development Updated: Drilling Rig Contracted' dated 30th March 2021

¹⁰ Santos First Quarter Report dated 22nd April 2021

US Operations Update

Empire's US operations reported a positive EBITDA for Q1 2021 of US\$61k (Q4 2020: US\$43k).

The average daily production for Q1 2021 was 4,266 Mcfe / day vs. Q1 2020 4,762 Mcfe / day, representing a decrease of ~10% year-on-year. The decrease reflects some gas meters being shut-in during the quarter vs. the prior year. The reduced activity has allowed Empire to reduce operating expenditures.

Empire has also recently moved six of its compressor stations to increase gas production volumes at delivery points with improved pricing schedules which is expected to result in improved future pricing for ~500Mcf / day of production.

Hedging continues to provide a buffer against low gas prices with the average weighted sales price for gas after hedging of US\$2.77 / Mcf (Q4 2020: US\$2.62 / Mcf) which compared favourably to before hedging weighted average sales price of US\$2.67 / Mcf (Q4 2020: US\$2.51 / Mcf).

During the Quarter, Empire executed its first solar lease agreement which will cover 30 acres of Empire leases. Empire expects to complete the transaction prior to 30th June 2021 which will result in a one-off payment to Empire of US\$30,000. Empire is in negotiations with other solar and wind farm developers covering larger areas of the Company's New York properties.

Description	3 months to 31 Mar 2021	3 months to 31 Mar 2020	YTD FY 2021	YTD FY 2020
Net Oil Production (Bbls)				
Appalachia	287	689	287	689
Net Natural Gas Production (Mcf)				
Appalachia	386,510	433,982	386,510	433,982
Net Gas Equivalent (Mcf):				
Appalachia	388,232	438,116	388,232	438,116
Mcf/d	4,266	4,762	4,266	4,762
Weighted Avg Sales Price (US\$/Mcf)				
Before Hedge	2.67	2.34	2.67	2.34
After Hedge	2.77	2.45	2.77	2.45
Lifting Costs (incl. taxes):				
Total Natural Gas Equivalent (US\$/Mcf)	1.31	1.23	1.31	1.23

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.

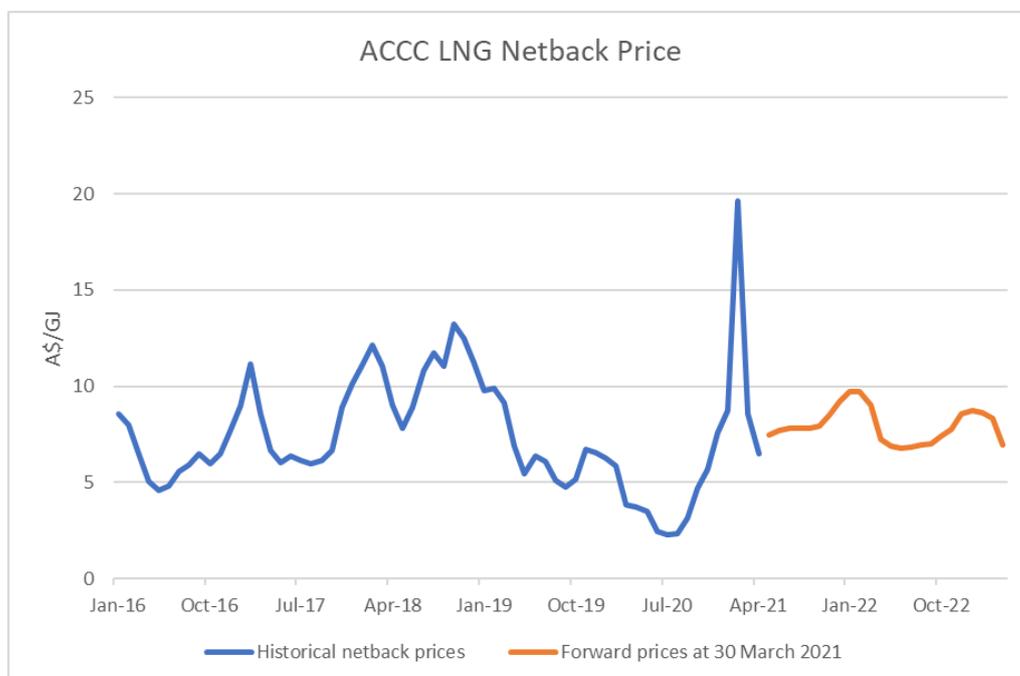
Energy Markets Update

LNG and Henry Hub gas prices experienced a significant spike due to a cold Northern Hemisphere winter and tight LNG supplies

The surge in LNG prices during the quarter reflects unseasonably low temperatures in North Asia this winter following the coldest December days in Beijing and Seoul in 42 years and 30 years, respectively. North Asia has also been relatively successful in managing the COVID-19 pandemic which has stimulated manufacturing activity and gas demand. Supply disruptions at key LNG export terminals in Australia and Qatar and congestion for LNG vessels passing through the Panama Canal transporting US LNG cargoes to Asia further tightened LNG markets as customers attempted to buy spot cargoes to meet requirements.

Energy Quest highlighted in its Energy Quarterly for March 2021 that Australian LNG exports reached a record 78.2 million tonnes in 2020 (2019: 77.4 million tonnes). Exports from the Port of Darwin also reached a record 11.6 million tonnes (2019: 10.5 million tonnes) as Ichthys LNG (INPEX) spent the entire 2020 at plateau production.¹¹ INPEX indicated during the quarter that it plans to maintain its 2021 LNG and condensate shipments from Ichthys at levels comparable to 2020, shipping around 120 LNG cargoes, 36 offshore condensate cargoes and 24 plant condensate cargoes for 2021.¹²

The March 2021 edition of the *Resources and Energy Quarterly* prepared by the Office of the Chief Economist of the Australian Government highlighted the importance of LNG exports to Australia's economy. In 2020, Australian LNG exports totalled \$36 billion and forecast to reach \$45 billion for FY2025-26 as prices recover following COVID-19. The top destinations for Australian LNG were Japan (\$15bn), China (\$13bn) and South Korea (\$4bn).¹³

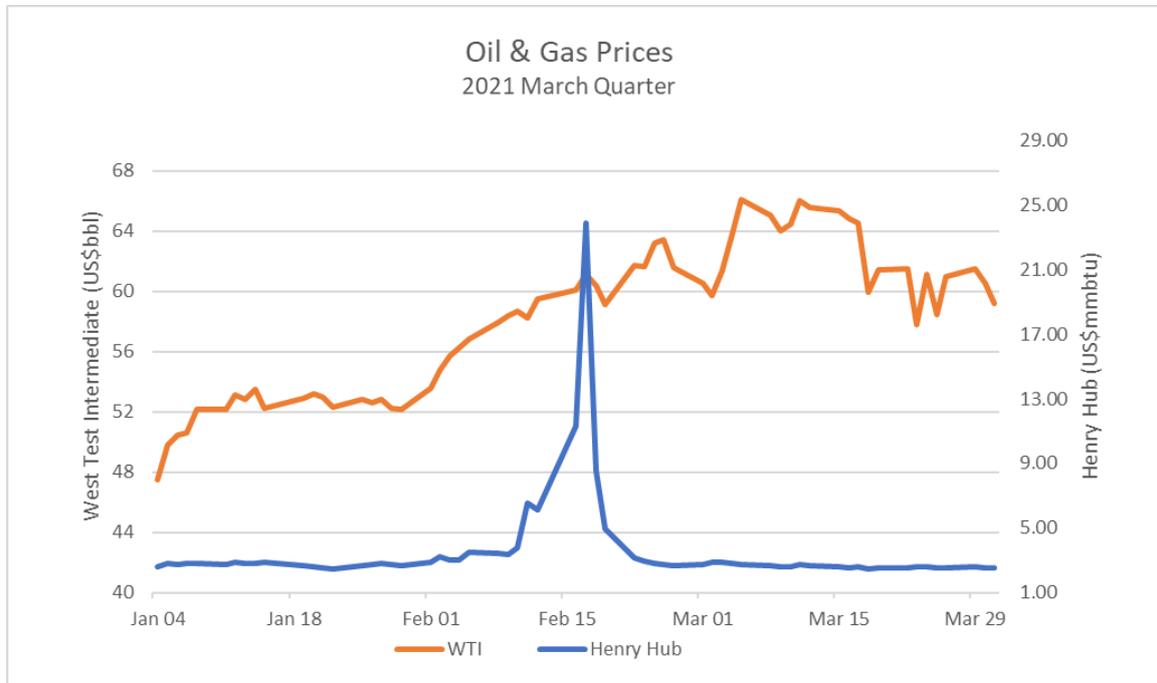


¹¹ Energy Quest, Energy Quarterly March 2021

¹² <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/021021-australias-ichthys-to-ship-120-lng-60-condensate-cargoes-in-2021-inpex>

¹³ <https://publications.industry.gov.au/publications/resourcesandenergyquarterlymarch2021/documents/Resources-and-Energy-Quarterly-March-2021.pdf>

Henry Hub gas spot prices increased materially due to a polar vortex of cold weather which hit Southern States of the USA in February. The spike in prices reflected supply and demand imbalance as production declined because of supply interruptions (freeze-offs) amid high demand for heating and power. The Henry Hub peaked at US\$23.86 on 17th February 2021 as shown in the chart below.



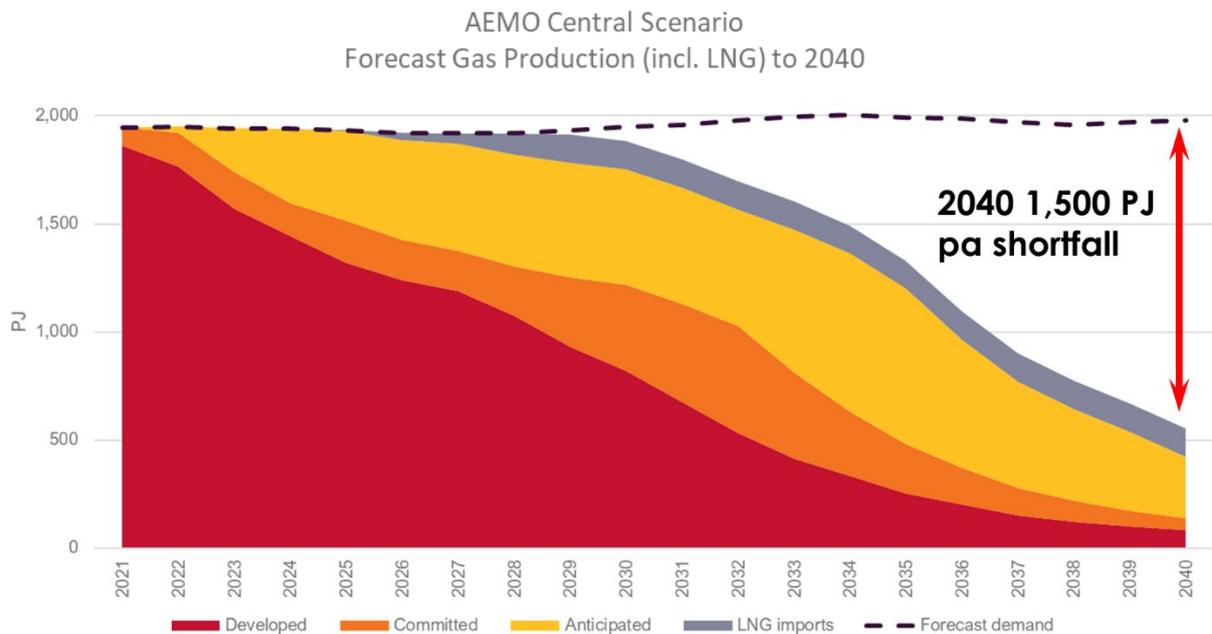
Source: US Energy Information Administration

During the quarter, the Australian Energy Market Operator (AEMO) released its *2021 Gas Statement of Opportunities* which highlighted that the importance of new gas projects and expansions to meet forecast demand. AEMO indicated that supply from existing and committed gas developments will be sufficient to meet forecast gas demand across eastern and south eastern Australia until at least 2023, provided that LNG export spot cargoes are redirected to meet domestic demand, if required and progression of the proposed LNG import terminal located at Port Kembla, New South Wales.

AEMO Group Manager, Forecasting, Nicola Falcon, said **“Our annual analysis shows that without the Port Kembla Gas Terminal, the decline in flexible gas from existing fields would mean we need to rely heavily on storage, and increasingly on constrained pipeline infrastructure to meet the needs of gas consumers, especially during high demand days in winter.”**¹⁴ ACCC chairman Rod Sims also warned **“The long term supply outlook shows us there is a risk of a shortfall for southern states as early as 2024, and the east coast market as a whole in 2026 and beyond”.**¹⁵

¹⁴ <https://www.energymagazine.com.au/aemo-forecasts-improved-gas-outlook-to-2026/>

¹⁵ <https://www.theaustralian.com.au/breaking-news/gas-crisis-looms-for-victoria-and-nsw-within-three-years-unless-production-is-ramped-up/news-story/3698143afcb116b6547e42f5d3a9caf4>



The role of Natural Gas in an Energy Transition World

On 18th February 2021, Royal Dutch Shell released its annual *Shell LNG Outlook 2021* which showed global LNG trade had increased to 360 million tonnes in 2020 (2019: 358 million tonnes), despite the volatility caused by the COVID-19 pandemic and lockdowns around the world.

Maarten Wetselaar, Integrated Gas, Renewables and Energy Solutions Director at Shell said: “LNG provided flexible energy which the world needed during the COVID-19 pandemic, demonstrating its resilience and ability to power people’s lives in these unprecedented times,” and “Around the world countries and companies, including Shell, are adopting net-zero emissions targets and seeking to create lower-carbon energy systems. As the cleanest-burning fossil fuel, natural gas and LNG have a central role to play in delivering the energy the world needs and helping power progress towards these targets.”. Natural gas emits between 45% and 55% fewer greenhouse gas emissions and less than one-tenth of the air pollutants than coal when used to generate electricity.

Shell forecasts that China’s announcement of a target to become carbon neutral by 2060 is expected to continue driving up its LNG demand through the key role gas can play in decarbonising hard-to-abate sectors, namely buildings, heavy industry, shipping and heavy-duty road transport. Two other major Asian LNG-importing countries – Japan and South Korea – also announced net zero emissions targets in 2020. To meet its net-zero target, South Korea aims to switch 24 coal-fired power plants to cleaner-burning LNG by 2034.

Overall, Shell forecasts global LNG demand will grow from 360 million tonnes in 2020 to 700 million tonnes by 2040. Asia is expected to drive nearly 75% of this growth as domestic gas production declines and LNG substitutes higher emission energy sources, tackling air quality concerns and meeting emissions targets.¹⁶

¹⁶ <https://www.shell.com/media/news-and-media-releases/2021/2020-lng-demand-holds-steady-despite-covid-19-set-for-growth-as-global-economies-recover.html>

The International Energy Agency (IEA) released its *India Energy Outlook 2021* on 9th February 2021. The IEA indicates that India will overtake the European Union as the world's third-biggest energy consumer by 2030. IEA forecasts LNG imports to quadruple to 91million tonnes per annum, or ~61% of overall gas demand by 2040.¹⁷

Balance Sheet & Liquidity

Empire's cash balance as at 31st March 2021, was \$11.4 million, of which \$10.4 million was held in Australian dollars, and US\$0.69 million was held in United States dollars.

Following settlement of Tranche 1 of the April 2021 Placement, Empire's current cash balance is \$22.4 million.

During the Quarter, Empire received a second Paycheck Protection Program loan ("PPP") of US\$343,602 which Empire's US operations were eligible for. The PPP loan carries a fixed interest rate of 1% p.a. and is fully forgivable provided loan proceeds are used for allowable expenses such as payroll over a 24 week period following disbursement. The PPP loan is unsecured and subordinated to the Macquarie Bank facility. Separately during the Quarter, Empire's US\$10,000 Economic Injury Disaster Loan (EIDL) was forgiven.

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
Apr 21 to Dec 21	25,000	Put Options	\$2.50	\$0.23
Apr 21 to Dec 21	25,000	Put Options	\$2.50	\$0.37
Apr 21 to Dec 21	25,000	Put Options	\$2.50	\$0.41
Apr 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

After the Quarter, Macquarie Bank agreed to amendments to the Credit Facility pursuant to which the interest coverage ratio and 1P PV10 ratio will be removed. There are 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). Empire intends to add to its US gas hedges to provide further price risk mitigation.

During the Quarter, the Company made payments to related parties of \$64,959. These payments comprised the Managing Director's salary and Non-Executive Directors' fees paid in cash.

¹⁷ <https://www.reuters.com/article/india-iea/india-to-be-largest-source-of-energy-demand-growth-to-2040-iea-idUSL4N2KE428>

Liquidity

Quarter Ended	31/03/2021	31/12/2020	30/09/2020	30/06/2020
Cash (A\$)	\$11,353,728	\$14,425,435	\$21,019,593	\$10,328,240
Debt (A\$) ¹⁸	\$(9,051,670)	\$(8,500,909)	\$(10,168,261)	\$(10,531,255)
Net Cash /(Debt)¹⁹	\$2,302,058	\$5,924,526	\$10,851,332	\$(203,015)

Capital Expenditure

Description	3 months to 31/03/2021	3 months to 31/03/2020	YTD FY 2021	YTD FY 2020
Exploration (A\$)	\$2,795,253	\$1,353,283	\$1,353,283	\$2,795,253
Property, plant & equipment (A\$)	\$95,449	\$8,432	\$8,432	\$95,449
Capitalised Expenditure (A\$)	\$2,890,702	\$1,361,715	\$1,361,715	\$2,890,702
Other exploration costs (expensed) (A\$)	\$57,708	\$33,484	\$33,484	\$57,708

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

For queries about this release, please contact:

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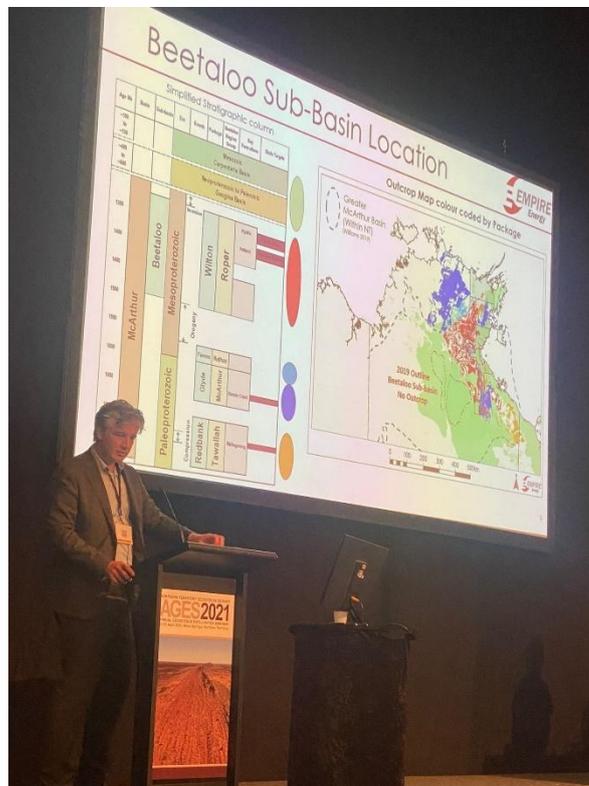
¹⁸ Note: Debt is comprised of US\$6,537,500 owing under the Senior Secured Facility with Macquarie Bank Limited and US\$343,602 under the PPP with PNC Bank

¹⁹ Note: Net Cash / (Debt) is defined as AUD equivalent cash minus AUD debt for the purposes of this calculation

About Empire Energy

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 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.



Left: Empire Chief Geoscientist, Dr Alex Bruce, presenting at the 2021 AGES conference

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