

ASX:EEG

**EMPIRE**  
Energy

# Quarterly Report

For the period ending 31<sup>st</sup> December 2020

Level 19, 20 Bond Street  
Sydney NSW 2000

## Highlights

During the Quarter, Empire Energy Group Limited (“Empire” or the “Company”) drilled its first Beetaloo Sub-basin well, Carpentaria-1. The results materially exceeded expectations and have established a platform for further growth throughout 2021.

Highlights of Q4 2020:

- Empire’s Carpentaria-1 well, in its wholly owned and operated EP187, intersected thick sequences of liquids rich gas across the Velkerri Shale Formation
- Preliminary test results from wireline logging, DFITs and sidewall cores in Carpentaria-1 demonstrate the world-class potential of the Beetaloo Basin’s Velkerri Shale
- W.D Von Gonten & Co laboratory analysis of sidewall core samples commenced during the Quarter, with final results expected soon
- Preparation for the recommencement of Empire’s field work program in EP187 at the onset of the 2021 drilling season, including fracture stimulation and flow testing of Carpentaria-1, is well advanced
- The Australian Government has released its *Beetaloo Strategic Basin Plan* as part of the *Gas-fired Economic Recovery* committing \$220m to the Beetaloo, including \$50m to support exploration and appraisal drilling by Beetaloo operators
- The *Territory Economic Reconstruction Commission* has handed down its final report, which was endorsed by the NT Chief Minister, reinforcing his Government’s positive stance for the priority development of the Beetaloo Basin and the NT’s onshore gas resources
- Global energy prices, particularly LNG delivered into North Asia, have recovered strongly underscoring the importance of oil and gas to the global economy
- The Company ended the Quarter with US\$11.1m in cash

### Comments from Managing Director Alex Underwood:

Empire has had another successful Quarter building the value of our Northern Territory properties. We are continuing that momentum in the new year as we prepare for another busy drilling season, focused on appraisal of the Velkerri Shale stacked pay resource in EP187.

With over US\$11 million cash at bank at Quarter end, we are well funded to carry out appraisal activities and flow testing on Carpentaria-1.

Australian investors have had limited exposure to the technical concepts driving shale gas exploration and production. Recognising this, our team has made special efforts to build shale gas awareness and knowledge and we appreciate that our messages are also reaching the halls of government. In upcoming releases, we will put the microscope over the rock property results from our geotech lab and the implications for future development activities.

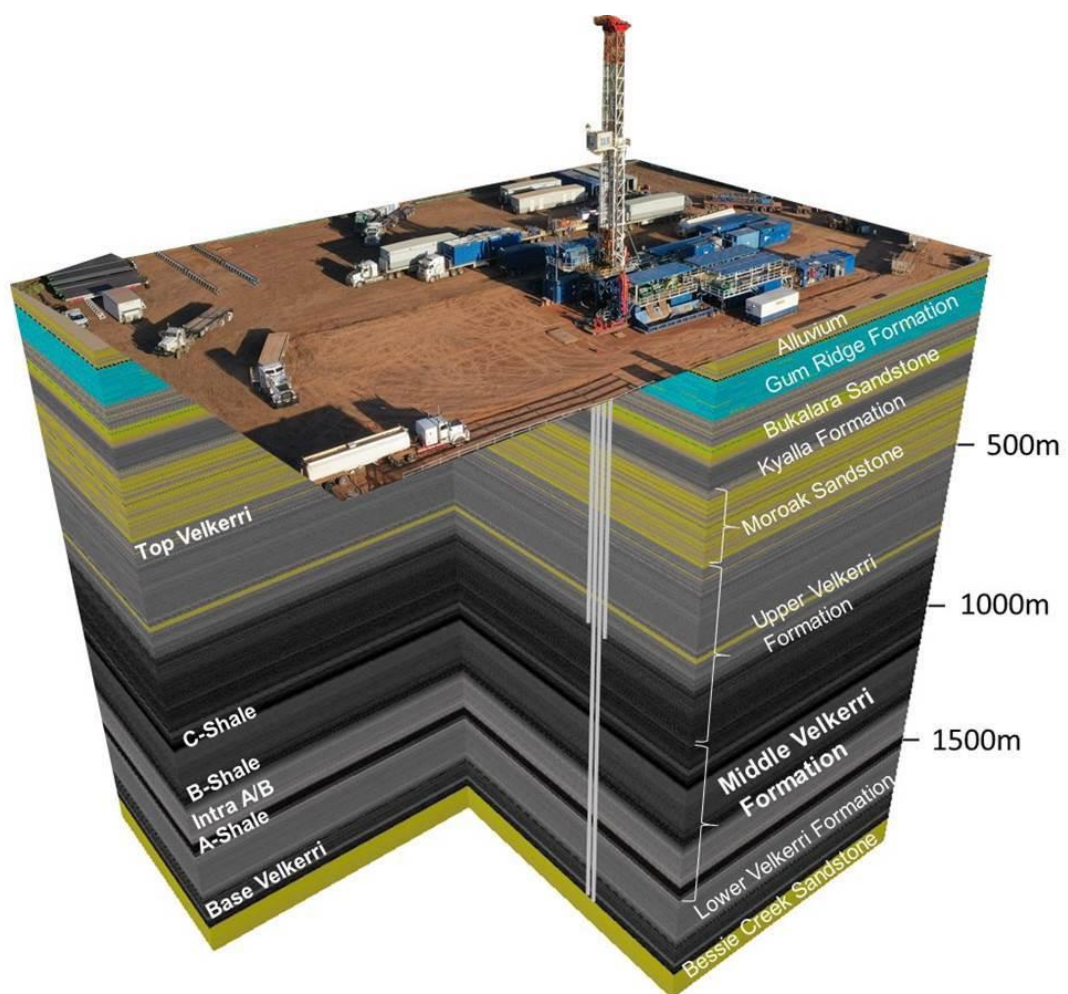
Government recognition of the Beetaloo and the Greater McArthur Basin matters to Australia in many ways. Their potential may rival the North West Shelf and deliver long-awaited economic rewards for the Northern Territory economy and Australian energy security.

The *Beetaloo Strategic Basin Plan* announced last week by the Federal Government aims for large scale gas production by 2025 through drilling incentives, infrastructure delivery, studies and more. We are also working on earlier production scenarios for ‘ramp-up’ gas utilising the McArthur River pipeline only a few kilometres from Carpentaria-1.

The Empire team continues to work hard for shareholders as we prepare for a busy year ahead.

## Northern Territory Operations Update

As reported over the Quarter, Empire completed the successful and safe drilling of the Carpentaria-1 evaluation well in October. The well intersected a vertically extensive interval of liquids rich gas shales within the Velkerri Formation exceeding pre-drill expectations in terms of thickness and 'heavy end' gas condensate molecules. The liquids content of the gas as interpreted from the Carpentaria-1 mudlog is materially higher than all Beetaloo Basin analogue wells, including Amungee NW-1 (Origin Energy / Falcon Oil & Gas JV) and Tanumbirini-1 (Santos/Tamboran Resources JV) where largely dry gas has been reported. Empire's 'liquids rich' results at Carpentaria-1 support an existing Origin Energy thesis that a liquids rich window would be present on the shallower margins of the Beetaloo Sub-basin.



### **3D schematic of Carpentaria-1 well and intersected formations**

Empire's formation evaluation work conducted is analogous to regional wells demonstrating the world-class potential of the basin and comprises:

- Mudlogging including isotube and isojar sample acquisition;

- Schlumberger Wireline logs including Triple Combo, Spectral Gamma Ray, Lithoscanner, Combinable Magnetic Resonance (CMR), Formation Microimager ('FMI') (pre and post DFITs), Sonic Scanner, and XL Rock;
- 50 large diameter rotary side wall cores taken from the Middle Velkerri A, B and C, intra Velkerri A / B and surrounding units for geotechnical analysis; and
- 4 Diagnostic Fracture Injection Tests (DFITs).

Empire's technical team is now working with W.D. Von Gonten & Co, a Houston Texas based reservoir engineering firm and laboratory specialising in unconventional oil and gas to finalise sophisticated testing of the core and interpret the extensive data set.

Due to the presence of heavier end gas molecules found in drilling gas, additional core analysis is being undertaken with results expected to be released to shareholders shortly.

The results will then be incorporated into an updated prospective resource estimation and will provide valuable technical insights into hydraulic stimulation program planning.

## **2021 Work Program**

In December 2020 Empire submitted an Environment Management Plan (EMP) for a four-stage hydraulic stimulation of the vertical Carpentaria-1 well. The EMP has passed its period for public comment and is now under final assessment by the Northern Territory Department of Environment, Parks and Water Security (DEPWS). Approval is expected in late Q1 2021. Once approved, the EMP will remain in place for five years.

Empire is advancing a tendering process among prospective service providers to conduct the hydraulic stimulation and flow testing of the vertical Carpentaria-1 well commencing in Q2 2021.

The results of the flow testing program will provide valuable insights into the potential of each of the stacked Middle Velkerri Shale pay zones (the A Shale, the Intra A/B Shale, the B Shale and the C Shale) to both flow and also the percentage of condensates produced by each zone. This will inform the design of future fracture stimulated horizontal drilling development programs.

Separately, on 23<sup>rd</sup> December 2020 Empire submitted an EMP to the DEPWS for:

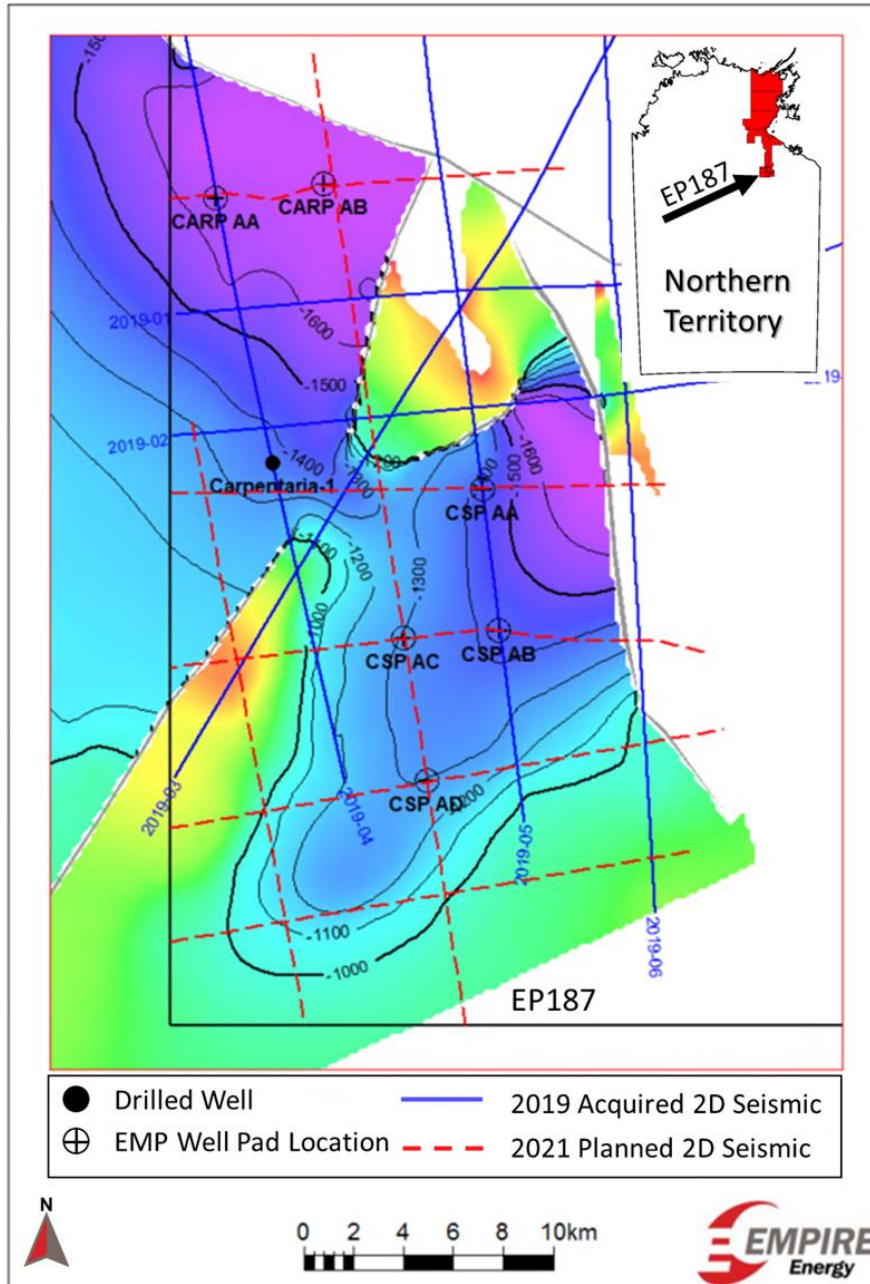
- Acquisition of an additional ~160km infill 2D seismic survey over EP187 to advance our understanding of the Velkerri Shale over the work program areas; and
- The drilling, hydraulic stimulation and flow testing of horizontal wells on an additional six well pad locations on the prospective parts of EP187. These approvals will give Empire significant 'running-room' for future field appraisal, noting that each well pad will have the potential to accommodate numerous production wells in commercial development scenarios, at a range of different depth windows.

Once approved, this EMP will also remain in place for five years.

The depth structure map below illustrates the interpreted depth to the base of the Middle Velkerri B Shale within the most prospective portions of EP187, correlated with new Carpentaria-1 well control.

It demonstrates a large area of Velkerri Shale prospectivity within EP187.

Carpentaria-1 has been drilled in a relatively shallow part of the Velkerri Shale prospective area. The result offers multiple options to drill in shallower or deeper areas (>200m of dip to the North and East of Carpentaria-1 in areas shaded in purple) in future drilling programs following analysis of the results of the Carpentaria-1 fracture stimulation and flow testing program.



**Contour map demonstrating the depth in metres to the base of the Middle Velkerri B Shale in the Western portion of EP187, the existing Carpentaria-1 well pad, existing 2D seismic lines, proposed 2D seismic lines, and an array of six potential well pad locations for future horizontal drilling and flow testing activities.**

## Traditional Owner Engagement

Empire has a long and successful track record of active and respectful engagement with the Traditional Owners of the areas in which it operates.

Empire's EP187 was the first petroleum exploration tenement in the Northern Territory to be awarded on Aboriginal Land.

Over the last 10 years Empire has conducted ~30 'On-Country' meetings during which forward work programs are discussed with Traditional Owners. Environmental protections employed by Empire during its work programs are delineated, as well as the positive implications for potential future employment and economic development opportunities.

Following the most recent On-Country meeting in Borroloola conducted in November 2020, Traditional Owners were given the opportunity to inspect the Carpentaria-1 well pad (post-drilling). The site inspection occurred the next day with 12 Traditional Owners and representatives of Empire and the Northern Land Council present. Positive feedback was given to Empire including the small footprint of the well pad compared to other extractive industries.

An archaeological clearance survey including four Traditional Owners of the Aboriginal Land Trust over which EP187 lies was completed during December across EP187 in preparation for future work programs.



***Empire Energy MD discusses proposed work programs with Traditional Owners at Borroloola, Northern Territory during the on-country meeting held on 11<sup>th</sup> November 2020***



***Empire Energy COO (top image centre) and MD (bottom image left) presenting the proposed work programs to Traditional Owners at Borroloola, Northern Territory during the on-country meeting held on 11th November 2020***

# The Beetaloo Strategic Basin Plan

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On 14<sup>th</sup> January 2021, the Australian Government released a new initiative entitled “*Unlocking the Beetaloo: The Beetaloo Strategic Basin Plan*”<sup>1</sup> setting out a plan to stimulate accelerated exploration and development by:

- Encouraging industry to accelerate resource exploration;
- Creating an efficient but rigorous regulatory environment;
- Investing in the critical infrastructure required for development; and
- Collaborating with regional communities to ensure benefits from the Beetaloo’s development are widely shared.

The Beetaloo Strategic Basin Plan provides for ~A\$220m in Federal funding to support Beetaloo development including:

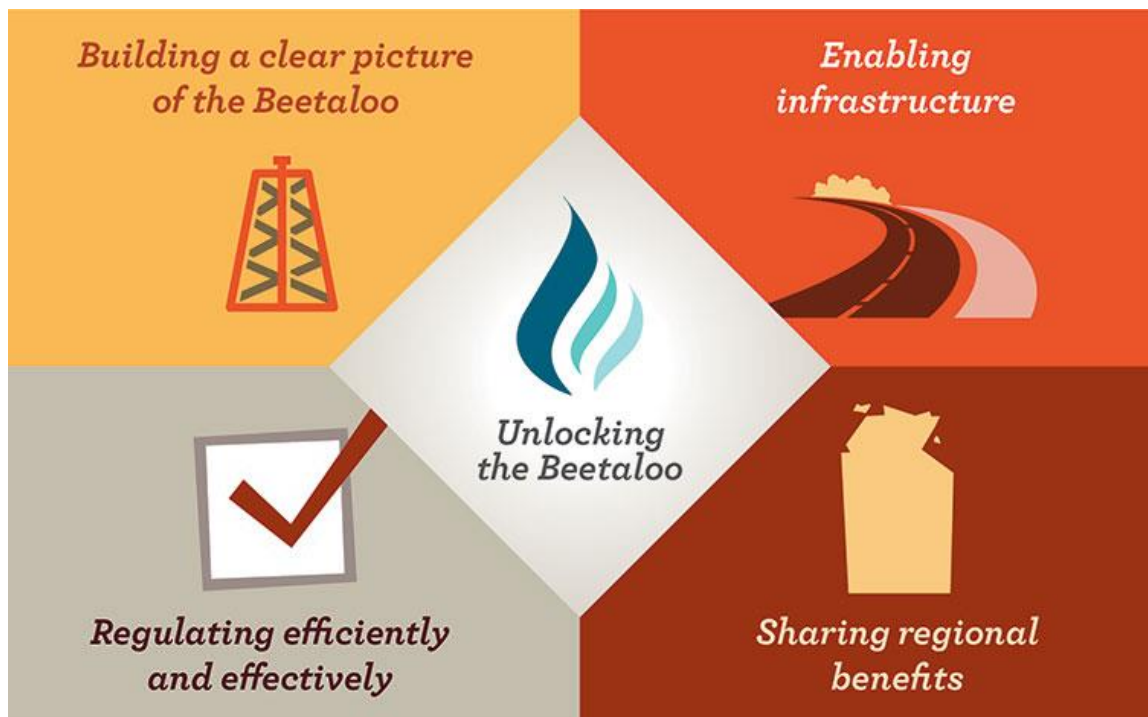
- Formal establishment of the previously announced A\$50m Beetaloo Cooperative Drilling Program to support A\$200m of exploration and appraisal activity before 30<sup>th</sup> June 2022;
- Establishing a new A\$173.6m Roads of Strategic Importance corridor and the NT Gas Industry Roads Upgrades. These upgrades will facilitate commercial development and benefit other local industries and communities;
- Funding a study to assess the economic viability of the development of a fully operational multimodal facility and rail terminal in the Northern Territory to meet the current and future growth needs of Tennant Creek and the Barkly region. The future rail terminal could be used to transport Empire’s liquids by rail to Darwin for export or supporting downstream activities;
- Committing A\$36.2m through the government’s Geological and Bioregional Assessment Program. The program produces geological and environmental data, tools and knowledge. This investment includes a ~A\$16.9m allocation to Beetaloo projects through to June 2021; and
- Building a A\$2.2m Barkly Business Hub. This will support local companies to realize the benefits of gas development and other opportunities in the region.

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<sup>1</sup> <https://www.industry.gov.au/data-and-publications/unlocking-the-beetaloo-the-beetaloo-strategic-basin-plan>

While in Darwin to announce the Beetaloo Basin Strategic Plan, senior Federal and Northern Territory political leaders made the following comments:

- Acting Prime Minister Michael McCormack said that *'The funding today is another critical part of the nation's gas-led recovery.'*<sup>2</sup>;
- Northern Territory Renewables and Energy Minister Eva Lawler said that the Northern Territory needed *'the economic stimulus that comes with unlocking the Beetaloo Basin.'*<sup>3</sup> and
- Federal Minister for Resources, Water and Northern Australia Keith Pitt said that *'We want to see more jobs, a stronger economy, more opportunities, and we are here to ensure that we can bring the gas resources of the Beetaloo online earlier, faster, safer ... providing jobs sooner than was expected,'*<sup>4</sup>.



**Source: Australian Government Department of Industry, Science, Energy and Resources**

<sup>2</sup> <https://www.ntnews.com.au/business/federal-government-announces-174m-funding-to-bolster-nt-gas-infrastructure/news-story/266d3a4451e4a4e021b47ca849c6225e>

<sup>3</sup> <https://www.abc.net.au/news/2021-01-14/federal-government-road-funding-props-up-beetaloo-development/13057974>

<sup>4</sup> <https://www.abc.net.au/news/2021-01-14/federal-government-road-funding-props-up-beetaloo-development/13057974>



## Developments Across the NT Petroleum Sector

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- **On 17<sup>th</sup> December 2020, Minister for Resources, Water and Northern Australia Keith Pitt announced Federal Government plans to accelerate gas exploration and development in the Beetaloo Basin.** The Government's approach is intended to speed up exploration and production in the Beetaloo by around two years, through the provision of grants to cover 25 per cent of eligible exploration costs, capped at A\$7.5m per well and three wells per exploration venture. The total funding package is A\$50m. Minister Pitt also said:
  - *'The Beetaloo Basin has been described as the 'hottest play on the planet' with the potential to be a world-class gas resource, transform the Northern Territory economy and generate 6,000 jobs by 2040.'*; and
  - *'Industry analysis estimates the development of the sub-basin could increase economic activity by between \$18 billion and \$36.8 billion over the next 20 years.'*<sup>5</sup>
- **On 10<sup>th</sup> December 2020, Falcon Oil & Gas Limited (TSXV: FO, AIM: FOG) provided an update on activity following the hydraulic stimulation of the Kyalla-117 N2 well.** The joint venture had decided to execute operations without delay with all of the necessary equipment and consumables for the nitrogen lift being prepared to mobilise to the well site.<sup>6</sup>
- **On 2<sup>nd</sup> December 2020, Tamboran Resources announced the acquisition of Sweetpea Petroleum for Tamboran scrip.** Tamboran is the holder of a 25 per cent interest in EP161 which is operated by Santos. Sweetpea is the owner and operator of Beetaloo Basin permits EP136, EP143 and EP 197(A). Tamboran also announced that it and Santos are planning on drilling two horizontal wells, Tanumbirini #2H and Tanumbirini #3H, targeting the Middle Velkerri formation in EP161 during 2021.<sup>7</sup>
- **The Territory Economic Reconstruction Commission provided its final report to the Northern Territory Chief Minister on 30<sup>th</sup> November 2020. The report reiterates the Northern Territory Government's support for the development of the Beetaloo Basin and the NT's onshore gas resources.** Quotes from the report evidencing the strong support for our industry include:

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<sup>5</sup> <https://www.minister.industry.gov.au/ministers/pitt/media-releases/beetaloo-strategic-plan-will-unlock-gas-jobs-and-development>

<sup>6</sup> <https://falconoilandgas.com/2020/12/10/operational-update-kyalla-117-n2-1h-st2-3/>

<sup>7</sup> [http://www.tamboran.com/wp-content/uploads/2020/12/Tamboran\\_Merger\\_Sweetpea\\_MEDIA-RELEASE.pdf](http://www.tamboran.com/wp-content/uploads/2020/12/Tamboran_Merger_Sweetpea_MEDIA-RELEASE.pdf)

- *'Globally, the use of gas is expected to rise both as a feedstock and a source of power, and it is critical the Territory is ready to capitalise on the opportunity the Beetaloo Basin will bring to the economy, once feasibility is proven'*
- *'Accelerating the creation of low emissions advanced manufacturing businesses, in particular petrochemicals off the back of onshore and offshore gas, will transform the Territory's economy across all sectors – creating demand for local jobs and opportunities'*
- *'Onshore, the Beetaloo Sub-basin is a world-class shale gas resource. The potential of this basin is nationally recognised and additional appraisal to further define the resource and potential development pathways is underway'*
- *'Natural gas used in manufacturing is an essential non-switchable and non-substitutable feedstock input. It is a critical enabler of almost every value chain in Australia, a key employer of Australia's valuable STEM capability and a driver of innovation through advanced manufacturing'*<sup>8</sup>
- **On 22<sup>nd</sup> October 2020, Tamboran announced positive results for the Tanumbirini-1 vertical well production flow test.** After being shut-in for over 160 days, the well was reopened and initially flowed 10mmcf/d (10.5 TJ/d) and achieved an average flow rate of 2.3 mmcf/d (2.4 TJ/d) during the first 90 hours of testing. Tamboran also quoted *'the well continues to flow gas at excellent rates and the decline rate is significantly better than expected'*.<sup>9</sup>
- **On 19<sup>th</sup> January 2020, Origin and Falcon Oil and Gas announced a notification of discovery for the Kyalla 117 N2-1H ST2 well.** Origin stated that the initial report, based on early well flow data, is positive, with unassisted gas flow rates of 0.4 – 0.6 mmcf/d, hydraulic stimulation water flow back of 400 – 600 bopd and observations of liquid-rich gas composition with less than 1% CO<sub>2</sub> and condensate shows present. Origin 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. To support the well to flow continually without assistance we will not put in place longer term measures to flow back sufficient hydraulic stimulation water, enabling production testing to commence in the coming months in the dry season."*

<sup>8</sup> [https://ntrebound.nt.gov.au/\\_\\_data/assets/pdf\\_file/0020/952301/terc-final-report.pdf](https://ntrebound.nt.gov.au/__data/assets/pdf_file/0020/952301/terc-final-report.pdf)

<sup>9</sup> [http://www.tamboran.com/wp-content/uploads/2020/10/201020\\_Tamboran\\_EP161\\_Gas\\_Discovery\\_vFINAL.pdf](http://www.tamboran.com/wp-content/uploads/2020/10/201020_Tamboran_EP161_Gas_Discovery_vFINAL.pdf)

## US Operations Update

Empire's US operations reported a positive EBITDA for Q4 2020 of US\$43k (Q3 2020: US\$(250)k) reflecting improving gas prices.

The average daily production for Q4 2020 was 4,469Mcf/d vs. Q4 2019 of 4,988 Mcfe/d, representing a decrease of ~10% year-on-year. The decrease can largely be attributed to a gas compressor on the local gas distribution network owned by National Fuel Gas Company (NYSE: NFG) being temporarily closed thereby restricting volumes which Empire could sell into the network due to high line pressure. Other reasons include the selective shut-in of certain production until prices improve further and natural field decline.

Hedging continues to provide a buffer against low gas prices with the average weighted sales price for gas after hedging of US\$2.62 / Mcf (Q3 2020: US\$2.17 / Mcf) which compared favourably to before hedging weighted average sales price of US\$2.51 / Mcf (Q3 2020: US\$1.83 / Mcf).

Empire is continuing to operate under its COVID-19 policy and its status as an essential business. To date, there have been no confirmed cases of COVID-19 amongst Empire's workforce.

During the Quarter, the Paycheck Protection Loan Empire had received earlier in the year was forgiven as described in the Balance Sheet & Liquidity section below, thereby reducing Empire's outstanding debt by ~US\$550,000.

Description	3 months to 31 Dec 2020	3 months to 31 Dec 2019	YTD 31 Dec 2020	YTD 31 Dec 2019
<b>Net Oil Production (Bbls)</b>				
Appalachia	679	456	1,986	2,558
Mid-Con	-	-	-	85,732
Total Oil	679	456	1,986	88,290
<b>Net Natural Gas Production (Mcf)</b>				
Appalachia	407,088	456,181	1,689,624	1,786,032
Mid-Con	-	-	-	2,835
Total Natural Gas	407,088	456,181	1,689,624	1,788,867
<b>Net Gas Equivalent (Mcf):</b>				
Appalachia	411,162	458,917	1,701,540	1,801,380
Mid-Con	-	-	-	517,227
Total	411,162	458,917	1,701,540	2,318,607
<b>Mcf/d</b>	<b>4,469</b>	<b>4,988</b>	<b>4,662</b>	<b>6,352</b>
<b>Weighted Avg Sales Price (\$/Mcf)</b>				
Before Hedge	2.51	2.42	1.96	2.41*
After Hedge	2.62	2.64	2.38	2.66*
<b>Lifting Costs (incl. taxes):</b>				
Total Natural Gas Equivalent (\$/Mcf)	1.29	1.50	1.22	1.16*

\*excluding oil sales from discontinued Kansas operations to allow for like-for-like comparison.

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.

## Other News

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### Options Exercise

On 2<sup>nd</sup> November 2020, Empire announced that 412,500 unlisted options to acquire Empire shares at A\$0.30 per share had been exercised to raise A\$123,750. 187,500 options with the same terms were not exercised and expired.

### Broker Research Coverage

Morgans initiated research coverage on Empire during the Quarter with a Speculative Buy recommendation and a Target Price of A\$0.525 per share. Morgans noted that Empire is beginning to unlock the value of its Australian assets and that the stock has potential to re-rate significantly higher on a successful flow test.

Blue Ocean Equities updated its Price Target to A\$0.80 per share in November and retained its Speculative Buy recommendation. Blue Ocean recognised that results at Carpentaria-1 had added confidence to the economic potential of EP187.

Research as a Service ('RaaS') also lifted its mid-point valuation of Empire to A\$0.61 per share (previously A\$0.56 per share). RaaS indicated that Empire has several event drivers over the next 6 to 12 months which have potential to generate a sizable uplift in Net Asset Value.

As outlined in the September 2020 quarterly, Taylor Collison increased its Empire Target Price to A\$0.63 per share in October (previously A\$0.31 per share). Taylor Collison has a BUY recommendation for Empire shares.

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

### Company Secretary

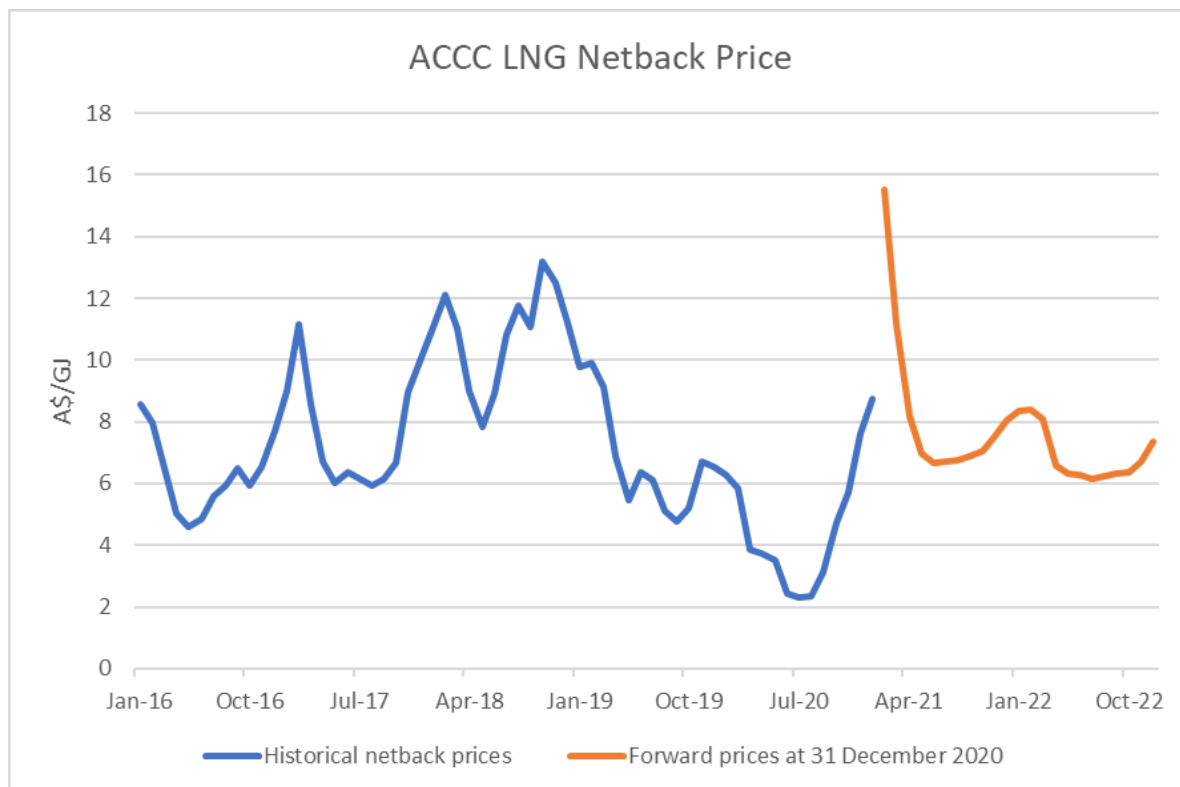
Mr Andrew Phillips was appointed Company Secretary of Empire with effect from 13 November 2020. Mr Phillips has extensive experience working with ASX listed companies in the capacities of Director, Chief Financial Officer and Company Secretary.

## Energy Markets Update

### LNG and gas prices improved materially in Q4 2020 as the Northern Hemisphere entered its winter months

LNG prices surged over the Quarter, with the Japan-Korea Marker front historic futures rising to over US\$30 / mmbtu in early January 2021. The rising prices reflect very cold weather in Europe and North Asia, 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.

The domestic Wallumbilla spot price was trading at A\$6.10 / GJ as at 18<sup>th</sup> January 2020.<sup>10</sup> As Australia’s domestic natural gas prices have historically traded with a close lagged correlation to LNG netback prices, the Wallumbilla price may follow LNG prices higher over coming months from mid-2020 lows. The fortnightly LNG netback price as published by the Australian Competition and Consumer Commission on 4 January 2021 showed an implied LNG netback price for the Australian domestic gas market of A\$15.52 / GJ (compared to a July 2020 low of A\$2.29 / GJ). Australian LNG exports reached a record of 78 million tonnes in 2020,<sup>11</sup> including 22.4 million tonnes of LNG exported from the Port of Gladstone, including a new monthly Gladstone record of 2.2 million tonnes for December 2020 on strong demand from China and Japan.<sup>12</sup>



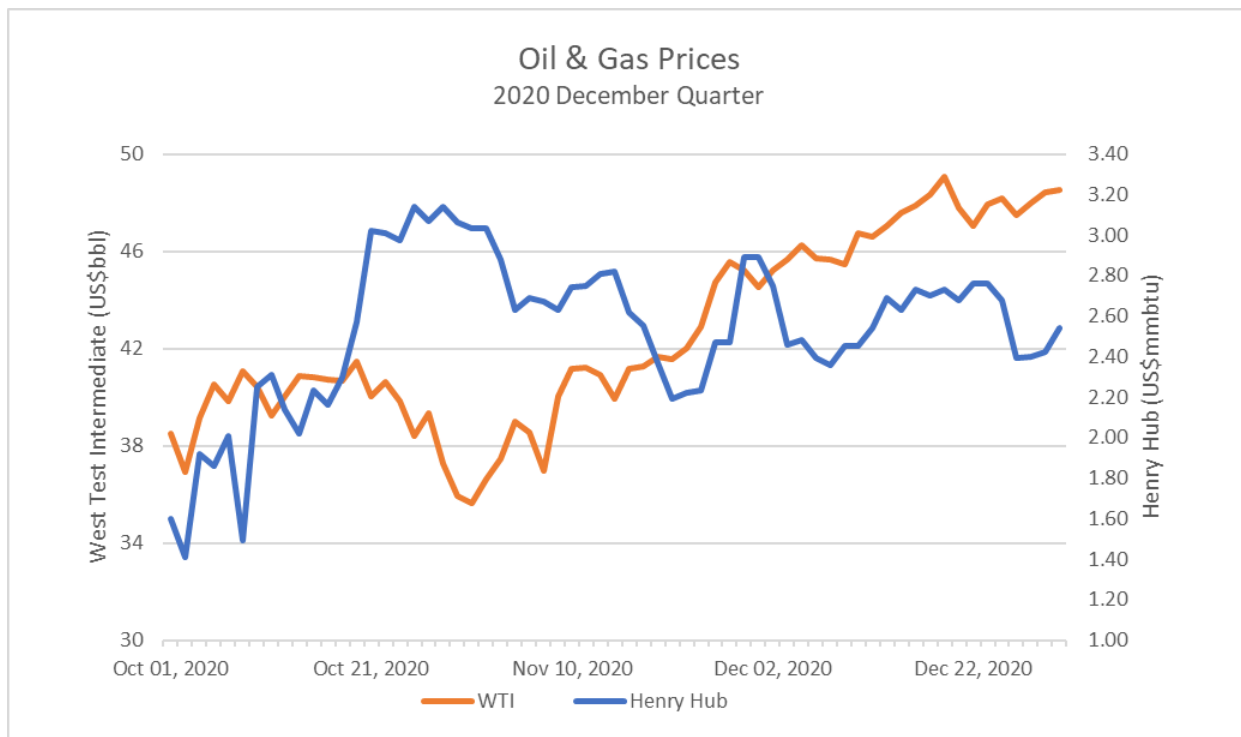
<sup>10</sup> <https://aemo.com.au/energy-systems/gas/gas-supply-hub-gsh/data-gsh/data-dashboard>

<sup>11</sup> Australian Financial Review, 6 January 2021, Runaway LNG price sends warning to gas buyers

<sup>12</sup> Trade Statistics, Gladstone Ports Corporation (<https://www.gpcl.com.au/trade-statistics>)

The average Henry Hub natural gas spot price over the course of Q4 2020 was US\$2.53 / mmbtu (Q3 2020: US\$2.00 / mmbtu). The increased price environment reflects rising gas demand for heating and US gas flows to LNG export which are at record levels of ~11Bcf / day. EIA data for US gas in underground storage totalled 3,330 Bcf as at 1<sup>st</sup> January 2021 having fallen 628 Bcf from its recent peak on 13<sup>th</sup> November 2020.<sup>13</sup> Continued drawdown of gas in storage is expected over the winter peak demand months. Production of natural gas averaged 90.9 Bcf / day in the United States during 2020, or 2.2 Bcf / day less than in 2019, after reaching a monthly record high of 97.0 Bcf / day in December 2019.<sup>14</sup>

U.S. oil and gas producers are exercising capital discipline focused on returns to debt and equity holders, a marked departure from recent years where production growth was the primary focus.



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

The Australian Energy Market Operator (AEMO) fuel mix data for the National Electricity Market for the past three months indicates the composition of fuels powering electricity generation were coal (70%), wind (12%), hydro (7%), gas (6%) and solar (5%).<sup>15</sup> Though gas represents a small contribution to total generation fuel supply, its role ensuring reliability of the electricity grid is expected to rise as coal fired generation is retired and intermittent renewable generation continues to grow.

The New South Wales Government released its Electricity Infrastructure Roadmap in November 2020 which outlined the complexity of the investment and coordination task. For example, to replace the coal-fired Eraring power station's 2,880 MW of capacity would

<sup>13</sup> <https://ir.eia.gov/ngs/ngs>

<sup>14</sup> EIA, 7 January 2021, In 2020, U.S. natural gas prices were the lowest in decades

<sup>15</sup> <https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/data-nem/data-dashboard-nem>

require ~50 new wind and solar developments. As the Grattan Institute's report released 15<sup>th</sup> November 2020 states *'gas does have an important role to play, but as a backstop, to support the power system during demand peaks and persistent periods of low wind and sun'*.

<sup>16</sup>

The United States electricity grid has benefited from the 'shale gale' as gas production has resulted in an increasing move to gas for baseload power generation which has been cheaper, with lower emissions, than coal.

Unlike renewable energy, gas is a key industrial feedstock to the manufacturing sector. Chemistry Australia CEO Samantha Read noted during the Quarter that *'The use of gas by the chemistry and broader manufacturing sector adds significant value to the Australian economy and remains a key part of the nation's future prosperity,'* and *'Ensuring manufacturers have access to globally competitive gas will help re-investment in current production assets and the new technologies that will help deliver further emissions reduction.'*<sup>17</sup>

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<sup>16</sup> The Grattan Institute 'Flame out: the future of natural gas'

<sup>17</sup> EnergyNews, Chemistry Australia admonishes claims gas of no benefit to economy dated 16 November 2020

## Balance Sheet & Liquidity

Empire's cash balance as at 31<sup>st</sup> December 2020, was US\$11.1m, of which A\$13.8m was held in Australian dollars, and US\$0.5m held in United States dollars.

On 29<sup>th</sup> December 2020, Empire was notified by PNC Bank that the US Small Business Administration had remitted a loan forgiveness payment of US\$545,961.11 to PNC Bank which was applied to Empire's Paycheck Protection Program ('PPP') loan of US\$552,600 and accrued interest of US\$3,361, resulted in an outstanding principal balance of US\$10,000 which represents the Economic Injury Disaster Loan ('EIDL') component of the program. The EIDL carries a 1% interest rate, is unsecured, matures in May 2022 and will be repaid from cash at bank.

On 27<sup>th</sup> December 2020, the 'Consolidated Appropriations Act, 2021', a new United States COVID-19 relief bill was signed into law. The package includes a new round of forgivable PPP loan funds totalling US\$284 billion to support US small businesses whose revenues have been impacted by the coronavirus. Empire has commenced the application process with PNC Bank for additional PPP funding under this program. There is no guarantee that Empire will receive a second PPP loan.

During the Quarter, Empire made a US\$137,500 repayment on its debt facility with Macquarie Bank. The facility balance has been reduced to US\$6,537,500. As previously disclosed to shareholders, Macquarie and Empire have entered into a waiver agreement for potential breaches of financial covenants under the debt facility for all quarterly covenant tests until 31<sup>st</sup> December 2020 (inclusive). Under current management, Empire has reduced debt from US\$37.9 million to US\$6.5 million (83% decrease) in 2.5 years.

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
Jan 21 to Dec 21	25,000	Put Options	\$2.50	\$0.23
Jan 21 to Dec 21	25,000	Put Options	\$2.50	\$0.37
Jan 21 to Dec 21	25,000	Put Options	\$2.50	\$0.41
Jan 21 to Mar 21	50,000	Swap	\$3.10	N/A
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

All of the Swaps detailed above were entered into during the Quarter.

During the Quarter, the Company made payments to related parties of US\$61,558. These payments comprised the Managing Director's salary and Non-Executive Directors' fees paid in cash.



## Liquidity

Quarter Ended	31/12/2020	30/09/2020	30/06/2020	31/03/2020
Cash (US\$)	\$11,110,470	\$14,940,727	\$7,088,271	\$6,978,526
Debt (US\$) <sup>18</sup>	\$(6,547,500)	\$(7,227,600)	\$(7,227,600)	\$(6,675,000)
<b>Net Cash /(Debt)<sup>19</sup></b>	<b>\$4,562,970</b>	<b>\$7,713,127</b>	<b>\$(139,329)</b>	<b>\$303,526</b>

## Capital Expenditure

Description	3 months to 31/12/2020	3 months to 3/12/2019	YTD 31/12/2020	YTD 31/12/2019
Exploration (US\$)	3,468,150	703,942	8,724,685	1,073,672
Property, plant & equipment (US\$)	13,195	-	82,536	1,860
<b>Capitalised Expenditure (US\$)</b>	<b>3,481,345</b>	<b>703,942</b>	<b>8,807,221</b>	<b>1,075,532</b>
Other exploration costs (expensed) (US\$)	244,565	74,770	411,078	480,999

There have been no changes to the petroleum tenements held by Empire and its subsidiaries since last quarter.

A full list of tenements as at 31 December 2019 can be found on Empire's website:

[https://asx.api.markitdigital.com/asx-research/1.0/file/2924-02220641-2A1217241?access\\_token=83ff96335c2d45a094df02a206a39ff4](https://asx.api.markitdigital.com/asx-research/1.0/file/2924-02220641-2A1217241?access_token=83ff96335c2d45a094df02a206a39ff4)

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

For queries about this release, please contact:

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<sup>18</sup> Note: Debt is comprised of US\$6,537,500 owing under the Senior Secured Facility with Macquarie Bank Limited and US\$10,000 under the PPP with PNC Bank

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

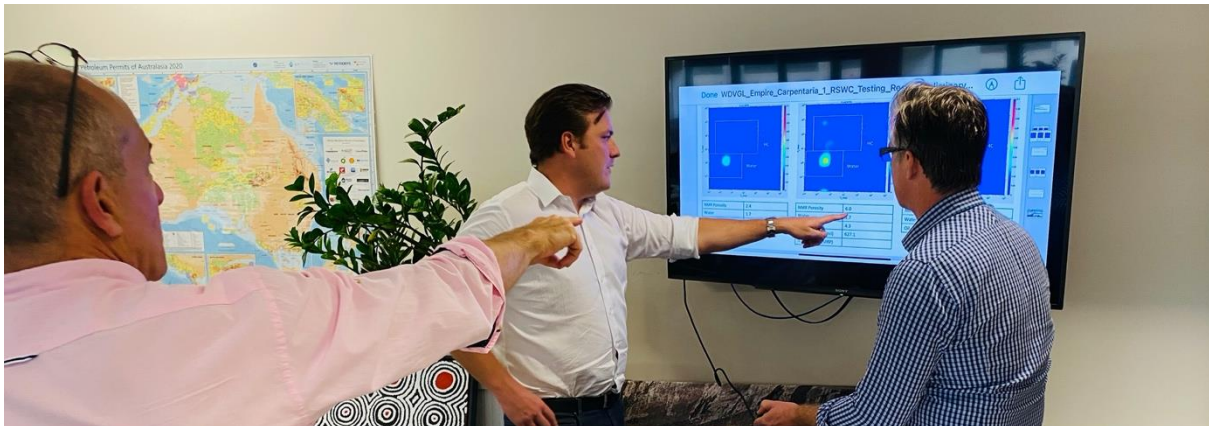
## About Empire Energy

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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 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.

***The Empire team is currently working on incoming results from the W.D. Von Gonten & Co. core analyses.***



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