Research as a Service

Empire Energy Group Limited

Quarterly Update

A successful Quarter builds momentum for future delivery

Empire Energy Group Limited (ASX:EEG) is a junior oil and gas producer and explorer with onshore Northern Territory (NT) and US oil & gas assets. EEG holds the largest acreage position (>14.5m acres) in the highly prospective, potentially global-scale NT McArthur-Beetaloo basins. The region is fast developing as a gas-rich (and potentially liquids-rich) strategic bolster for east coast Australia's future energy needs and Darwin's expanding LNG export terminals, amid strong policy support from both Territory and Federal governments. The Beetaloo Sub-basin alone is considered to contain recoverable unconventional shale dry gas volumes of over 100 Tcf, with liquids upside. EEG also owns conventional gas/oil assets in the US Appalachia, 80%-hedged with 2020 floor prices at US$2.50/mcf. 2D seismic results enabled a 22% upgrade of EEG's NT P50 prospective resources to 13.5 Tcf gas in 1H20, with recent liquids-rich vertical drilling success on EP187 likely to see further resource upgrades in 1Q2021. Crystallising EEG's longer-term potential rests on further drilling and flow test successes, with immediate focus on 2021 fracture stimulation work programs, supported by recently-bolstered cash reserves. Formation evaluation data updates from the recent EP187 Carpentaria-1 vertical well drilling program are expected later this month. Gross cash is A$17.7m.

Business model

Empire Energy Group (EEG) is a junior oil & gas producer/exploration company, focused on maturing its portfolio of onshore, long-life oil and gas fields. The company is the 2nd largest conventional gas producer in the US NY State and has held substantial exploration acreage (14.5m acres) in Australia's Northern Territory McArthur-Beetaloo basin since 2010. Given the region's high prospectivity, success from future drilling may generate cashflows within 36-48 months, assisted by liquids "credits", assuming links and upgrades to existing pipeline infrastructure are delivered in parallel, with Federal "Basin Strategic Plan" support.

Beetaloo results align to national energy development plans

EEG's 3Q20 results came in-line with expectations. Operating losses were stemmed to US$1.03m (YTD US$2.04m), with US-bank debt drawn to US$6.7m. Highlights included: a) cash reserves bolstered to ~A$21m via a successful placement & options exercise, both at A$0.30; and b) above-expected liquids-rich gas log indications encountered across ~1,000m during EEG's A$11.5m Carpentaria-1 vertical exploration drilling in Sept/Oct. This first well success offers scope for upgrades to EEG's Beetaloo resource base, potentially to a maiden 2C contingent resource. The presence of liquids also expands EEG's early commercialisation options, while shallower depths and greater saturations & porosities suggest cheaper drilling expenses and stronger vertical flow rates than first anticipated. Improvements in global gas prices; strengthening Federal & Territory policy support for gas developments; as well as positive gas flow results from Beetaloo neighbours further support EEG's improving investment thesis. Looking ahead, we await a) core analysis details in December; b) approval for Carpentaria-1 vertical hydraulic fracturing in 2Q21 & Velkerri Shale horizontal fracturing in 4Q21; c) resource upgrades in 1Q21 & d) landowner access approvals to EEG's 5 other McArthur-Beetaloo tenements. Robust results from planned 2021 drill programs could further evolve EEG's NT P50 13.46 Tcf resource, positioning EEG to attract strong commercial partners.

Valuation

We incorporated the quarterly commodities update into our model and this has lifted our mid-point valuation to $0.61/share (previously $0.56/share). Our valuation range is from $0.44-$1.26/share. EEG has several event drivers over the next 6-12 months which we view hold potential to generate a sizeable uplift in NAV.

Historical earnings and RaaS Advisory estimates

Year end	Revenue (US$m)	Gross Profit (US$m)	NPAT reported (US$m)	OCFPS (AUD cps)	EPS Adj (AUD cps)	Price/Book (x)
12/18a	6.6^	1.9	(5.3)	(0.15)	(1.41)	29.4
12/19a	5.4	1.2	(12.0)	(4.12)	(9.29)	4.9
12/20e	4.7	0.8	(7.7)	0.39	(3.40)	5.3
12/21e	4.9	1.2	(3.6)	1.88	(1.47)	5.7

Source: Company data, RaaS estimates for FY20e & FY21e ^restated for asset sale

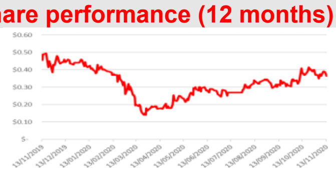
Energy exploration & production

17th November 2020

Share details

ASX Code	EEG
Share price	$0.365
Market Capitalisation	$118.1M
Shares on issue	323.9M
Net cash at 30 Sept	~US$7.7M
Gross cash at 30 Sept	~US$14.9M

Share performance (12 months)



Upside Case

- EEG's Carpentaria-1 Velkerri shale drill program generates substantial energy business case for EP187
- Further McArthur-Beetaloo work programs generate significant commercial outcomes
- EEG drilling success generates high-value LT strategic partnership(s) & funding options

Downside Case

- McArthur-Beetaloo EP 187 drilling proves unsuccessful, negatively impacting remaining Beetaloo permit (EP184,188) values
- Equity issue financing becomes highly dilutive to future share capital growth
- Fracking success in NT/Qld pushes onshore energy prices to sub-economic levels.

Board of Directors

Alex Underwood	Managing Director/CEO
Paul Espie AO	Non-Executive Chairman
John Gerahty	Non-Executive Director
Dr John Warburton	Non-Executive Director
Peter Cleary	Non-Executive Director

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*The analyst holds shares

Empire Energy Group – 3rd Quarter update

Empire Energy Group (EEG) has reported its September 2020 quarterly update, highlighting an active three months focused on improving the company's economic prospects. Of particular note, EEG:

(i) enjoyed "better-than-expected" results from its vertical well formation evaluation program (Carpentaria-1) in the Northern Territory's highly-prospective Beetaloo Basin (EP187), which emphasised a) liquids-rich gas shows; b) at depths shallower than anticipated; and c) across a wider total zone of thickness than expected; as well as d) being across more pay zones than expected, with good saturation and porosity;

(ii) underwent two successful capital raisings (a placement and an option exercise both at A$0.30), totalling A$18.1m, which strengthen cash reserves to support 2021's planned fracture stimulation work programs, while concluding the quarter with A$21m in the bank. Empire announced it had A$17.7m in cash as at 26 October 2020. (Note: a further 412,500/600,000 options were exercised at A$0.30 on 25 October 2020, raising a further A$123,750). Bank debt remained drawn to ~US$6.7m.

During the quarter, EEG's prospects have been further bolstered by positive externalities, including:

a) improving global spot and futures gas prices (Henry Hub & LNG Japan/Korea Marker);
b) the return of the Labor Party to control Northern Territory government during September's elections, confirming strong support for local private sector energy industry developments;
c) the announcement of the Federal Government's post-COVID "Gas-Fired Recovery Plan" strategy, which not only promotes gas as the industrial energy feedstock foundation for Australian's future economic development, but also names the Beetaloo Basin, under its associated "Strategic Basin Plan", as its first priority for future accelerated Basin production developments and associated infrastructure funding support, including pipelines and gas processing;
d) the recommencement of exploration drilling and gas flow test programs by other Beetaloo Basin operators, including Santos and Origin Energy, with further material investment being planned for 2021, to better delineate the Basin's long term productive value to feed both east Coast Australian and export gas requirements.

Meanwhile EEG's US production operations reported an EBITDA loss of (US$250,000), compared to a loss of (US$108,000) in 2Q20. 3Q gas production totalled 385MMcf, compared to 450MMcf pcp, while waiting out this COVID-19 impacted period of record price lows.3Q20 Henry Hub averaged ~US$2/mmbtu. EEG purchased an additional 600k swaps to protect downside price risks in 2021, while investigating upside potential by negotiating NY State land leases to solar farm developers.

Event Drivers - Looking Ahead:

We expect EEG to make strong progress in the next 12 months on a number of investment fronts, including:

a) **November-December:** Releasing the EP187 Carpentaria-1 vertical drill results taken from 50 large diameter rotary sidewall core samples, including wireline logs, and diagnostic fracture injection tests, to plan future vertical hydraulic stimulation and horizontal well programs;
b) **January 2021:** Upgrading EEG's current NT P50 prospective resource estimate of 13.5Tcf gas to integrate the latest Carpentaria-1 vertical findings with regional seismic and drilling data;
c) **TBA:** Receiving NT Environment Management Plan approval for vertical hydraulic fracturing of the Carpentaria-1 well for 2Q 2021, followed by horizontal drilling and fracture approvals for 4Q 2021;
d) **Ongoing:** Receiving landowner agreement to access EEG tenement holdings (EP180; 181; 182; 183; 188) for hydrocarbon exploration purposes;
e) **2Q 2021:** Carpentaria-1 Velkerri Shale vertical fracture stimulation appraisal
f) **4Q 2021**: Carpentaria-1 Velkerri Shale Middle B horizontal drilling and fracture stimulation appraisal
g) **1Q 2021:** Solar electricity developer land lease deals in US NY State to generate additional revenue

In addition, we expect ongoing positive read-throughs from Beetaloo neighbour exploration and corporate activities, particularly Santos and Origin, based on encouraging results presenting to-date.

EEG's EP187: far from the Beetaloo's "poor cousin"

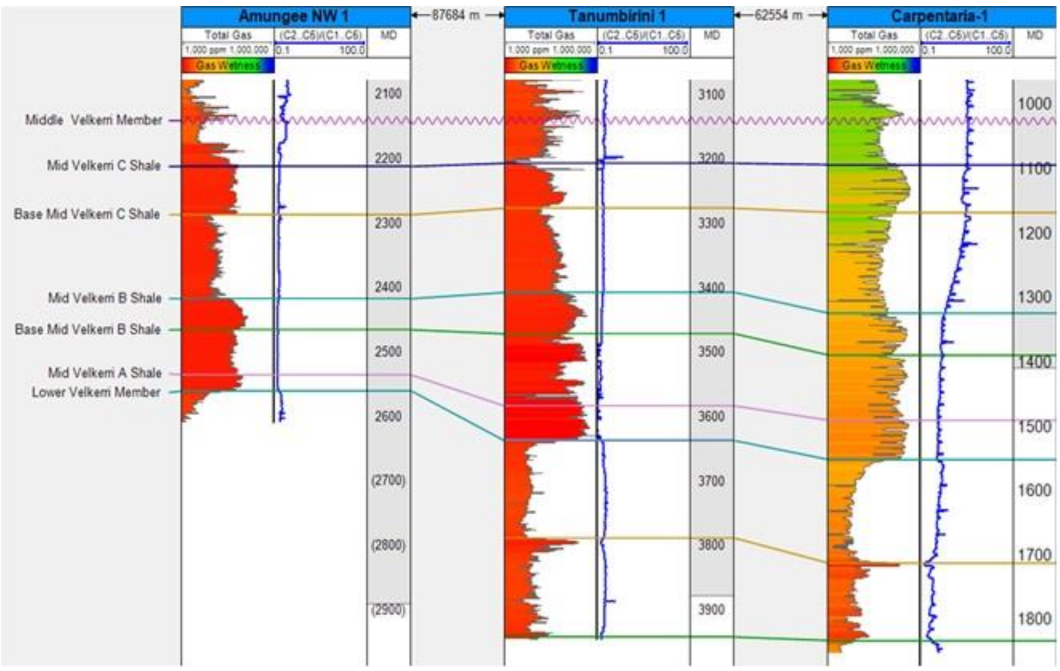
EEG safely completed its 30-day drill and evaluation campaign of its Carpentaria-1 vertical well down to a total depth of 1,916m on 23 October, ~1,000m shallower than originally planned, resulting in lower overall costs of ~A$11.5m (*a third of which was mobilisation/demobilisation*), including ~A$625,000 of un-used casing & drill bit inventory.

Initial mudlog gas readings from the well, located at the south-east corner of the NT McArthur-Beetaloo Sub-basin on EEG's EP187 tenement, intersected an extensive ~1,000m interval of **liquids rich gas** in the Velkerri Shale Formation (zones A, A-B, B, C), noting the preliminary composition analysis from the Santos JV Tanumbirini-1 well reported >90% methane and 3% ethane only. The well's Velkerri Shale interval is also shallower than other wells drilled regionally, extending from ~833m to 1,831m and appears to dip and deepen to the North West. Gas saturation and porosity levels also exceeded EEG's pre-drill expectations.

These results materially exceed those of other wells drilled in the Beetaloo to-date and enhance the economics of any future EP187 production since on the revenue front, liquid hydrocarbons attract higher oil-linked pricing than gas and may be commercialised more readily, while lower drill costs will improve margins.

Importantly, the clear lithograph correlations between the regional well results with Carpentaria-1 provide us with significant confidence that similar Velkerri formation thicknesses will be discovered in other drill locations on EEG's EP187 tenement.

Exhibit 1: Beetaloo Middle Velkerri mudlog results – EEG gas wetness ratio interpretations



Source: Company data; NT Geological Survey data

What Next?

a) A total of 50 large diameter rotary sidewall core samples, wireline log data and x4 DFIT results are now being analysed. The core samples will be tested to assess the gas saturation, rock mechanics and other aspects of the well results to help EEG plan its scheduled 2Q21 vertical frac and flow test program, subject to government approvals. The initial DFIT results suggest future vertical hydraulic stimulations are likely to generate an interconnected dendritic fracture network which would optimise hydrocarbon flows.

b) EEG will then commission Netherland, Sewell and Associates (NSAI) to prepare an updated independent prospective resource estimate, based on combining the well results appraisal with the 2019 231km line 2D seismic survey data. That data had delineated two prospective Beetaloo Sub-basin portions on the southern part of EEG's EP187 tenement. One fault block portion extends across ~40,000 acres (~160km² - ~30,000 football ovals); while the other extends across ~25,000 acres (~100km²). The Carpentaria-1 well is located in the former fault block, which EEG defined as its Phase 1 Work Program Area. It is highly likely that other wells in this Work Area will encounter liquids-rich gas in the same Velkerri Shale formation, although potentially at deeper depths.

Exhibit 2: EEG's McArthur Basin Prospective Resource changes 2020

BEFORE		P90	P50	P10	AFTER		P90	P50	P10	Delta
Northern Territory					**Northern Territory**					
Gas					**Gas**					
N/A					Lower Kyalla	Bcf	24	72	161	n/a
Barney Creek	Bcf	3,304	8,699	20,172	Barney Creek	Bcf	1,633	11,053	45,380	27.1%
Velkerri	Bcf	383	1,192	3,086	**Velkerri**	Bcf	1,283	2,339	4,751	96.2%
Wollogorang*	Bcf	524	1,185	2,371						
TOTAL (Bcf)		**4,211**	**11,076**	**25,629**	**TOTAL (Bcf)**		**2,940**	**13,464**	**50,292**	**21.6%**

Source: Company data; Netherland, Sewell & Associates Inc. *Wollogorang was not included in the Netherland Sewell study

Based on the strong Carpentaria-1 well Velkerri results, we expect EEG's P50 13.46 Tcf resource estimate to evolve into a 2C contingent resource based on gas flows to surface. Because of the shallower-than-expected depth of the Velkerri Shale, the Kyalla Shale, which typically sits above the Velkerri Shale, did not feature in Carpentaria-1's drilling results. We will likely see a downgrade by NSAI to this aspect of EEG's previous resource estimate which gave recognition to a small maiden P50 72 Bcf gas resource in May. Pre-drill sub-surface mapping had expected the Kyalla to be restricted only to the western portion of EEG's EP187 tenement.

We look forward to seeing government approvals for EEG's vertical frac EMP application and work commencing after the 2020/2021 Wet Season ends in the NT to produce flow testing results.

Future funding sources

As we have highlighted in previous reports, we believe EEG has a number of future potential funding sources to support its path to commercialisation in the Beetaloo, including:

a) A Farm-Out partnership

b) Additional equity raising

c) An asset sale of EEG's US Appalachian conventional gas/oil assets across Pennsylvania and New York State, where the company is the second-largest regional gas supplier.

d) The exercise of unlisted options. EEG has 18.4m (aggregate value: A$6.6m) outstanding unlisted options, exercisable at share prices of A$0.30, $0.32 and $0.60, over various periods through until 30 December 2022. We note that, while the majority of these options are currently in-the-money, those outstanding will not have a material impact on EEG's future funding requirements, compared to the 26 September 26.9m exercise, raising A$8.1m.

Exhibit 3: EEG unlisted option details

Date	Option Class	Issued No	Exercise price A$	Gross Cash Value A$
30/12/2021	Unlisted	1,300,000	0.30	390,000
30/12/2021	Unlisted	600,000	0.30	180,000
31/12/2021	Unlisted	12,000,000	0.32	3,840,000
30/12/2022	Unlisted	1,700,000	0.30	510,000
30/12/2022	Unlisted	2,800,000	0.60	1,680,000

Source: Company data

Quarterly Cashflows at a Glance – as at 30 September 2020

- Cash at Bank: US$14.94m (~A$21m)
- Outstanding Debt: US$7.2m (*of which, US$552,600 is the PPP forgivable* loan & $6.675m is US bank debt carrying an interest rate of US LIBOR + 650bps, maturing Sept 2024 with Macquarie Bank)
- Net cash: US$7.7m
- Net operating cash flows: 9mths YTD: -US$2.04m; 3Q20: -US$1.03m

- US 3Q20 EBITDA: (US$250k) at an average weighted post-hedge sales prices: US$2.17/Mcf versus lifting costs of US$1.41, on net gas production of ~385MMcf, reduced from ~451MMcf in 3Q19 due to lower pricing;
- Total capitalised exploration investing costs: -US$4.06m

EEG also maintains gas hedge protection to support its US operating cash flows. These total 360k mmbtu for 2020; 1.5m mmbtu in 2021; 900k mmbtu in 2022 and 300k mmbtu in 2023.

Exhibit 4: EEG US Gas production hedge portfolio (2020-2023) as at 30 Sept 2020

Period	Volume mmbtu/month	Hedge Type	Strike Price US$/mmbtu	Premium US$/mmbtu
Oct 20 to Dec 20	120,000	Put Options	$2.50	$0.23
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 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

Source: Company data as at 30 September 2020
Note: Post-close, EEG added 600k mmbtu swaps to 2021 totals at higher strikes of US $2.85/mmbtu (summer) / US$3.10/mmbtu (winter).

Upcoming Beetaloo regional hydrocarbon exploration programs

Exhibit 5: Beetaloo sub-basin: planned Regional Hydrocarbon Exploration

Company	Activity Scheduled	Timeline
EEG	EP187 Carpentaria-1 vertical drill program ~1900m (Velkerri Shale appraisal for gas/liquids)	3Q/4Q 2020
Origin (77.5%)-Falcon JV	EP 117 Kyalla 117 N2 1H ST2 extended horizontal production flow test continuance - targeting liquids rich gas fairway. *Noting: 4Q19: announced C3,C4,C5 & elevated gas shows & total Kyalla thickness of 900m*	4Q 2020
Santos (75%)-Tamboran JV	EP 161 Tanumbirini-1 extended flow test completion *Noting: 1Q20: gas discovery & maiden resource*	4Q 2021
EEG	EP187 Carpentaria-1 vertical hydraulic fracturing and production flow test program (Velkerri shale appraisal)	2Q 2021
Origin-Falcon JV	EP76 Velkerri 76 S2 eastern flank drill, HFS, test - targeting shale liquids rich gas (15-60 bbl/MMscf) - awaits NT EMP approval	1H 2021
Sweetpea Petroleum	NT EMP for EP136 550km 2D seismic program, approved Nov 2020	4Q 2020
EEG	EP187 Carpentaria-1 horizontal stimulation (Velkerri shale appraisal)	4Q 2021
Santos-Tamboran JV	EP 161 Tanumbirini-2 horizontal drilling, fracture stimulation and flow testing	2021
Santos-Tamboran JV	EP161 Tanumbirini-3 (Inacumba) horizontal drilling, fracture stimulation and flow testing	2021
Santos - Armour Energy	South Nicholson 2D seismic tests	2021
Hancock Prospecting	2D seismic program awaits NT EMP submission (subject to landholder approval)	2021
Pangaea Resources	Activities await NT EMP submission (potential sale to Tamboran Resources under consideration)	2021
Sweetpea Petroleum	EP136 exploration drilling program	2021

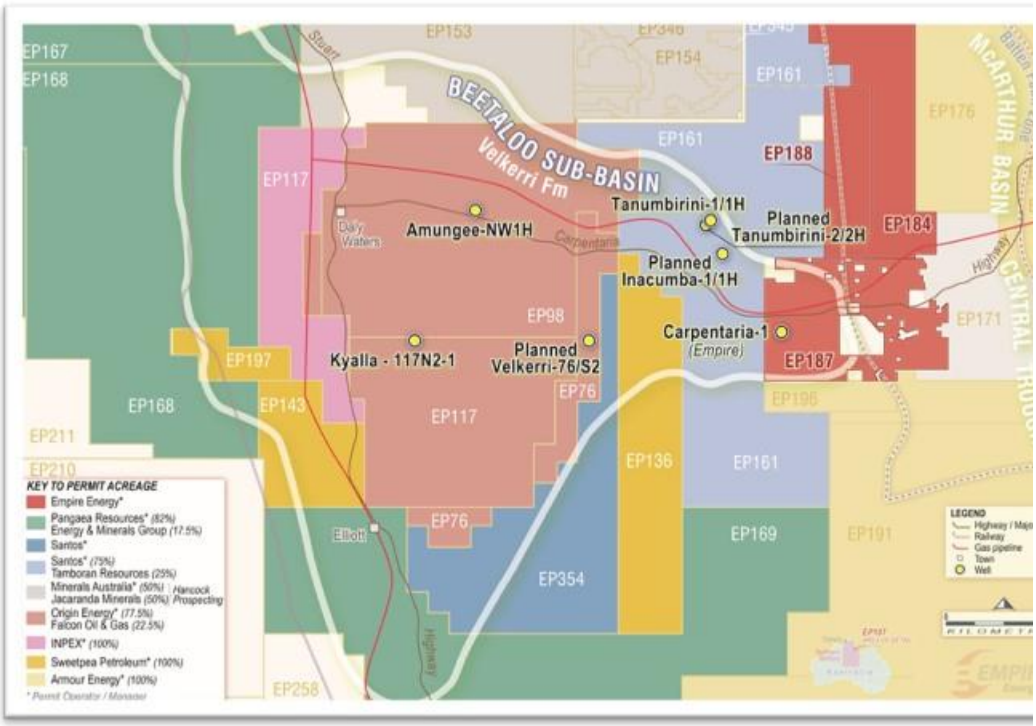
Source: Company data; NT Department of Primary Industry and Resources

The **Origin/Falcon** JV announced that has restarted its Kyalla-117 lateral fracture stimulation and extended production testing work program in October, with final results due by the end of 1Q 2021. Origin is hopeful the Velkerri and Kyalla Shale formations on its EP117 tenement may be stacked, as well as contain both gas and liquids, which would substantially lift project returns. In April, Origin increased its interest in the JV by 7.5% to 77.5% for A$25m, implying a A$333m valuation for 100%. Origin also expanded the total work program investment cap from A$113.3m to A$263.8m, giving a strong vote of confidence in the Beetaloo's prospectivity.

The Santos/Tamboran JV restarted vertical frac work on EP161 Tanumbirini-1 well in October, achieving flow test results of up to 2.3mmcf/day (2.4TJ/d), with decline rates better than expected also. These flows exceed those achieved in 1Q20 of >1.2mmscf/day and suggest to the JV that the Middle Velkerri Shale Formation may be on par or better than the core Marcellus Shale, the most prolific shale play in the US. The JV announced a maiden 2C prospective resource of 22mm boe (~130PJ or 170Bcf gross) in 1H20, after achieving the gas discovery at the T-1 well. The JV now plans to drill and frac 2 multi-stage horizontal wells, both targeting the mid-Velkerri gas zone to further delineate Gas-in-Place during 2021, with a high degree of confidence of achieving economic flow rates.

Separately, Santos has applied for a new permit, EP354, located on the southern side of existing Beetaloo activities, south of Origin's EP76 permit.

Exhibit 6: McArthur-Beetaloo regional tenement holdings: EEG and neighbours



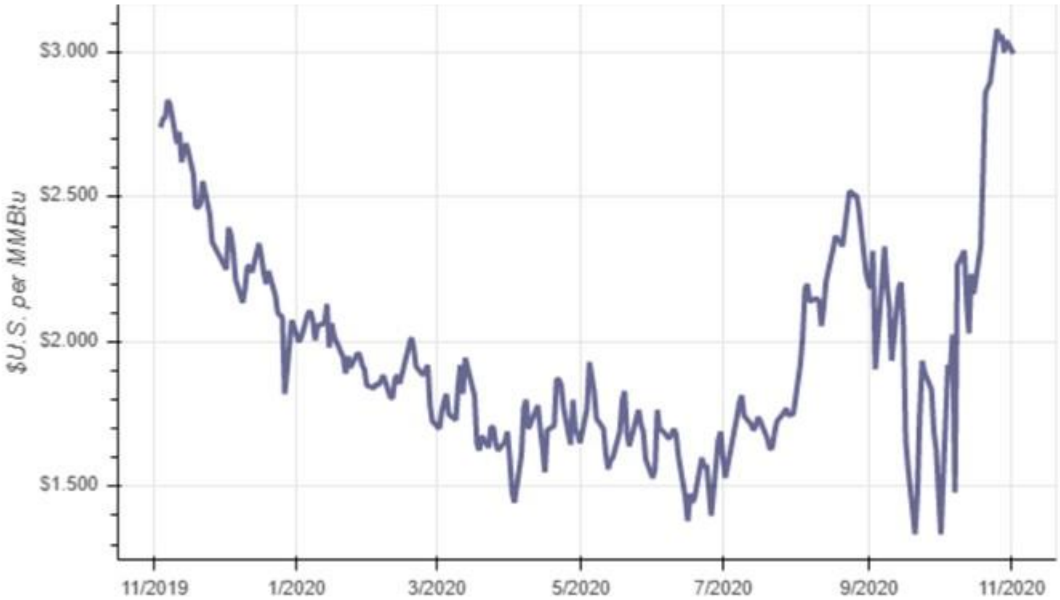
Source: Company data

Improving global gas industry pricing sentiment

As EEG rightly points out, global gas market sentiment has significantly improved since the end of September, with both Henry Hub and Asian (Platts JKM) LNG spot pricing recovering from lows recorded in May/June (HH: US$1.48/mmbtu 25 June; North-Asian: US$1.85/mmbtu in early-May), impacted by cargo deferments, displacements & cancellations due to wide-scale COVID-19 demand destruction.

The CME forward curves are implying US Henry Hub prices will average $2.93/mmbtu in 2021, while the Asian LNG JKM (Platts) series will average $5.43/mmbtu next year, similar to current spot prices.

Exhibit 7: Henry Hub gas 12-month historical price series (USD/MMBtu)



Source: EIA data; NGI

Exhibit 8: Long-chain liquid hydrocarbons: uses & typical pricing links

Gas	Carbon	Uses	Sales Price basis	
Methane	C1	Power generation Manufacturing (ammonia; hydrogen; fertiliser; methanol, glass, building materials) Cooking and heating	Gas $	
Ethane	C2	Petrochemical feedstock (ethylene) Power generation Manufacturing (plastics; detergents)	Gas $ + premia	
Propane (LNG)	C3	Cooking Transport Petrochemical feedstock Refrigeration	Oil price linked	
Butane	C4	Petrochemical & petroleum refinery feedstock Motor gasoline blending Manufacturing (synthetic rubber)	Oil price linked	
Pentane	C5	Petrochemical feedstock Motor gasoline additive Heavy crude oil dilutant Manufacturing (solvents)	Oil price linked	

Source: Company data

Exhibit 9: Financial Summary

EMPIRE ENERGY GROUP LTD		EEG		
YEAR END		Dec		
NAV	**A$mn**	**$0.61**		
SHARE PRICE	A$cps	0.37	Last price	15-Nov
MARKET CAP	A$mn	118.1		
ORDINARY SHARES	M	324		
OPTIONS	M	19		

COMMODITY ASSUMPTIONS		2018	2019	2020E	2021E
Realised oil price	US$/b	59.86	59.76	38.86	42.21
Realised gas price	US$/mcf	3.24	2.72	2.68	2.67
Exchange Rate	A$:US$	0.7452	0.6958	0.6953	0.7166

EARNINGS	US$000s	2018	2019	2020E	2021E
Revenue		6,593	5,397	4,656	4,946
Cost of sales		(4,723)	(4,189)	(3,814)	(3,711)
Gross Profit		**1,870**	**1,208**	**842**	**1,235**
Other revenue					
Other income		2,192	155	200	200
Exploration written off		0	0	0	0
Finance costs		(801)	(637)	(286)	0
Impairment		0	(6,512)	(1,879)	0
Other expenses		(8,399)	(6,052)	(6,510)	(4,985)
Profit before tax		**(5,138)**	**(11,838)**	**(7,632)**	**(3,550)**
Taxes		(115)	(135)	(25)	0
NPAT Reported		**(5,254)**	**(11,973)**	**(7,657)**	**(3,550)**
Loss on discontinued operations		(10,714)	(4,102)	0	0
NPAT Underlying		**(15,968)**	**(16,075)**	**(7,657)**	**(3,550)**

CASHFLOW	US$000s	2018	2019	2020E	2021E
Operational Cash Flow		**2,828**	**1,267**	**117**	**485**
Net Interest		(2,974)	(1,885)	0	0
Taxes Paid					
Other		(115)	(135)	(30)	(30)
Net Operating Cashflow		**(261)**	**(753)**	**87**	**455**
Exploration		0	0	(2,781)	(4,300)
PP&E		(49)	0	0	0
Petroleum Assets		(168)	(1,848)	0	0
Net Asset Sales/other		359	20,008	(337)	(705)
Net Investing Cashflow		**(120)**	**17,407**	**(3,031)**	**(4,550)**
Dividends Paid		0	0	0	0
Net Debt Drawdown		(7,878)	(18,497)	(1,238)	(550)
Equity Issues/(Buyback)		11,677	8,037	8,109	3,160
Other		0	0	0	0
Net Financing Cashflow		**3,785**	**(10,693)**	**6,871**	**2,610**
Net Change in Cash		**3,404**	**5,961**	**3,927**	**(1,485)**

BALANCE SHEET	US$000s	2018	2019	2020E	2021E
Cash & Equivalents		4,157	9,882	13,810	12,326
PP&E & Development		31,241	26,633	27,057	31,806
Exploration		0	141	127	114
Other Assets		28,673	2,993	1,026	1,549
Total Assets		**64,071**	**39,650**	**42,020**	**45,795**
Debt		24,369	6,481	5,243	4,693
Other Liabilities		18,332	19,504	21,279	25,605
Total Liabilities		**42,701**	**25,985**	**26,523**	**30,299**
Net Assets/Shareholders Equ		**21,370**	**13,665**	**15,497**	**15,497**
Net Cash/(Debt)		(20,211)	3,401	8,567	7,632
Gearing dn/(dn+e)		-33%			

nm = not meaningful
na = not applicable

NET PRODUCTION		2018	2019	2020E	2021E
Crude Oil	kb	127	89	3	3
Nat Gas	mmcf	1,834	1,778	1,748	1,731
TOTAL	**kboe**	**432**	**385**	**294**	**291**
Product Revenue	A$mn	14.0	10.3	4.8	4.8
Cash Costs	A$mn	(5.1)	(4.4)	(2.4)	(2.4)
Ave Price Realised	A$/boe	32.49	26.84	16.48	16.45
Cash Costs	A$/boe	(11.84)	(11.54)	(8.00)	(8.10)
Cash Margin		**20.65**	**15.29**	**8.48**	**8.35**

RESOURCES and RESERVES		Prospective Resources		
		P90	P50	P10
Northern Territory				
Gas				
Lower Kyalla Fm	Bcf	24	72	161
Barney Creek Fm	Bcf	1,633	11,053	45,380
Velkerri Fm	Bcf	1,283	2,339	4,751
Wollogorang Fm*	Bcf	524	1,185	2,371
TOTAL		**3,464**	**14,649**	**52,663**
Oil*				
Barney Creek Fm	Mb	66	174	403
Velkerri Fm	Mb	8	24	62
Wollogorang Fm	Mb	10	24	47
TOTAL		**84**	**222**	**512**

*Netherland, Sewell & Associates did not update the Wollogorang or Oil resource estimates

		1P	2P	3P
US				
Gas	Bcf	24.3	34.4	38.2

EQUITY VALUATION	Risked Range (In A$M)			Risked Range Per Share (A$)		
NT	Low	Mid	High	Low	Mid	High
Gas	$92	$126	$269	$0.29	$0.39	$0.83
Oil	$40	$54	$116	$0.12	$0.17	$0.36
US Onshore						
Appalachian	$5	$10	$15	$0.02	$0.03	$0.05
	$137	**$190**	**$400**	**$0.42**	**$0.59**	**$1.24**
Net cash/(debt)	$11	$11	$11			
Corporate cost	($5)	($5)	($5)			
TOTAL	**$143**	**$196**	**$406**	**$0.44**	**$0.61**	**$1.26**

RATIO ANALYSIS		2018	2019	2020E	2021E
Shares Outstanding	M	2313	263	324	337
EPS (pre sig items)	UScps	(1.05)	(6.46)	(2.37)	(1.05)
EPS	Acps	(1.41)	(9.29)	(3.40)	(1.47)
PER	x	na	na	na	na
OCFPS	Acps	(0.15)	(4.12)	0.39	1.88
CFR	x	na	na	na	na
DPS	Acps				
Dividend Yield	%				
BVPS	Acps	1.2	7.5	6.9	6.4
Price/Book	x	29.4x	4.9x	5.3x	5.7x
ROE	%		na	na	na
ROA	%		na	na	na
(Trailing) Debt/Cash	x				
Interest Cover	x				
Gross Profit/share	Acps		6.6	3.7	5.1
EBITDAX	A$M	2.3	0.6	(2.0)	(2.1)

Source: RaaS Advisory

FINANCIAL SERVICES GUIDE

RaaS Advisory Pty Ltd

ABN 99 614 783 363

Corporate Authorised Representative, number 1248415

of

BR SECURITIES AUSTRALIA PTY LTD

ABN 92 168 734 530

AFSL 456663

Effective Date: 26th November 2018

About Us

BR Securities Australia Pty Ltd (BR) is the holder of Australian Financial Services License ("AFSL") number 456663. RaaS Advisory Pty Ltd (RaaS) is an Authorised Representative (number 1248415) of BR.

This Financial Service Guide (FSG) is designed to assist you in deciding whether to use RaaS's services and includes such things as

- who we are
- our services
- how we transact with you
- how we are paid, and
- complaint processes

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RaaS is the entity providing the authorised AFSL services to you as a retail or wholesale client.

What Financial Services are we authorised to provide? RaaS is authorised to

- provide general advice to retail and wholesale clients in relation to
    - Securities
- deal on behalf of retail and wholesale clients in relation to
    - Securities

The distribution of this FSG by RaaS is authorized by BR.

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Our dealing service

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We may also receive a fee for our dealing service, from the company issuing the securities.

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If you have a complaint about our service you should contact your representative and tell them about your complaint. The representative will follow BR's internal dispute resolution policy, which includes sending you a copy of the policy when required to. If you aren't satisfied with an outcome, you may contact AFCA, see below. BR is a member of the Australian Financial Complaints Authority (AFCA). AFCA provide fair and independent financial services complaint resolution that is free to consumers.

Website: www.afca.org.au; Email: info@afca.org.au; Telephone: 1800931678 (free call)

In writing to: Australian Financial Complaints Authority, GPO Box 3, Melbourne, VIC, 3001.

Professional Indemnity Insurance

BR has in place Professional Indemnity Insurance which satisfies the requirements for compensation under s912B of the Corporations Act and that covers our authorized representatives.

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