

Policy; funding & drill commencement wins propel forward

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 province 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. Recent 2D seismic results enabled a 22% upgrade of EEG's NT P50 prospective resources to 13.5 Tcf gas. Crystallising EEG's longer-term potential rests on successful drilling and production testing. EEG has begun a ~40-day vertical drill program to ~2900m to test the Velkerri/Kyalla Shales. We believe this \$10m program can comfortably be funded from recently-bolstered cash reserves. Formation evaluation data updates are expected by November & will inform on 2021's fracture stimulation program.

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 works may generate cashflows within 36-48 months, assuming links and upgrades to existing pipeline infrastructure are delivered in parallel. COVID-19 disruptions have delayed, not dented, EEG's opportunities.

Beetaloo: a centrepiece for national gas developments

EEG has commenced drilling in the Beetaloo, a key national energy centrepiece and released its interim accounts on September 11. EEG recorded a US\$1.88m write-down on its US operations, resulting in an after-tax loss of US\$4.1M and ended the half year with US\$6.9m in gross cash. EEG's funding position continues to improve, with the recently completed A\$10m share placement and A\$8m+ from the exercise of 26 September options including A\$1.9m from directors. Recent improving macro certainties, including a recovery in global gas pricing and in Australia's gas policy directions, have helped prop and propel EEG's share price since mid-August. The positive policy events included i) the re-election of the NT's onshore-gas supportive Labor government and ii) the release of the Australian's prime minister's new gas reinvigoration strategy, incorporating a Beetaloo Sub-Basin development plan as one of its cornerstones. We expect investor focus will turn inwards to EEG's drilling activities. Upcoming events include: a) November NT drill results; b) Carpentaria-1 vertical hydraulic fracturing approvals; & c) landowner access approvals on other tenements. Robust results from EEG's 20/21 drill programs could evolve its P50 13.46 Tcf resource estimate into a 2C contingent resource, positioning EEG to attract strong funding partners. Positive read-throughs from Beetaloo neighbour activities (eg Origin/Santos) also could inject value.

Valuation

We assign a base case valuation of \$182m or \$0.56/share (previously \$0.61/share) after adjusting for the options conversion, additional cash and pulling through more exploration costs in FY20. 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)	26.2
12/19a	5.4	1.2	(12.0)	(4.12)	(9.29)	4.3
12/20e	4.7	0.8	(7.7)	0.40	(3.47)	4.7
12/21e	4.4	0.7	(4.1)	1.79	(1.75)	5.0

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

Energy exploration & production

29 September 2020

Share details

ASX Code	EEG
Share price	\$0.325
Market Capitalisation	\$105.1M
Shares on issue	323.5M
Net cash at 29 Sept	~US\$7.7M
Gross cash at 29 Sept	~\$14.9M

Share performance (12 months)



Upside Case

- EEG's Carpentaria-1 drill program confirms the Beetaloo Velkerri/Kyalla shales extend into EP187; holding both gas & liquids
- 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

Company contacts

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*The analyst holds shares

Empire Energy Group – 1H 2020 half yearly report

Drilling of Empire Energy Group (EEG)'s first stand-alone Beetaloo Sub-Basin vertical well (Carpentaria-1), by Schlumberger Land Rigs 183 rig, since the Australian Northern Territory's onshore fracture stimulation moratorium lifted in 2018 has now commenced.

In addition, EEG has released its half yearly report and financial accounts to June 2020.

Of note, EEG's Carpentaria-1 will be only the second well drilled in the Beetaloo Sub-Basin since the 2018 moratorium lifting, following on from Origin Energy's Kyalla-117 horizontal well. Drilling programs in the Beetaloo are helping to validate the Sub-Basin as containing world class commercial hydrocarbon significance. EEG holds the largest position of any company in the basin. EEG is also the only independent ASX-listed junior explorer with exposure to both the Beetaloo and McArthur tenements.

Comments from EEG's Chair and MD contained in EEG's Operations Review and Shareholder letter are in line with our expectations, following a successful six months focused on value-adds, despite the significant navigational headwinds posed by the unfolding COVID-19 global pandemic this year.

EEG has had to contend with operating safely in a COVID-secure manner across two jurisdictions, the US Appalachia and Australian's Northern Territory, this year, as the company continues its strategic investment pivot from US conventional gas and oil production towards exploring the gas and liquids upside on its huge 14.5m acre (56,000 sq km) tenement position in the Northern Territory's highly prospective McArthur-Beetaloo basin.

Looking Ahead:

We identify key share price event drivers include:

- a) **NOW:** commencement of the fully-approved 40-day Carpentaria-1 vertical drilling down to a depth of ~2,900m to confirm the extension, depth and thickness of the Velkerri & Kyalla productive shale target areas, on EEG's EP187 permit; as well as understand the rock properties, hydrocarbon content, formation permeability and reservoir pressure of the Shales, with the aim of further upgrading its regional hydrocarbon resource estimates. (Current P50 resource: 13.46 Tcf) and also to plan for the next phase of work, by identifying the "best sections" for the vertical hydraulic stimulation of the well.
- b) **November 2020:** publication of drilling results from the Carpentaria-1 vertical well;
- c) **Ongoing:** NT Environment Management Plan approvals for the Carpentaria-1 vertical hydraulic fracturing and production flow test program, which is planned for 2Q 2020, following an end to the NT wet season, ahead of commencing a horizontal stimulation program later in the year.
- d) **Ongoing:** Landowner & native title access approvals for at least one of EEG's other tenements (EP180, 181, 182, 183, 188) to expand its hydrocarbon exploration program.
- e) **Ongoing:** Positive read-throughs from Beetaloo neighbour exploration and corporate activities (eg Origin/Santos) as they recommence their pre-COVID-19 approved work programs.
- f) **By Year-End:** covenant negotiations with its US bankers.

Future funding sources

As discussed in our previous reports, we believe EEG has a number of future potential funding sources, 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 ~19m outstanding unlisted options exercisable at share prices of A\$0.30, \$0.32 and \$0.60, over various periods through until 30 December 2022. The company has just

raised more than A\$8m from the exercise of its 26 September 2020 \$0.30 options with more than 75% of the 28.556m options on issue exercised.

Exhibit 1: EEG unlisted option details				
Date	Option Class	Issued No	Exercise price A\$	Gross Cash Value A\$
26/10/2020	Unlisted	600,000	0.30	180,000
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

Looking Back:

Since 30 June 2020, the key highlights which we believe have supported the continuing positive outlook for EEG have included:

A) Total additional funding of A\$18.75m raised since 30 June

- An A\$10m gross capital raise at A\$0.30 per share was finalised on 2 September 2020. 33,333,334 new shares were issued on 4 September 2020 to institutional and sophisticated investors.
- The receipt of early forthcoming capital injection of ~A\$1.86m, following the early commitments announced by EEG Directors on 24 August to exercise their 26 September 2020 options (totalling 6,187,500) at A\$0.30 per share.
- Notification by substantial shareholder Global Energy & Resources Development Limited on 15 September 2020 of its intention to exercise 2.5m 26 September 2020 options at A\$0.30, raising a further \$0.75m for EEG.
- Announcement on 29 September that all but 9.311m of the 28.556m \$0.30 options expiring on 26 September were exercised by shareholders, bringing in another \$6.1m in additional capital.

B) Greater Macro Policy support & clarity gained since 30 June

- The 22 August 2020 re-election of the Gunner Labor government in the NT for another 4-year term, has confirmed ongoing majority-electoral support for onshore gas developments, providing forward policy stability and investment certainty for the onshore exploration sector. The NT's Gas Strategic Vision aims to see the Territory as a world class gas production, manufacturing and services hub by 2030, while contributing to Australia's onshore energy security.
- The 15 September "new energy development statement" announced by the Australian Prime Minister, Scott Morrison, will include a new Strategic Basin Development Plan to support Beetaloo Sub-Basin's commercial gas production, the first of 5 such basin plans, together with the establishment of an Australian gas hub at Wallumbilla in Queensland, which will interlink 6 gas fields, including the Beetaloo. Meanwhile both Darwin LNG export terminals (Santos-Darwin / INPEX-Ichthys) have environmental approvals to expand their train capacity, allowing EEG a well-diversified suite of commercialisation routes.

C) Improved gas commodity market sentiment

As EEG rightly points out, global gas market sentiment has improved since the end of the June, with both Henry Hub and Asian (Platts JKM) LNG spot pricing recovering from lows recorded below \$1.50/MMBtu in mid-June, impacted by cargo deferments & cancellations due to wide-scale COVID-19 demand destruction.

The CME forward curves are implying US Henry Hub prices will average \$2.90/mmBtu in 2021, while the Asian LNG JKM (Platts) series will average \$5.00/MMBtu next year, above current spot prices.

Exhibit 2: Henry Hub gas 12-month historical price series (USD/MMBtu)



Source: EIA data; Refinitiv

Meanwhile, key highlights for the January-June 2020 six month period included:

- Completion of the data analysis from the late-2019 231km line 2D seismic survey. Analysis findings delineated 2 prospective Beetaloo Sub-basin portions on the southern part of EEG’s EP187 tenement. One portion extends across ~40,000 acres (~160km² - ~30,000 football ovals), while the other extends across ~25,000 acres (~100km²). These results now need to be confirmed by drilling.
- The 22% uplift to EEG’s NT P50 estimates to 13.46 Tcf. These were independently assessed by US-based Netherland, Sewell & Associates. The company’s Velkerri Shale formation P50 resource estimate jumped 96.2% from 1.2Tcf gas to 2.3Tcf gas, while its Kyalla Shale formation came in with a maiden P50 resource estimate of 72 Bcf gas (14m boe). *Both shales will be under assessment in EEG’s upcoming Carpentaria-1 vertical drilling program, with the aim of evolving the P50 13.46 Tcf resource estimate into a 2C contingent resource.*

Exhibit 3: EEG’s McArthur Basin Prospective Resource upgrade										
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		4,211	11,076	25,629	TOTAL		2,940	13,464	50,292	21.6%

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

- The receipt of NT Government approvals to drill the Carpentaria-1 vertical well on EEG’s EP187 permit under the new regulatory regime, which enabled EEG to finalise all the site preparation details for the ~2,900m 40-day campaign.
- The strengthening of EEG’s Board of Directors, with the appointment of Peter Cleary in late-May as a non-executive director. Peter previously worked in a range of LNG & pipeline gas commercial, strategy and corporate development roles, with Mitsubishi, Santos and BP (including serving as President of the NW Shelf LNG marketing JV).
- The strengthening of EEG’s technical management team capabilities, with the appointment of Dr Alex Bruce. With his Doctorate earned from Uni of NSW in Reservoir Characterisation, Alex’s most recent role was with New Hope’s Bridgeport Energy.
- The negotiation of a waiver with EEG’s US Bankers, Macquarie Bank Limited (*also a substantial shareholder, with 8.92%*), for all financial covenants under its US credit facility up to and including COB 31

December 2020, in return for a US\$825,000 capital repayment to reduce outstanding commitments to US\$6.675m, maturing September 2024. Interest costs are covered from quarterly Appalachian conventional production cashflows of ~US\$0.1375m/quarter.

- The granting of a US\$0.55m forgivable Paycheck Protection Program (PPP) loan for EEG's US operations during the 2nd Quarter, as part of the US Coronavirus Aid, Relief and Economic Security Act designed to retain staff, repayable by November 2022. The Company has been fortunate to experience no confirmed cases of the virus among its workforce and remained cleared to continue operating its New York State and Pennsylvania Appalachia onshore conventional energy assets throughout the COVID-19 shutdowns, as an "**essential service**".
- EEG's Appalachian operations produced 837,814 Mcf in 1H 2020, compared to 881,535 Mcf in 1H19, reflecting a) some natural field declines and b) selective shut-ins when local spot gas prices reached their historic lows during the half due to COVID-19 demand losses.

We note that EEG's Appalachian conventional gas production business is running at a marginal loss at prevailing US gas prices. EEG's gas hedging risk management program extends until end-2023, providing additional protection for the US Appalachian operations in case of further falls in pricing. The hedges have all been set at a floor price of \$2.50/mmBtu, with premia of up to US\$0.41/mmBtu to be paid.

Exhibit 4: EEG US Gas production hedging (2020-2023)

Period	Volume mmbtu/month	Hedge Type	Strike Price US\$/mmbtu	Premium US\$/mmbtu
Jul 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

Financials at a Glance – as at June 2020

- Cash at Bank: US\$6.87m (At September 29, gross cash balance is A\$21m or ~US\$14.9m)
- Outstanding Debt: US\$7.2m (of which, US\$552,600 is the PPP forgivable loan & \$6.675m is the US debt)
- Net Assets: US\$9.7m
- 1H 2020 Group Revenue: US\$2.3m
- 1H 2020 Group Loss: (US\$4.1m); Loss per share: US\$1.44 cents
- 1H 2020 net operating cash outflows: US\$1.5m
- 1H 2020 US business assets impairment: US\$1.879m (due to the decline in *discount rate used to calculate the Asset Retirement Obligation from 3.04% to 2.34% (representing the NPV of decommissioning costs to 2050) & gas price falls*)

We note that EEG's directors and Nexia Sydney Partnership auditors signed off on the 2020 Half Yearly Accounts as true and fair.

Upcoming Beetaloo regional hydrocarbon exploration programs

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

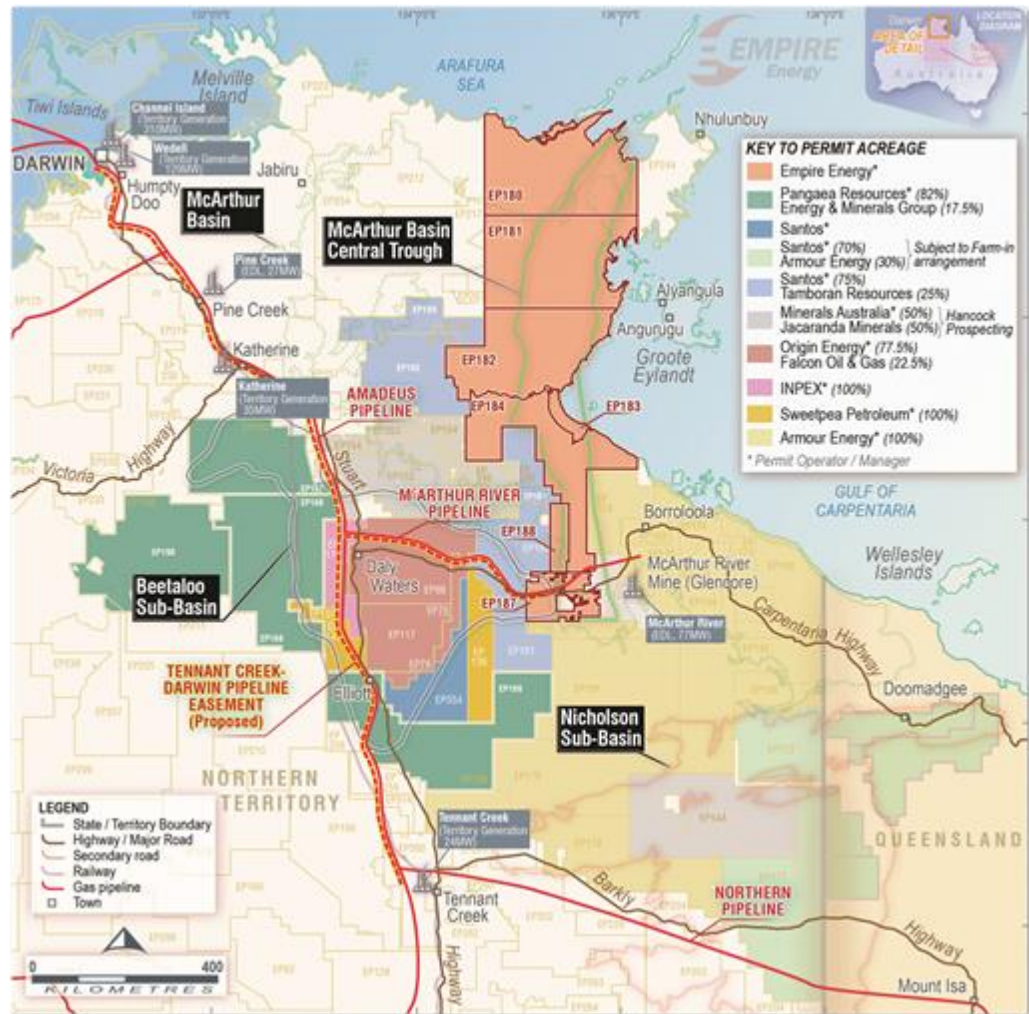
Company	Activity Scheduled	Timeline
EEG	EP187 Carpentaria-1 vertical drill program ~2900m (Kyalla & Velkerri shale appraisal)	3Q/4Q 2020
Origin-Falcon JV	EP 117 Kyalla 117 N2 1H ST2 extended horizontal production flow test continuance - targeting liquids rich gas fairway. 4Q19: announced C3,C4,C5 & elevated gas shows & total Kyalla thickness of 900m	4Q 2020
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
Santos-Tamboran JV	EP 161 Tanumbirini-1 extended flow test completion 1Q20: gas discovery & maiden resource from "above-expected" flow test results of 1.2mmscf/d	1H 2021
Sweetpea Petroleum	NT EMP for 2D seismic program is under consideration	2021
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 Inacumba-1 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

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

The **Origin/Falcon JV** announced that is considering restarting its Kyalla-117 lateral fracture stimulation and extended production testing work program during 4Q 2020, with final results due by the end of 1Q 2021. Origin is hopeful the Velkerri and Kyalla formations may be stacked, as well as contain both gas and liquid potential, 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 the JV, while expanding the total work program investment cap from A\$113.3m to A\$263.8m, a strong vote of confidence in the region, particularly during COVID-19.

Meanwhile **Santos** has officially announced it will restart work on its Tanumbirini-1 well next year. Santos announced a maiden 2C prospective resource of 22mm boe (~130PJ or 170Bcf gross) in 1H20, after discovering gas, demonstrating "better-than-expected" flow test rates of >1.2mmscf/day from the vertical hydraulic fracture stimulation of its EP161 Tanumbirini-1 well. Santos has also 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

Exhibit 7: Financial Summary

EMPIRE ENERGY GROUP LTD		EEG					
YEAR END		Dec					
NAV	A\$mn	\$0.56					
SHARE PRICE	A\$cps	0.33	Last price				
MARKET CAP	A\$mn	105.1					
ORDINARY SHARES	M	324					
OPTIONS	M	19					
28-Sep							
COMMODITY ASSUMPTIONS		2018	2019	2020E	2021E		
Realised oil price	US\$/b	59.86	59.76	37.60	40.60		
Realised gas price	US\$/mcf	3.24	2.72	2.47	2.36		
Exchange Rate	A\$:US\$	0.7452	0.6958	0.6822	0.6894		
EARNINGS		US\$000s	2018	2019	2020E	2021E	
Revenue			6,593	5,397	4,656	4,414	
Cost of sales			(4,723)	(4,189)	(3,814)	(3,711)	
Gross Profit			1,870	1,208	842	702	
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)	(4,083)	
Taxes			(115)	(135)	(25)	0	
NPAT Reported			(5,254)	(11,973)	(7,657)	(4,083)	
Loss on discontinued operations			(10,714)	(4,102)	0	0	
NPAT Underlying			(15,968)	(16,075)	(7,657)	(4,083)	
CASHFLOW		US\$000s	2018	2019	2020E	2021E	
Operational Cash Flow			2,828	1,267	117	447	
Net Interest			(2,974)	(1,885)	0	0	
Taxes Paid							
Other			(115)	(135)	(30)	(30)	
Net Operating Cashflow			(261)	(753)	87	417	
Exploration			0	0	(2,729)	(4,137)	
PP&E			(49)	0	0	0	
Petroleum Assets			(168)	(1,848)	0	0	
Net Asset Sales/other			359	20,008	(337)	(667)	
Net Investing Cashflow			(120)	17,407	(2,979)	(4,387)	
Dividends Paid			0	0	0	0	
Net Debt Drawdown			(7,878)	(18,497)	(1,238)	(550)	
Equity Issues/(Buyback)			11,677	8,037	7,956	3,040	
Other			0	0	0	0	
Net Financing Cashflow			3,785	(10,693)	6,718	2,490	
Net Change in Cash			3,404	5,961	3,827	(1,479)	
BALANCE SHEET		US\$000s	2018	2019	2020E	2021E	
Cash & Equivalents			4,157	9,882	13,710	12,231	
PP&E & Development			31,241	26,633	27,010	31,596	
Exploration			0	141	127	114	
Other Assets			28,673	2,993	988	1,496	
Total Assets			64,071	39,650	41,835	45,437	
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 Equity			21,370	13,665	15,312	15,138	
Net Cash/(Debt)			(20,211)	3,401	8,466	7,537	
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	4.5	4.3	
Cash Costs	A\$mn		(5.1)	(4.4)	(2.4)	(2.4)	
Ave Price Realised	A\$/boe		32.49	26.84	15.21	14.62	
Cash Costs	A\$/boe		(11.84)	(11.54)	(8.00)	(8.10)	
Cash Margin			20.65	15.29	7.21	6.52	
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		\$84	\$117	\$252	\$0.26	\$0.36	\$0.78
Oil		\$36	\$50	\$108	\$0.11	\$0.15	\$0.33
US Onshore							
Appalachian		\$5	\$10	\$15	\$0.02	\$0.03	\$0.05
		\$125	\$176	\$374	\$0.39	\$0.54	\$1.16
Net cash/(debt)		\$11	\$11	\$11			
Corporate costs		(\$5)	(\$5)	(\$5)			
TOTAL		\$130	\$182	\$380	\$0.40	\$0.56	\$1.17
RATIO ANALYSIS			2018	2019	2020E	2021E	
Shares Outstanding	M		2313	263	324	337	
EPS (pre sig items)	US\$cps		(1.05)	(6.46)	(2.37)	(1.21)	
EPS	Acps		(1.41)	(9.29)	(3.47)	(1.75)	
PER	x		na	na	na	na	
OCFPS	Acps		(0.15)	(4.12)	0.40	1.79	
CFR	x		na	na	na	na	
DPS	Acps						
Dividend Yield	%						
BVPS	Acps		1.2	7.5	6.9	6.5	
Price/Book	x		26.2x	4.3x	4.7x	5.0x	
ROE	%			na	na	na	
ROA	%			na	na	na	
(Trailing) Debt/Cash	x						
Interest Cover	x						
Gross Profit/share	Acps			6.6	3.8	3.0	
EBITDAX	ASM		2.3	0.6	(2.4)	(2.6)	

Source: RaaS Advisory



FINANCIAL SERVICES GUIDE

RaaS Advisory Pty Ltd

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Corporate Authorised Representative, number 1248415

of

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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

Contact Details, BR and RaaS

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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.

Our general advice service

Please note that any advice given by RaaS is general advice, as the information or advice given will not take into account your particular objectives, financial situation or needs. You should, before acting on the advice, consider the appropriateness of the advice, having regard to your objectives, financial situation and needs. If our advice relates to the acquisition, or possible acquisition, of a particular financial product you should read any relevant Prospectus, Product Disclosure Statement or like instrument. As we only provide general advice we will not be providing a Statement of Advice. We will provide you with recommendations on securities

Our dealing service

RaaS can arrange for you to invest in securities issued under a prospectus by firstly sending you the offer document and then assisting you fill out the application form if needed.

How are we paid?

RaaS earns fees for producing research reports. Sometimes these fees are from companies for producing research reports and/or a financial model. When the fee is derived from a company, this is clearly highlighted on the front page of the report and in the disclaimers and disclosures section of the report.

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

Associations and Relationships

BR, RaaS, its directors and related parties have no associations or relationships with any product issuers other than when advising retail clients to invest in managed funds when the managers of these funds may also be clients of BR. RaaS's representatives may from time to time deal in or otherwise have a financial interest in financial products recommended to you but any material ownership will be disclosed to you when relevant advice is provided.

Complaints

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.

DISCLAIMERS and DISCLOSURES

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Assessment of risk can be subjective. Portfolios of equity investments need to be well diversified and the risk appropriate for the investor. Equity investments in listed or unlisted companies yet to achieve a profit or with an equity value less than \$50 million should collectively be a small component of a balanced portfolio, with smaller individual investment sizes than otherwise. Investors are responsible for their own investment decisions, unless a contract stipulates otherwise. RaaS Advisory does not stand behind the capital value or performance of any investment. Subject to any terms implied by law and which cannot be excluded, RaaS Advisory shall not be liable for any errors, omissions, defects or misrepresentations in the information (including by reasons of negligence, negligent misstatement or otherwise) or for any loss or damage (whether direct or indirect) suffered by persons who use or rely on the information. If any law prohibits the exclusion of such liability, RaaS Advisory limits its liability to the re-supply of the Information, provided that such limitation is permitted by law and is fair and reasonable. Copyright 2020 RaaS Advisory Pty Ltd (A.B.N. 99 614 783 363). All rights reserved.