

## Resource uplift brightens valuation metrics 20%

Empire Energy Group Limited (ASX:EEG) is a junior oil and gas producer and explorer with onshore oil & gas shale 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) boost to future east coast Australia's energy needs and Darwin's expanding LNG export terminals, amid strong policy support from both the Northern Territory (NT) and Federal governments. The Beetaloo Basin alone is considered to contain recoverable shale dry gas volumes of over 100 Tcf, with liquids upside. EEG also owns conventional gas/oil assets in the US Appalachia, 80%-hedged at US\$2.50/mcf for 2020. Recent 2D seismic results have enabled a 22% upgrade of EEG's NT P50 prospective resource estimates to 13.5 Tcf gas (vs 11 Tcf previously). Crystallising EEG's longer-term potential rests on successful drilling; then securing strategic funding and infrastructure support to commercialise the acreage. With A\$11.3m gross cash, EEG is seeking to finalise a safe-work drill plan with local communities and NT authorities as soon as practicable.

### 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 holds substantial exploration acreage in Australia's Northern Territory McArthur-Beetaloo basin and is the 2<sup>nd</sup> largest conventional gas producer in the US Appalachia NY State. EEG's NT assets are at an early exploration stage. Given the region's high prospectivity, success from future drill programs could see cashflows within 36-48 months, assuming links and upgrades to existing pipeline infrastructure are delivered in parallel. COVID-19 delays, not dents, the opportunity.

### Significant prospective gas resource uplift in NT McArthur

EEG has announced a significant independent P50 prospective resource upgrade of its NT McArthur-Beetaloo basin tenement holdings, with a 22% increase in its gas prospective resources from 11.1tcf to 13.5tcf. The upgrade follows recent 2D seismic results on its EP187 property confirming the Beetaloo's extension into EEG's permit zone. Gross cash of ~A\$11.3m leaves EEG funded to support its 2020 EP187 Carpentaria-1 work program appraisal aims in line with its 2018 strategic pivot towards the McArthur-Beetaloo. We chiefly await a) NT drilling commencement (COVID-19 safe-work clearance & a rig supply contract); b) NT EMP submission for Carpentaria-1's vertical frac; c) regional land access clearance for EEG's other tenement applications. Robust results from EEG's 20/21 programs could evolve this latest prospective resource (P50) into a contingent resource (2C), better positioning the company to attract strong potential funding partners. Positive read-throughs from Beetaloo neighbours (Origin & Santos) are also likely to inject value.

### Valuation upgrade

Following EEG's P50 prospective resource upgrade, we have increased our base case valuation by 20% to \$159m or \$0.61/share (previously \$133m (\$0.51/share), using the RaaS 2Q20 commodity price deck and current share count of 263.3m. EEG has a number of event drivers over the next 6-12 months which in our view hold potential to confirm and expand this 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)	18.6
12/19e	5.4	1.2	(12.0)	(4.12)	(9.29)	3.1
12/20e	4.7	1.4	(3.3)	1.32	(1.95)	5.1
12/21e	4.4	1.1	(3.7)	2.82	(2.22)	8.8

Source: Company data, RaaS estimates for FY19e, FY20e and FY21e \*restated

## Energy exploration & production

20 May 2020

### Share details

ASX Code	EEG
Share price (18 May)	\$0.23
Market Capitalisation	\$60.6M
Shares on issue	263.3M
Net cash	~US\$0.67M
Gross cash	~US\$7.35M

### Share performance (12 months)



### Upside Case

- EEG's Carpentaria-1 drill program proves the Beetaloo Velkerri/Kyalla shales extend into EP187 & hold 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 NT permits (EP180-188) values
- Continuing equity issue financing is 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

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## Resource uplift from independent assessment

Exhibit 1: EEG's McArthur Basin Prospective Resource upgrade										
BEFORE		P90	P50	P10	AFTER		P90	P50	P10	Delta
Northern Territory					Northern Territory					
<b>Gas</b>					<b>Gas</b>					
					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						
<b>TOTAL</b>		<b>4,211</b>	<b>11,076</b>	<b>25,629</b>	<b>TOTAL</b>		<b>2,940</b>	<b>13,464</b>	<b>50,292</b>	<b>21.6%</b>

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

EEG has announced a 22% uplift in its independent prospective resource to 13.5tcf from 11.1tcf across its 14.5m acre regional tenement holdings. Of particular note, EEG's Kyalla shale formation P50 resource estimate has been independently assessed for the first time, kicking off with 72 bcf of gas or 14m boe.

Meanwhile EEG's Velkerri shale formation P50 resource estimate has risen from 1.2tcf gas to 2.3tcf gas, up 96.2%. EEG's Barney Creek shale was also reassessed, with the formation's P50 increasing from 8.7tcf to 11tcf gas (+27.1%). The Wollogorang prospect was not reassessed by Netherland, Sewell and Associates as further delineation is required.

The updated results incorporate the latest publicly-available regional geological survey data, together with EEG's own recent "better-than-expected" 2D seismic results which were concluded over 231-line kms on its EP187 Beetaloo sub-basin property in the McArthur basin last December. In particular, these highlighted that the Kyalla and Velkerri hydrocarbon-prospective shale sequences extended into EEG's EP 187 permit zone.

The resource estimate upgrade work was prepared by Netherland, Sewell and Associates Inc (NSAI), a leading global specialist petroleum property evaluation consultancy, based in Texas USA.

EEG had last updated its NT tenement resource estimate in February 2016, prior to the NT's hydraulic fracturing moratorium which concluded in 2018. Its previous P50 Prospective Resource calculated a total of ~11Tcfe (~13k PJ) across its McArthur basin holdings, covering 5.5m/14.5m acres.

EEG has the largest acreage held by any company in the Australian Northern Territory's McArthur-Beetaloo region and is the only independent ASX-listed junior explorer in the region with exposure to both the Beetaloo and McArthur Basins.

### What Next?

EEG remains in talks to secure a drill rig for its Carpentaria-1 vertical well, after submitting its COVID-19 safety management plan to the NT's Chief Medical Officer. If approved, its employees and contractors will be exempt from border restrictions as it prepares to resume its drilling program plans.

EEG continues to progress on a number of fronts:

- The company is drafting the **Environmental Management Plan** for the next phase of its Carpentaria-1 well work program. Baseline environmental testing is ongoing.
- The company is prioritising negotiations with **local landowners** to gain regional land access clearance on its remaining Northern Territory permits, including EP180, 181, 182, 183 and 188.
- EEG has been approved by local authorities to continue operating its New York State and Pennsylvania Appalachia conventional energy assets during the COVID-19 shutdown. In both states, natural gas for power generation has been deemed an "**essential service**".

- d) The company obtained agreement with its US bankers to **waive all debt covenants until year-end**, allowing breathing space for US Henry Hub gas prices to recover above \$2/mmbtu, while providing investors with reasonable comfort that its US production assets can be self-sustaining for the remainder of 2020. EEG's 2020 Appalachian gas output is 80%-hedged at US\$2.50/mmBtu.

## Financials

EEG holds a total of A\$11.3m in gross cash, of which A\$9.5m is held in Australian dollars and US\$1.1m is held in US dollars.

Since its March quarterly report release on 29 April, EEG has seen its US cash holdings boosted by a US\$0.55m “forgivable” loan received under the US Paycheck Protection Program. The program has been established to support SME job retention during the COVID-19 pandemic. The funds can be applied to payroll, interest, rent & utility business expenses and are being kept in a segregated account focused on making such payments. EEG has 33 employees supporting its Appalachian conventional energy production business.

### Exhibit 2: EEG's cash position in AUD and USD terms

	AUD (m)	USD (m) *
Gross Cash	11.30	7.35
Debt	10.27	6.675
Net Cash	1.03	0.67

Source: Company data; assumes AUD-USD exchange rate of 1:0.65

Looking ahead, we consider EEG holds adequate cash reserves to fund its 2020 Carpentaria-1 vertical drilling plans in the Beetaloo sub-basin for the upcoming 12-months. We estimate well and appraisal costs are likely to range A\$5-8m, while Australian corporate overheads are running at ~A\$2.5m per annum. We note that our funding forecasts assume a COVID-19 shutdown of 2-3 months and incorporate a small potential upward revision of costs to take account of additional health and safety distancing measures.

## Future funding sources

As discussed in 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 ~57.43m unlisted options exercisable at share prices of A\$0.30, \$0.32 and \$0.60 over various periods through until 30 December 2022.

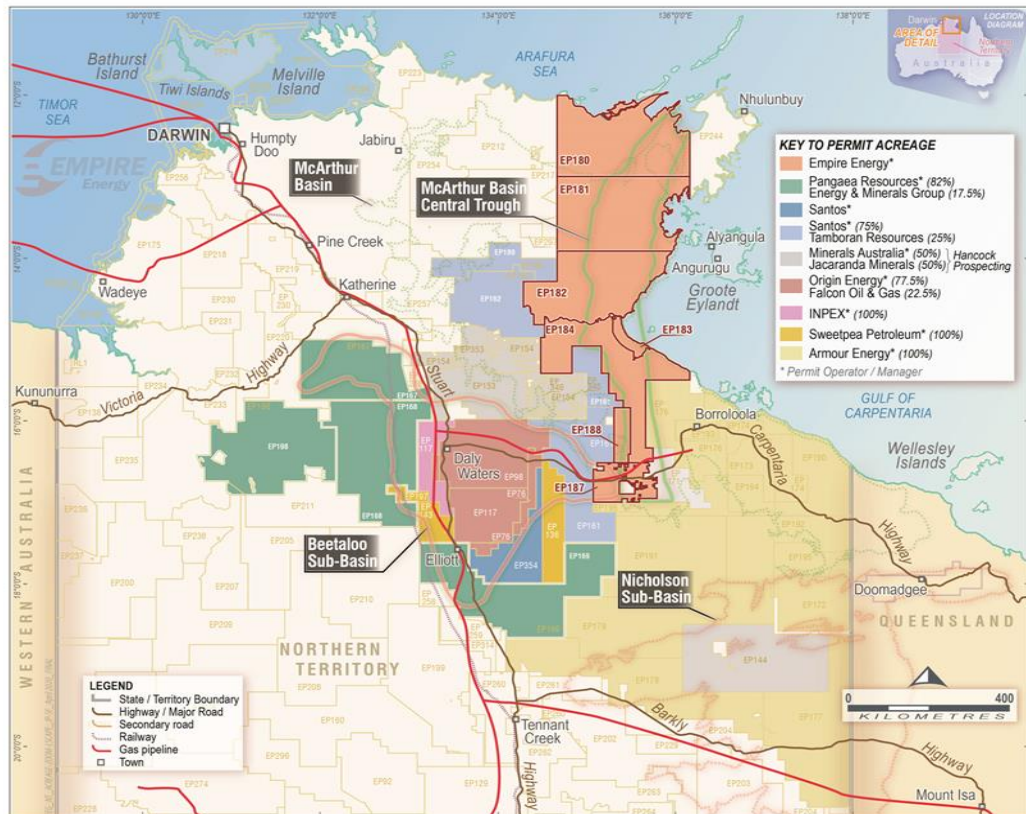
### Beetaloo neighbour activities to help validate world class hydrocarbon significance

**Exhibit 3: Beetaloo sub-basin: planned Regional Hydrocarbon Exploration**

Company	Activity Scheduled	Timeline
EEG	EP187 Carpentaria-1 vertical drill program ~2900m (Kyalla & Velkerri shale appraisal)	2H 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	2H 2020
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
Santos-Tamboran JV	EP161 Inacumba-1 vertical drilling	2H 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	2021

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

**Exhibit 4: McArthur-Beetaloo regional tenement holdings: EEG and neighbours**



Source: Company data





# FINANCIAL SERVICES GUIDE

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of

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Effective Date: 26<sup>th</sup> November 2018

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