



Empire Energy Limited (EEG)

20 May 2020

A growing gas bubble

Our View

CoVid 19 restrictions and project deferrals throw more constraints into the east coast gas supply thematic. Less activity and capital can only exacerbate production decline and slow new project development. The macro environment remains strongly supportive and new sources of supply will be required. Within that context Empire Energy represents one of few pure, independent and highly leveraged exposures to the transformational potential of the Beetaloo/McArthur basins. The plays and opportunities are at an early stage of evaluation but the process of resource definition (volumes, flow rates and liquids contents) can lock in a significant valuation base on success.

The company has released an updated Prospective Resource evaluation by Netherland-Sewell and we note increased gas potential at the 2U level and first definition of the prospective volumes associated the planned first well, Carpentaria-1 in EP187, at around 1.8Tcf (2U – unrisked). The Carpentaria prospect can be directly correlated to the neighbouring Santos (STO.ASX) success at Tanumbirini which flowed >1.2mmcf/d on test.

The prevailing CoronaVirus travel restrictions have resulted in a postponement of field activity, however, the timeline to a resumption of drilling may be somewhat sooner than previously considered.

Although it is early stage activity, the confidence level associated with the gas potential remains relatively high and EEG is sitting on an extensive gas resource.

There is intrinsic value in the asset base that will be defined by successful drilling results and ensuring the company is resourced and financed to capitalise on market opportunities.

Key Points

A Prospective Resources review and upgrade points to higher confidence.

EEG has commissioned a review of the gas potential of its acreage from Netherland-Sewell (first major review since 2015) which points to a 21.5% increase in Prospective Resources at 2U (P₅₀ level), to ~13.5Tcf based in part on new regional drilling and seismic data. This still needs to be defined by wells but points to increasing confidence on the plays and potential – the portfolio of positive results is growing. Success at the Carpentaria Prospect should enable the company to book a significant proportion of gas as a Contingent Resources ('C') as a precursor to commerciality.

Drilling will resume when conditions allow. There are multiple, basin wide field programmes set to resume when restrictions are lifted. We had suggested a pause of up to 12 months but with the NT emerging from lockdown, drilling could resume before end-2020 (TC assumption). Early results are encouraging and EEGs targets are large...success could deliver a quantum volume of gas.

We upgrade our valuation and Target Price. Based on increased gas potential (confidence levels) and adjustments to risk weightings, we value the company in a range of \$81-389mn (\$0.31-1.47/share).

Although our assigned value range is subjective, there is mounting confidence in the commercial potential of the assets based on in-ground data.

We set our recommendation at Speculative **BUY** with a **Target Price of \$0.31/share**, equivalent to our low-point valuation to reflect the current technical, market and operating uncertainties, noting the potential for a significant re-rating on resumption of drilling.

Recommendation: Spec BUY

Summary (AUD)

Market Capitalisation	\$64
Share price	\$0.245
52 week low (23-Mar-20)	\$0.13
52 week high (5-Nov-19)	\$0.55
Share price graph (AUD)	



Source: Yahoo Finance

Key Financials (US\$000s)

US\$	2019	2020E	2021E
Production (kboe)	385	294	303
Revenue	5,397	4,660	4,580
EBITDAX	724	779	575
EBIT	(10,034)	(3,421)	(4,014)
Underlying NPAT	(16,075)	(3,851)	(4,014)
EPS (Acps)	(9.3)	(2.3)	(2.4)
Growth (%)		na	na
PER (x)		nm	nm
EV/EBITDAX (x)		(16.2)	0.6
CFPS (Acps)	(4.1)	(2.0)	0.3
PCF (x)		nm	nm
ROE (%)		na	na
ROA (%)		na	na

Source: Company data; Analyst estimates, priced intra-day 20/05/20

A resources upgrade points to growing confidence

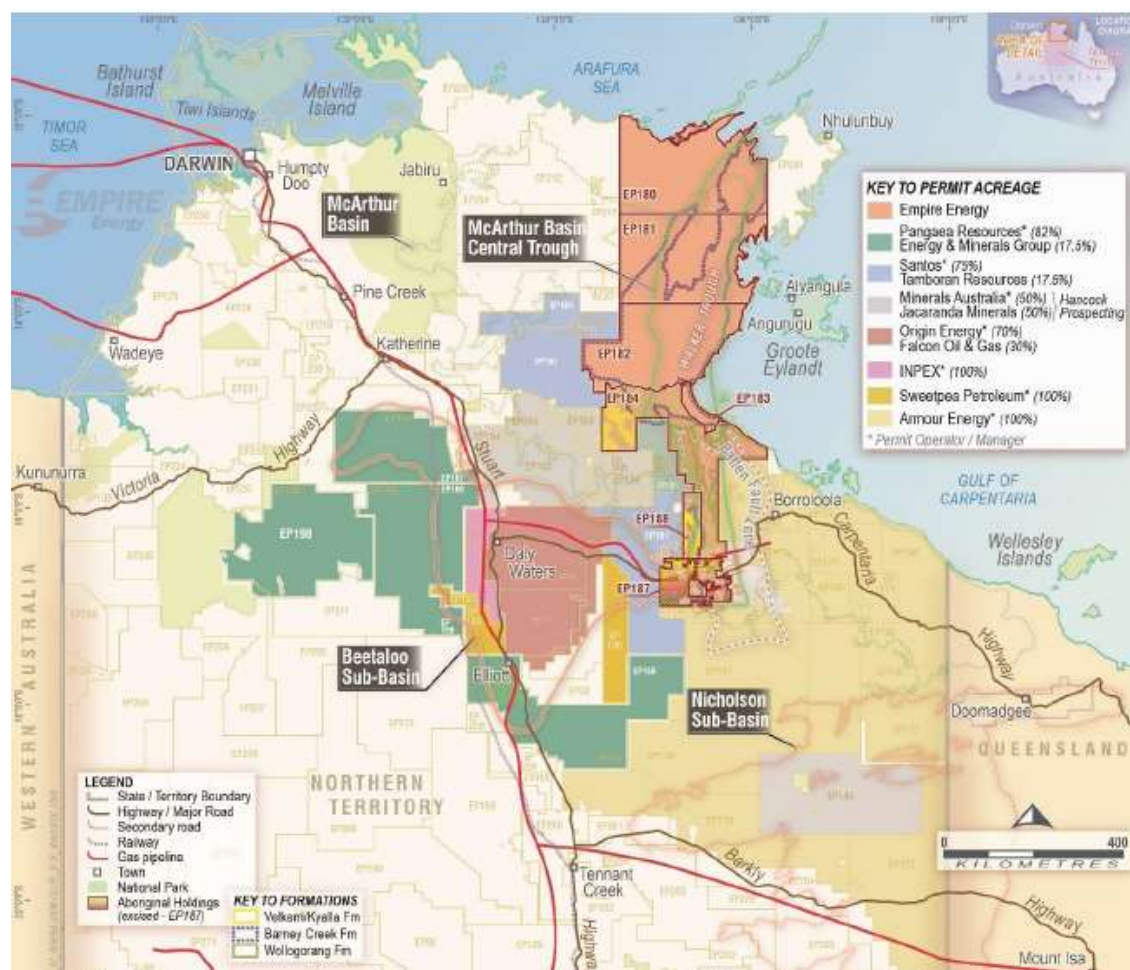
Empire Energy Group (EEG) released a Northern Territory resource update conducted by Netherland, Sewell and Associates, across the company's seven contiguous tenements. The last published resource analysis was conducted in 2015 (and updated in 2017).

The current study includes acreage additions and incorporates significant seismic and drilling data conducted over the last two-three years.

The data does not provide for a completely direct look-through comparison, with the new data including the Lower Kyalla interval but excluding the Wollogorang Formation, however, the results do outline a 21.5% increase in Prospective gas to 13,464Bcf (~14,000PJ) from previous assumptions, at the 2U (P₅₀) level.

The gas potential is bigger and regional in ground results point to higher confidence that this can be translated to a commercial outcome, although we add that upgrading to a Contingent Resource category requires testing and evaluation.

Figure 1: EEG holds 7 contiguous permits across some of the most prospective acreage in the territory



Source: Company data

It comes down to drilling

Pre CoVid restrictions, EEG had planned to drill and test its first well, with results to hand before end-2020. Three to four weeks ago, we estimated the delays to programmes may be up to 12 months.

On a positive note, restrictions appear to be easing more rapidly than we had expected and the gas business in the NT is deemed as an essential service so potentially exempt from travel constraints. With industry capex cutbacks, rig availability is greater with perhaps some downward pressure on day rates, so there is a window opening before the wet season stops activity in which EEG may be able to commence its evaluation activity.

We suggest the window is probably up to end-Sep and would add that any activity is subject to requisite approvals from the NT authorities and the signing off on a CoVid-19 management plan.

At this stage EEG holds A\$11.5mn (cash at bank) as reported with a potential field budget in the range of A\$5-7mn, so the company appears adequately financed for operations (with an allowance for overruns) should it commence drilling in 3Q20.

Figure2a: Prospective Resources as calculated – on an aggregate basis (all permits)

Reservoir	Undiscovered Original Gas-in-Place (BCF)			Unrisked Gross (100%) Prospective Gas Resources (BCF)			Unrisked Gross (100%) Prospective Oil Equivalent Volumes (MMBOE)		
	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)
Lower Kyalla	496	724	1,073	24	72	161	5	14	34
Middle Velkerri*	9,303	12,516	16,597	1,283	2,339	4,751	215	397	825
Barney Creek*	17,667	59,652	155,058	1,633	11,053	45,380	274	1,886	8,011
Total*	27,466	72,892	172,728	2,940	13,464	50,292	494	2,297	8,870
Conversion factor				10.7%	18.5%	29.1%			

Source: Company data, * NSAI did not evaluate the Wollongorang Formation, estimates are by simple arithmetic addition (unweighted)

Note that the conversion factor from Gas-in-Place is reasonable although perhaps a little conservative on the 'low' estimate. Gas recoveries from in-place estimates on a stimulated and unstimulated basis, should be relatively strong and we'd expect these estimates to be refined as all JVs in the NT work through their upcoming testing phases (in due course).

Figure 2b: Prospective Resources on a permit-permit basis – note the volumes attributable to EP187, the primary area of focus

EP	Basin	Undiscovered Original Gas-in-Place (BCF)			Unrisked Gross (100%) Prospective Gas Resources (BCF)			Unrisked Gross (100%) Prospective Oil Equivalent Volumes (MMBOE)		
		Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)
180	Northern McArthur	2,626	8,780	22,983	232	1,557	6,632	39	267	1,182
181	Northern McArthur	3,589	12,120	31,376	342	2,315	9,273	57	394	1,626
182	Northern McArthur	9,998	33,939	88,327	940	6,396	25,995	158	1,090	4,572
183	Northern McArthur	260	856	2,243	23	150	645	4	26	115
184	Northern McArthur	746	2,494	6,356	59	395	1,771	10	68	323
188	Southern McArthur	448	1,463	3,773	37	240	1,064	6	41	193
187		9,799	12,240	17,670	1,307	2,409	4,912	219	412	840

Source: Company data

This is the first split of the resources estimates on a permit by permit basis (refer Fig.1 for locations); and of the permits at the southern end of the acreage, EP187 has been ascribed the largest measure of prospectivity. The permit proximity and tie back to successful data in the adjacent Santos activity supports this area as the primary point of focus for EEGs first drilling target – Carpentaria-1.

It is worth reminding that EEG recently completed and evaluated a 231km² 2D seismic survey, reporting 'better-than-expected' results, supporting its geological model and confirming the extension of prospective geology into its areas with significant thicknesses and shallower depths. This has positive implications for drilling costs and perhaps increased liquids potential. The data, through the seismic grid **can be directly connected to the Tanumbirini-1 (STO.ASX) well which delivered >1.2mmcf/d on test.**

Figure 2c: Prospective Resources across the two prospects in EP187 – Carpentaria has stand-alone, transformational potential

EP187		Undiscovered Original Gas-in-Place (BCF)			Unrisked Gross (100%) Prospective Gas Resources (BCF)			Unrisked Gross (100%) Prospective Oil Equivalent Volumes (MMBOE)		
Prospect	Reservoir	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)	Low Estimate (1U)	Best Estimate (2U)	High Estimate (3U)
Carpentaria	Lower Kyalla	387	540	768	19	54	115	4	11	24
Carpentaria	Mid Velkerri A	868	1,220	1,616	43	122	323	7	21	56
Carpentaria	Mid Velkerri B	3,796	4,715	5,808	569	943	1,743	95	160	303
Carpentaria	Mid Velkerri C	2,669	3,379	4,178	400	676	1,254	67	115	218
East	Lower Kyalla	109	184	305	5	18	46	1	4	10
East	Mid Velkerri A	247	421	678	12	42	136	2	7	24
East	Mid Velkerri B	1,012	1,631	2,534	152	326	760	25	55	132
East	Mid Velkerri C	711	1,150	1,783	107	230	535	18	39	93
Carpentaria	Aggregate				1,031	1,795	3,435			

Source: Company data

Valuation and Target Price

'More' gas by natural extension suggests a higher intrinsic value, noting that these estimates are Prospective Resources and do require definition and confirmation through drilling and testing. We take confidence from the published results of wells drilled by Santos and Origin particularly with respect to the direct tie back and look through to EEG's permits. However, there is a strong element of subjectivity to our assumptions that comes with a significant level of intrinsic error (risk).

Trying to 'quantify' what are at this stage qualitative assessments is a difficult and conjectural process, but all exploration does have an intrinsic value that is sometimes higher in the early phases of evaluation. The nominal valuation ranges as estimated should be used in an indicative sense only, to reflect the potential of the assets and stage of evaluation – earlier stages mean higher risk.

Figure 3: A highly risked NAV range based on the low end of potential recoverable volumes still underscores the transformational upside opportunity

		Risk Range			
	Pr	Low	Mid	High	
Northern Territory	100%				
Gas	6%	\$43	\$87	\$226	After discounting and averaging, we assign a success factor of only 6%.
Liquids	6%	\$14	\$49	\$127	
US Onshore	100%	\$18	\$24	\$29	Based on recent EEG Independent Assessment adjusted for 2019 production
		\$75	\$159	\$383	
Net Cash/(debt)			\$123		Company is 'net cash pre-drilling'
Corporate costs			(\$5)		
TOTAL		\$82	\$165	\$390	A low case 29% premium to the reference price (24cps intraday 20-May)
		\$0.31	\$0.63	\$1.48	
Shares on issue (mn)	263				

Source: Analysts estimates; spot pricing (investing.com 8-Apr)

We calculate a valuation and set a 12month Target Price at \$0.31/share noting that this value is subject to potentially significant upside adjustments over the next 12 months or so on results from field activities that could materially change our outlook and risk weightings.



Methodology

We have chosen to apply a three-step risk weighting methodology to the Prospective Resource (1U) volumes as booked as a base, which encompasses a Prospective Resource of ~3,000Bcf – **converting U volumes to C (Contingent Resources)** using a 5-15% range that should reflect the error margin embedded within the initial estimate; **converting from C to P volumes** using a higher probability range of 25-75%; **assigning a nominal value** based on assumed unit NPV returns of between 10-20% of the average received commodity price.

The commodity price assumption is the critical aspect of this methodology and the key sensitivity. There are two distinct markets into which EEG could sell gas - east into the domestic gas network and north-west into the Darwin export hub, which have different price benchmarks.

- For export markets we apply a well-head netback gas price of c.A\$4.85/gj (from the Darwin LNG export facility), based on a long-run FOB oil netback price of c.\$A75/b.
- For east coast gas markets, we apply a well-head netback gas price of ~A\$4.00/gj assuming tariffing charges to Wallumbilla of ~\$4.00/gj and a long run contract price of \$8.00/gj.

Disclaimer

The following Warning, Disclaimer and Disclosure relate to all material presented in this document and should be read before making any investment decision. This publication has been prepared by Taylor Collison for distribution to clients of Taylor Collison on the basis that no part of it will be reproduced, altered in any way, transmitted to, copied to or distributed to any other person without the prior express permission of Taylor Collison.

Warning (General Advice Only): Past performance is not a reliable indicator of future performance. This report is a private communication to clients and intending clients and is not intended for public circulation or publication or for the use of any third party, without the approval of Taylor Collison Limited ABN 53 008 172 450 ("Taylor Collison"), an Australian Financial Services Licensee and Participant of the ASX Group. TC Corporate Pty Ltd ABN 31 075 963 352 ("TC Corporate") is a wholly owned subsidiary of Taylor Collison Limited. While the report is based on information from sources that Taylor Collison considers reliable, its accuracy and completeness cannot be guaranteed. This report does not take into account specific investment needs or other considerations, which may be pertinent to individual investors, and for this reason clients should contact Taylor Collison to discuss their individual needs before acting on this report. Those acting upon such information and recommendations without contacting one of our advisors do so entirely at their own risk.

This report may contain "forward-looking statements". The words "expect", "should", "could", "may", "predict", "plan" and other similar expressions are intended to identify forward-looking statements. Indications of and guidance on, future earnings and financial position and performance are also forward-looking statements. Forward-looking statements, opinions and estimates provided in this report are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions.

Any opinions, conclusions, forecasts or recommendations are reasonably held at the time of compilation but are subject to change without notice and Taylor Collison assumes no obligation to update this document after it has been issued. Except for any liability which by law cannot be excluded, Taylor Collison, its directors, employees and agents disclaim all liability (whether in negligence or otherwise) for any error, inaccuracy in, or omission from the information contained in this document or any loss or damage suffered by the recipient or any other person directly or indirectly through relying upon the information.

Disclosure: Analyst remuneration is not linked to the rating outcome. Taylor Collison may solicit business from any company mentioned in this report. For the securities discussed in this report, Taylor Collison may make a market and may sell or buy on a principal basis. Taylor Collison, or any individuals preparing this report, may at any time have a position in any securities or options of any of the issuers in this report and holdings may change during the life of this document.

Analyst Interests: The Analyst does not hold shares in EEG.ASX. The Analyst's holdings may change during the life of this document.

Other Staff (including Principal accounts) do not hold any shares in EEG.ASX as of the date of this report in personal and family related accounts. These holdings may change during the life of this document.

Analyst Certification: The Analyst certifies that the views expressed in this document accurately reflect their personal, professional opinion about the financial product to which this document refers.

Date Prepared: May 2020

Analyst: Andrew Williams

Release Authorised by: Scott Dolling

TAYLOR COLLISON LIMITED
Sharebrokers and Investment Advisors
Established 1928

ADELAIDE

Level 16, 211 Victoria Square
Adelaide SA 5000
GPO Box 2046
Adelaide SA 5001
Telephone 08 8217 3900
Facsimile 08 8321 3506
broker@taylorcollison.com.au

SYDNEY

Level 10, 151 Macquarie Street
Sydney NSW 2000
GPO Box 4261
Sydney NSW 2001
Telephone 02 9377 1500
Facsimile 02 9232 1677
sydney1@taylorcollison.com.au

Participant of the Australian Securities Exchange
(ASX) Group.

ABN 53008172450
AFSL 247083