

31<sup>st</sup> October 2018

## QUARTERLY ACTIVITIES REPORT

To 30<sup>th</sup> September 2018

**Blue Energy Limited (ASX: "BUL")** is pleased to report on activities during the September 2018 quarter across its exploration acreage in Queensland and the Northern Territory in which the Company's key gas and oil projects are located.

### Key points on latest progress

- **Gas commercialisation negotiations continuing with potential buyers**
- **15,000 PJ of delineated Bowen Basin gas will solve East coast gas shortage**
- **Galilee Basin CSG and deep play undergoing proof of concept**
- **Queensland Cooper Basin deep tight gas play also being tested in adjacent acreage**
- **Massive renewable energy build out (10,000 Gw committed) requires gas fired firming capacity to stabilize the grid**
- **Cash position – \$2.2 million as at 30 September 2018**

### **East Coast Australian Gas Market**

Eighty percent of the east coast Australian gas reserves and 70% of east coast gas production is controlled by global gas giants (Shell, Petrochina, CNOOC, Total, Exxon et al). Australian domestic gas producers are reliant on these companies to develop their gas resources, however, the gas giants are focused on delivering feed gas for their LNG export plants in Gladstone. These foreign owned gas companies therefore dictate the timing of major new gas field supply and gas pipeline developments for the entire east coast. Consequently, the domestic gas market runs a distant second to their global strategic portfolio needs. This fact, together with the hostile policies to onshore gas exploration of Victoria and NSW mean Queensland has to continue to do the heavy lifting for gas supply into the domestic (and export LNG) markets.

With the roll off of the 30 year legacy CPI gas contracts held by AGL et al out of the Cooper Basin, most new domestic gas contracts in the east coast market are tied to an international oil price marker (JCC for example). This provides a direct comparator for pricing between the domestic gas market and the export LNG market in Gladstone. The so-called LNG net back price at Wallumbilla represents the cost of gas minus liquefaction and transport. This price is now published fortnightly by the ACCC and sets the base price for domestic gas users at Wallumbilla, to which the transport tariff (set by the pipeline owners) to the final destination must be added.

Gas customers are now exposed to energy input costs dictated by the global oil market. For industrial gas users not to have contracted long gas a decade ago when the gas price was \$3.75/Gj seems now like a serious mistake. We have said before that for the gas users to

now be seeking gas reservation fixes or subsidies from Government to prop up their gas exposed businesses, just points to the game that was being played a decade ago, when they gambled that there would be abundant cheap CSG ramp gas in Wallumbilla in 2016. Clearly some of the key domestic gas users lost the bet and are now paying the price of not understanding the nature of their key input – gas (as well as electricity).

AEMO's gas supply/demand forecast published mid year suggests that they see no supply shortfall until 2030. This is an astonishing assessment, based incredibly on all Contingent and Prospective Resources maturing into producible reserves – even the Clarence -Moreton Basin, and deep Cooper Basin (shale) gas resources. Given the heavy write downs of 2P reserves by some LNG proponents in 2017-18, this assessment of sufficient supply out to 2030 by AEMO appears to be a challenging forecast.

Domestic gas prices all hinge on oil price movement, and LNG netback at Wallumbilla. Potential LNG Import terminals face the challenges of environmental approvals (AGL) and securing competitive supply prices (Spot LNG ?), which will also depend on oil price and Chinese demand. It is interesting to note that not one of the proposed LNG Import terminals has signed up gas customers, possibly suggesting the initial mooted \$10/gj, may have been optimistic.

## **Bowen Basin**

The Northern Bowen Basin has up to 15,000 PJ of already discovered gas resource, independently certified by Netherland, Sewell and Associates. This could deliver 30 years of domestic gas supply to the east coast market if development proceeds. Currently the basin is dominated by global gas giants (Shell + Petrochina = Arrow Energy). Blue Energy has 3,100 PJ of this resource. Both Shell and Petrochina have global capital allocation priorities that may not be aligned with the Australian national interest. For example, Shell has invested \$4 billion for domestic gas developments in Nigeria, yet is going slow/shelving already approved Queensland gas development in the Surat (Tipton ) and Bowen Basins whilst the domestic gas price escalates and Australian manufacturing businesses face ruin.

Credit Suisse Energy Analyst Mr Saul Kavonic suggested (in an AFR article by Angela Macdonald -Smith) as recently as yesterday that Arrow's Bowen and Surat Basin gas assets are the largest remaining "plausible" undeveloped gas resource on the east coast, but alignment between the Arrow Partners (Shell and Petrochina) is seen as a major challenge to development of Arrow's Bowen and Surat Basin resources. He noted that government was looking for any lever to bring on more gas supply and reduce prices. Aggregation of the Blue and Arrow gas in the Northern Bowen Basin would deliver secure domestic gas to the east coast market to ensure Australian Manufacturing remains viable for decades to come. A "right sized" 450 km pipeline between Moranbah and Gladstone is essential, and could be laid in 18 months for a cost of around \$500 million.

## Gas and Electricity linkage

The 10,000 Gw of already committed solar and wind power build out across the east coast of Australia desperately needs gas fired generation to firm its dispatch capacity (at night and on calm days). Coal fired generation cannot do this, nor is there enough grid sized battery storage available. Gas is the only viable solution to having firmed renewable electricity and also to stabilize the grid. This gas demand element is not reflected in AEMO's forecasts at all. Rather, AEMO sees gas demand destruction, not growth, out to 2030. Should gas be needed to accompany the solar and wind build out, the demand from this alone would jeopardise the validity of the AEMO forecast of sufficient gas supply out to 2030.

## Global Energy

### LNG and Global Gas Pricing

China's demand for LNG continues to grow and we now see India positioning itself to develop more import capacity as it sees gas as a critical component of the fuel mix to improve air quality. China is set to become the world's leading LNG importer, surpassing Japan, with Chinese imports growing by 50% year on year as at August 2018. Consequently, the major global LNG suppliers (and traders like Glencore) are positioning themselves to take advantage of the forecast global LNG shortfall in 2021 caused by the lack of new liquefaction builds globally, and Chinese and Indian demand growth.

This predicted global LNG supply shortfall would see opportunity for the Gladstone LNG exporters to utilize some of the underutilized liquefaction capacity to capture this demand, assuming they are able to source feed gas supply. With China's retaliation to US trade tariffs becoming clearer (25% import tariff on US LNG), it appears that Australian LNG is set to benefit from these trade wars and become preferred supplier to ever growing number of LNG receiving terminals on China's east coast (20 receiving terminals to date). Be in no doubt, with 80% of the east coast gas reserves and production being controlled by the foreign owned global gas giants like Shell, Total, CNOOC and Petrochina, the domestic Australian gas market (and manufacturers) will be a distant second in the gas giant's global supply strategy to meet this demand opportunity (and higher prices).

Ironically, restricting gas from going out of Gladstone (via the ADGSM) restricts supply into Asia, forcing up the North Asia spot price, which in turn affects the LNG Netback price in Wallumbilla and thus the domestic gas price.

### Oil price

Recently, oil prices have been under downward pressure (US\$75-80/bbl) for a combination of reasons. There has been rhetoric from Saudi Arabia suggesting a potential oil oversupply situation despite Venezuelan production declines and the looming Iranian export sanctions. Coupled with the direct request to the Saudi's from US President Donald Trump to lower crude prices by increasing production, this has had the net effect of fueling a bearish outlook for crude prices.

There is no doubting the Venezuelan production decline. The argument that Iranian sanctions will have little effect on supply is a little more cloudy, with this argument set to be tested when sanctions apply from November 4th. It would appear that Iran is becoming adept at masking production declines by using Chinese ports as storage and masking vessel movements. It is probable however that Iran's exports are already down to around 1.4 million barrels per day (off the recent highs of 2.2 mmb/d). It also appears that Saudi Arabia and UAE are attempting to capture the market share left by Iranian export declines. How effective Saudi/UAE will be at increasing output remains to be seen. US production continues to grow (about 10.96 mmb/d) with most of the growth coming from Gulf of Mexico production. US production of around 11 mmb/d is believed to already have been factored into 2019 oil price decks

Key events to consider in the forward oil price scenario are the Iranian supply reality post 4th November sanctions and the political environment post US mid-term elections.

Structurally, we believe the oil price does not fully reflect the capital drought in new field oil developments globally that has occurred over the last 5 years (it is estimated some \$600 billion is needed to redress this development funding gap). This will eventually affect oil supply needed to meet the 1.3% per annum demand growth seen globally. This tightness in supply and demand will be exacerbated if there is a harsh northern winter.

## Proven Basins

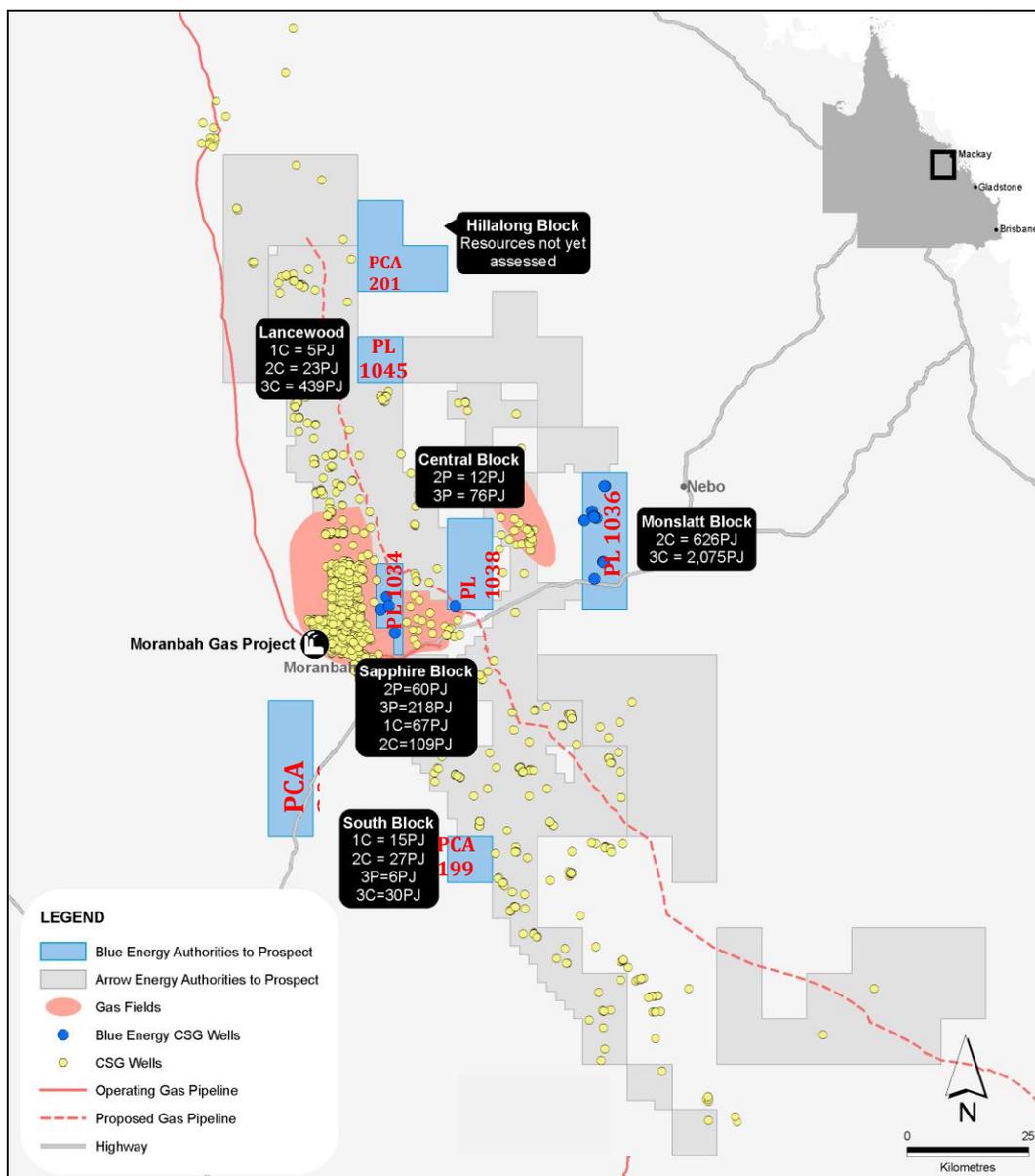
### Bowen Basin, Queensland

#### ATP814P (Blue Energy 100% and Operator)

The Northern Bowen Basin has a discovered resource of approximately 15,000 PJ of gas. Blue's component of this estimate is 3,011 PJ. 15,000 PJ is sufficient to underpin the domestic gas market for the next 30 years.

Production Licence Applications lodged by Blue Energy with the Queensland Government are progressing. Renewal of the underlying ATP is also on foot with the Government as are Potential Commercial Areas applications to cover the remaining resource base in the permit. These activities are being undertaken in parallel with the ongoing commercial negotiations.

**Figure 1: ATP814P Bowen Basin Queensland showing PL and PCA Applications**



The permit currently has certified 2P reserves of 71 PJ and 3P reserves of 298 PJ (as independently estimated by Netherland, Sewell and Associates (NSAI)). There is also significant upside within the other constituent blocks comprising the Permit with a combined 3,011 PJ of Contingent Resources estimated by NSAI.

## Surat Basin, Queensland

### ATP854P (Blue Energy 100% and Operator)

Blue has four Potential Commercial Area Applications (PCA's) over the permit which will secure the acreage and allow work to be undertaken to grow gas reserves and resources in parallel to the continued marketing of the gas resources to potential gas buyers.

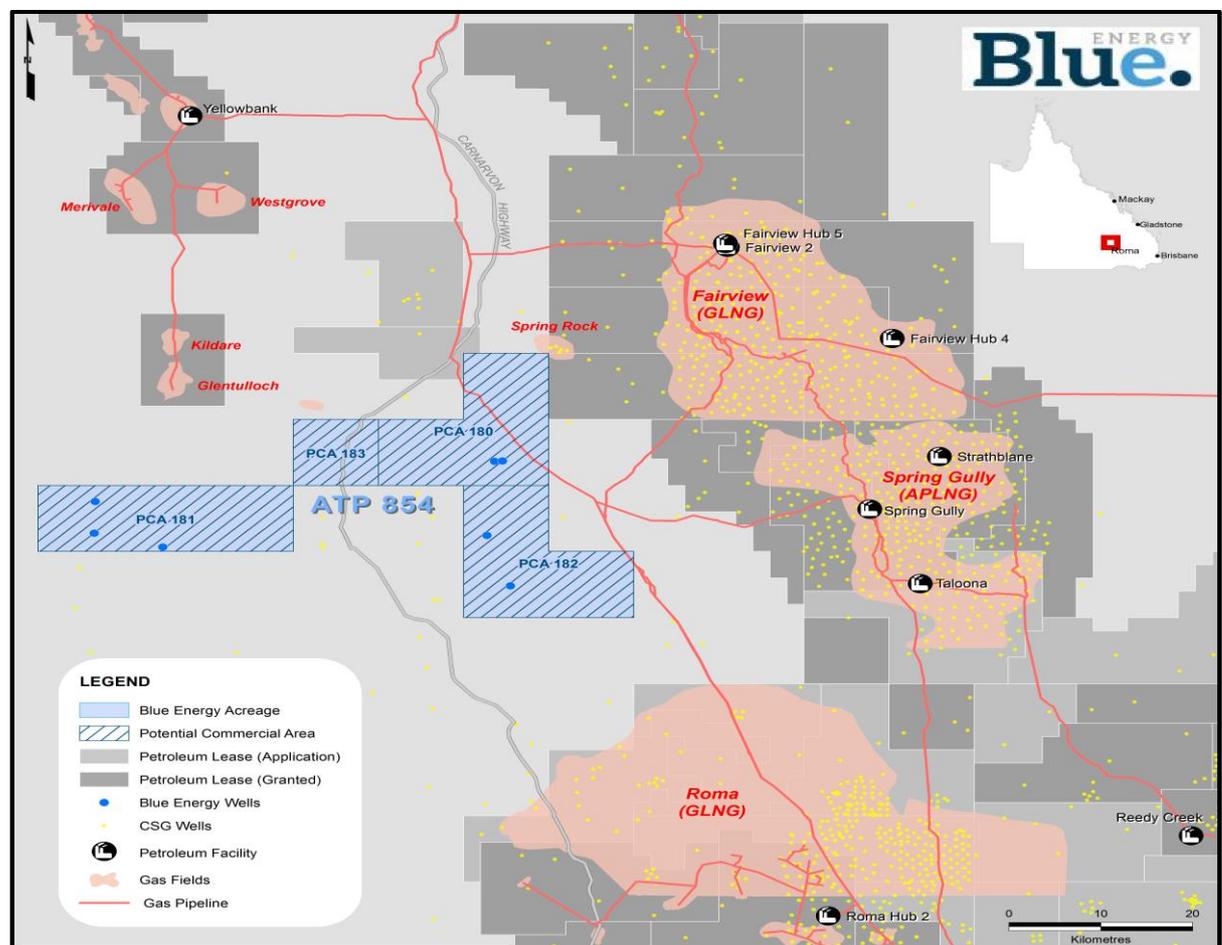


Figure 2: ATP854P Surat/Bowen Basin

## Emerging Basins

### **Greater McArthur Basin**

#### **(various permits and equities levels - Blue Energy Operator)**

Work program on these permits has been in suspension since the initiation of the NT Pepper Inquiry into the Shale Gas industry. Industry is now awaiting the development of the Legislative framework enshrining the 135 Pepper Inquiry recommendations and thus the new rules applying to oil and gas activities in the Northern Territory. Whilst the NT Government has stated that this new Legislation will be in place by end December 2018, Blue will seek further suspensions should the timeframe for this Legislation slip and as a result, jeopardise activities for the 2019 dry season.

### **Galilee Basin Queensland**

#### **ATP813P (Blue Energy 100% and Operator)**

Blue Energy has over 2,000 km<sup>2</sup> in the Galilee Basin of Central Queensland under licence. In addition to Applications for Potential Commercial Areas (PCA's), Blue has lodged applications to renew the ATP which are on foot with Government to retain the 838 PJ (net to Blue Energy) of Contingent Resources within the Betts Creek CSG play that Blue Energy has in ATP813P. Unlike the Surat and Bowen Basins to the east and south, the Galilee Basin has never had a producing gas field (conventional or CSG) from which export infrastructure build-out could be started. Recent activity by, adjacent operators (testing the Betts Creek play using lateral/horizontal drilling techniques) has demonstrated good permeability results from the Permian coals with sustained high water rates from the lateral wells drilled in coal. Success in this proof of concept exercise for the Betts Creek CSG play will deliver confidence for development of this large potential gas resource base on a basin wide scale and with it, the confidence for the investment in export infrastructure needed to bring Galilee Basin gas to the East Coast market. The deep Carboniferous play is also undergoing proof of concept testing to the east of Blue's permit, adding another facet to the exploration plays for the basin

### **Cooper Basin Queensland**

#### **ATP656, 657, 658, 660 (Blue 100% and Operator)**

Real Energy is testing the tight gas play in the Toolachee and Patchawarra Formations, following fracture stimulation operations in their Tamaramma 1 well. This play is present in Blues permits to the north and their proof of concept work will de-risk Blue's acreage.

## CORPORATE

### Cash Position

Cash on hand at 30 September 2018 was \$2.2 million.

Permit	Block	Assessment Date	Announcement Date	Methodology	Certifier	1P (PJ)	1C (PJ)	2P (PJ)	2C (PJ)	3P (PJ)	3C (PJ)
ATP854P		30/06/2012	19/03/2013	SPE/PRMS	NSAI	0	22	0	47	0	101
ATP813P		29/10/2014	30/10/2014	SPE/PRMS	NSAI	0	0	0	61	0	830
ATP814P	Sapphire	5/12/2015	8/12/2015	SPE/PRMS	NSAI	0	66	59	108	216	186
ATP814P	Central	5/12/2015	8/12/2015	SPE/PRMS	NSAI	0	50	12	99	75	306
ATP814P	Monslatt	5/12/2015	8/12/2015	SPE/PRMS	NSAI	0	0	0	619	0	2,054
ATP814P	Lancewood	5/12/2015	8/12/2015	SPE/PRMS	NSAI	0	5	0	23	1	435
ATP814P	South	30/06/2013	29/07/2013	SPE/PRMS	NSAI	0	15	0	27	6	30
<b>Total (PJ)</b>						<b>0</b>	<b>158</b>	<b>71</b>	<b>984</b>	<b>298</b>	<b>3,942</b>
<b>Total MMBOE</b>						<b>0</b>	<b>27</b>	<b>12</b>	<b>168</b>	<b>51</b>	<b>672</b>

**Table 1: Blue Energy net Reserves and Resources**

### Listing Rule 5.42 Disclosure

The estimates of reserves and contingent resources noted throughout this Quarterly Activities report have been provided by Mr John Hattner of Netherland, Sewell and Associates Inc (NSAI) and were originally reported in the Company's market announcements 25 January 2012, 26 February 2013 and 19 March 2013. NSAI independently regularly reviews the Company's Reserves and Contingent Resources. Mr Hattner is a full time employee of NSAI, has over 30 years' of industry experience and 20 years' of experience in reserve estimation, is a licensed geologist and a member of the Society of Petroleum Engineers (SPE), and has consented to the use of the information presented herein. The estimates in the report by Mr Hattner have been prepared in accordance with the definitions and guidelines set forth in the 2007 Petroleum and Resource Management System (PRMS) approved by the SPE, utilizing a deterministic methodology. Blue Energy confirms that it is not aware of any new information or data that materially affects the information included in any of the announcements relating to ATP 813P, 814P or 854P referred to in this report and that all of the material assumptions and technical parameters underpinning the estimates in the announcements continue to apply and have not materially changed.

## Petroleum Tenements Held

Permit	Location	Interest Held Previous Quarter	Interest Held Current Quarter
ATP613P	Maryborough Basin (Qld)	100%	100%
ATP674P	Maryborough Basin (Qld)	100%	100%
ATP733P	Maryborough Basin (Qld)	100%	100%
ATP656P	Cooper Basin (Qld)	100%	100%
ATP657P	Cooper Basin (Qld)	100%	100%
ATP658P	Cooper Basin (Qld)	100%	100%
ATP660P	Cooper Basin (Qld)	100%	100%
ATP813P	Galilee Basin (Qld)	100%	100%
ATP814P	Bowen Basin (Qld)	100%	100%
ATP854P	Surat Basin (Qld)	100%	100%
ATP1112A	Carpentaria Basin (Qld)	100%	100%
ATP1114A	Georgina Basin (Qld)	100%	100%
ATP1117A	Georgina Basin (Qld)	100%	100%
ATP1123A	Georgina Basin (Qld)	100%	100%

*Permit	Location	Interest Held Previous Quarter	Interest Held Current Quarter	Comment
EP199A	Wiso Basin (NT)	10%	10%	See Note 1
EP200	Wiso Basin (NT)	10%	10%	See Note 1
EP205	Wiso Basin (NT)	10%	10%	See Note 1
EP206A	Wiso Basin (NT)	10%	10%	See Note 1
EP207	Wiso Basin (NT)	10%	10%	See Note 1
EP208A	Wiso Basin (NT)	10%	10%	See Note 1
EP209A	Wiso Basin (NT)	10%	10%	See Note 1
EP210A	Wiso Basin (NT)	10%	10%	See Note 1
EP211A	Wiso Basin (NT)	10%	10%	See Note 1

### Tables 2 and 3: Petroleum Tenements held by Blue Energy and its subsidiaries

\*Exploration blocks Blue is farming into

Note 1: Subject to Farm in Agreement which upon completion of the seismic work program will result in Blue Interest becoming a 50% equity participant

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