

# Lion Energy

# LIO

## NEAR-TERM LOW RISK EXPLORATION IN SUMATRA

### Capital Structure

ASX Code: LIO	
Shares	96.6 m.
Options	0.4 m. @ 26 cts
Net cash (est)	\$ 1.6 m.
Price	\$ 0.065
Market Cap	\$ 6.3 m.

### Valuation

Lion Energy	A\$ m.	\$ / shr
Cash	1.6	\$0.02
Seram Oil	1.4	\$0.01
Lofin	8.6	\$0.09
Amanah Timur	3.1	\$0.03
Jerneh	7.2	\$0.07
Unissued equity	0.1	\$0.00
Corporate	-2.1	-\$0.02
Sub-total	19.9	\$0.21
Risked Exploration	4.6	\$0.05
<b>Risked Value</b>	<b>24.5</b>	<b>\$0.25</b>

Source: Strachan Corporate

### Board

Russell Brimage	Executive Chairman
Kim Morrison	Managing Director
Stuart Smith	Executive Director
Tom Soulsby	Non-Exec Director
Chris Newton	Non-Exec Director

### Opinion

Speculative interest in the stock will return as drilling at Amanah Timur approaches.

Lion Energy has funds on hand to support its 40.7% interest in upcoming activity at Amanah Timur. In the likely event of discovery, additional equity would be required to support field development.

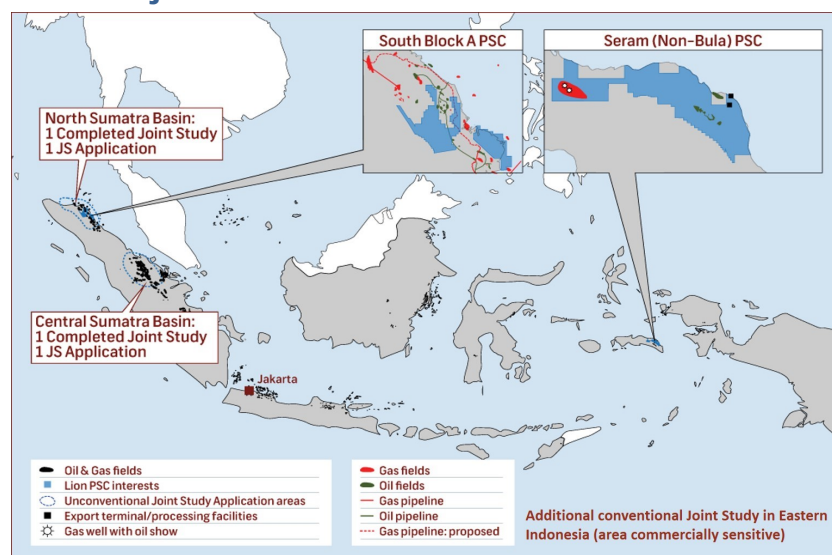
Strachan Corporate assesses a risked value of \$24.5 million or 25 cps on current share structure, after allowing for farming down to fund exploration work.

*Peter Strachan*

### Investment Drivers

- ◆ **UPCOMING WELL:** Lion is preparing to drill the Amanah Timur oil prospect, which has P50 Prospective Resources of 4.8 mmboe in a low risk target where Strachan Corporate estimates that success would be worth \$6.9 million, which is effectively its current market capitalisation.
- ◆ **FOLLOW-UP PROSPECTS IN SBA PSC:** The company outlines a further five prospects in the SBA PSC with high PoS, containing P50 Prospective Resources of over 500 Bcf of gas plus 15 mmbbls of oil and condensate with an assessed risked value of 11 cps.
- ◆ **STRONG MARKET & IMPROVING FISCAL TERMS:** Indonesia's government recognises that domestic reserves of oil and gas to supply its ballooning requirements are fast depleting. The Indonesian government supports rising gas prices and improved fiscal terms for frontier and unconventional targets.
- ◆ **LOFIN GAS ON SERAM ISLAND ADDS UPSIDE:** Over 2 Tcf of Prospective gas at the Lofin discovery adds potential, once PSC terms are extended past 2019 and a path to market is secured.
- ◆ **CASH FLOW:** The company is supported by a net income of about \$52K per month from ongoing oil sales out of the 2.5% owned Oseil oilfield on Seram Island.
- ◆ **HIGH EQUITY POSITIONS:** The company's strong equity position in both conventional and new projects, enables it to attract farm-in funding for higher cost drilling.
- ◆ **MOTIVATED MANAGEMENT:** Lion's management is motivated to increase shareholder wealth. It brings strong business development credentials as well as proven ability to do business in Indonesia.
- ◆ **RISKED VALUATION:** Strachan Corporate assesses a risked valuation of 23 cents per share and calculates a value for success on its top two exploration targets of \$30 million.

### Lion's major areas of interest



Source: Lion

## Summary

Lion has boosted its petroleum assets on Seram Island with the discovery of a 2 Tcf gas field at Lofin. The 2.5% owned Oseil oilfield has boosted production from 3,000 to a high of over 4,000 BOPD over the past year and now delivers net revenue to Lion of ~\$52,000 per month derived from oil sales of ~90 BOPD, net to Lion.

The company has a 40.7% interest in the South Block A permit in the north of the Indonesian island of Sumatra, where it has matured several oil and gas exploration prospects. A shallow, low cost and low risk oil opportunity has been identified at the Amanah Timur prospect, where a target for 4.6 mmbbl has been selected for drilling in 2017.

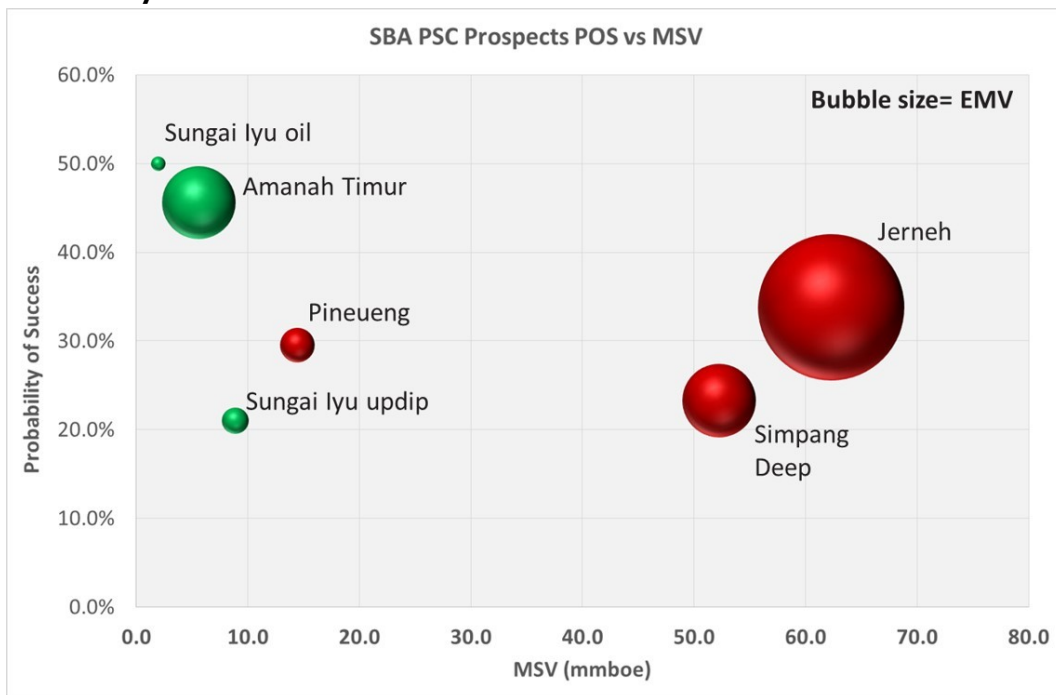
Lion is part of a conventional joint study underway in Eastern Indonesia and has large equity positions in two completed unconventional joint studies where large gas potential has been identified.

*Boosts Seram Island oil & gas assets - defines portfolio of drillable prospects on Sumatra.*

*Near term drilling activity planned.*

### Summary of SBA exploration portfolio

#### Probability of success v. Mean success volume



*Bubble size shows success value.*

Indonesia experiences rapid population expansion and associated increasing demand for gas, oil and electricity. Power consumption is expected to rise by 8.7% pa over the coming decade while gas demand increases by 5% pa.

In an effort to stimulate local exploration and production, Indonesian authorities have allowed market forces to lift the price paid to domestic producers of natural gas. Rapidly rising domestic gas consumption is overwhelming conventional suppliers who are unable to keep pace as the country transitions to importing significant volumes of LNG.

*Indonesia remains a net importer of gas & oil.*

## South Block A Project 40.7%

Lion has identified six high priority drilling targets within this permit, having P50 Prospective Resources totalling 514 Bcf of gas plus 24.8 mmbbls of oil and condensate. The company has rights to both conventional and unconventional petroleum resources found within the perimeters of this permit.

The North Sumatra Basin is one of the most prospective hydrocarbon basins in Indonesia, with discovered hydrocarbons amounting to 22 Tcf of gas plus 1.6 billion barrels of liquids.

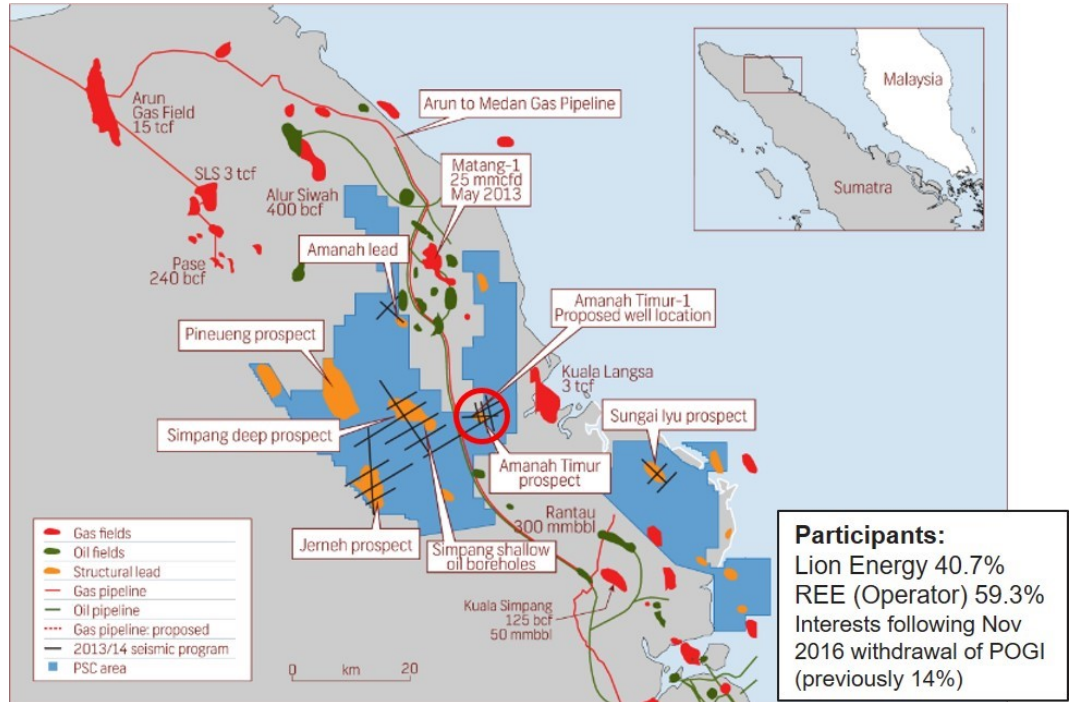
South Block A PSC 100% Prospective Resources <sup>1</sup> top 6 Prospects								
Prospect	Phase	HC Gas Recoverable (bcf)			Oil/Cond Recoverable (mmbbl)			POS <sup>2</sup> %
		P90	P50	P10	P90	P50	P10	
Jerneh	Gas/cond	63.7	222.8	760.2	1.5	5.3	17.6	34%
Simpang Deep		97.1	219.6	507.8	2.9	7.0	14.6	23%
Pineueng		28.2	67.6	146.2	0.5	1.2	2.7	27%
Amanah Timur	Oil/mnr gas	2.0	4.5	10.0	1.7	3.9	8.8	46%
Sungai Iyu Oil					0.5	1.4	3.9	50%
Sungai Iyu updip					1.61	5.92	21.05	21%
<b>Total</b>		<b>191.0</b>	<b>514.5</b>	<b>1424.2</b>	<b>8.6</b>	<b>24.8</b>	<b>68.7</b>	

Exploration work by the company, including new seismic survey data, has firmed up a portfolio of significant exploration prospects, including oil at Amanah Timur with follow-up at the smaller Sungai Iyu prospect, as well as gas targets at Jerneh, Simpang Deep and Pineueng. The company estimates that these prospects have Prospective Resources totalling over 500 Bcf of gas plus 24.8 mmbbls of oil at a P50 level of confidence, with high probabilities of success ranging from 21% up to 50%.

*Prospective Resources of >500 Bcf & 24 mmbbls of condensate/oil.*

**South Block A PSC location & prospectivity**

Acquired 2D seismic data.

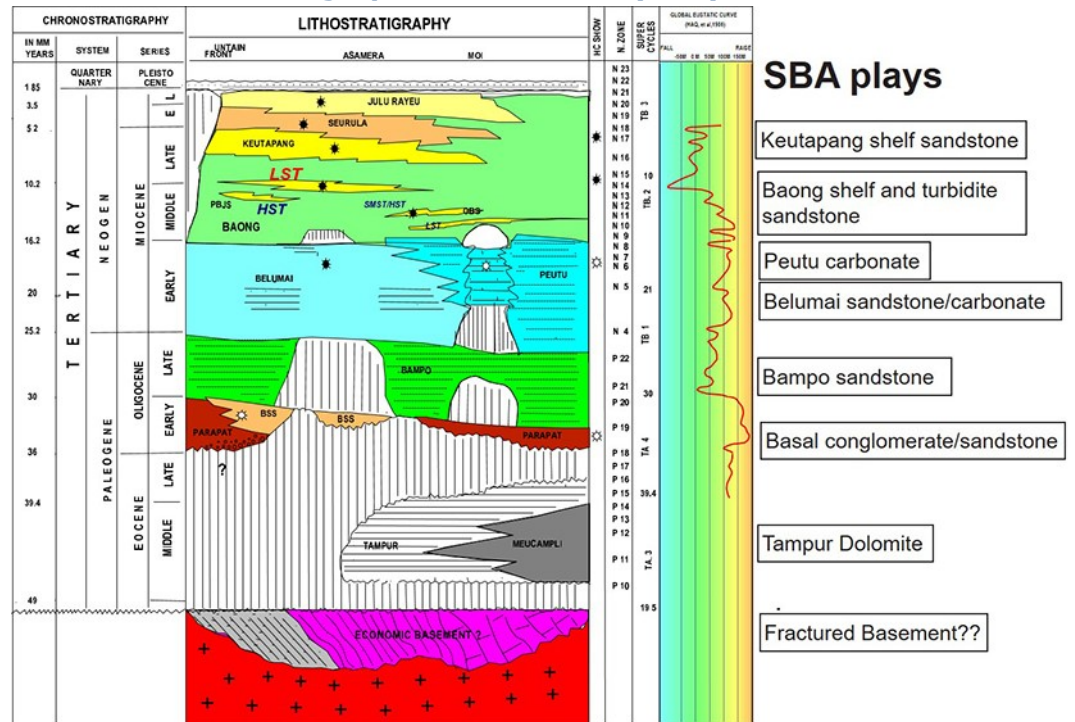


Source: Lion

Prolific basin with many nearby discoveries.

Lion’s PSC is surrounded by significant oil and gas discoveries, including the 3 Tcf Kuala Langsa gas field, the 300 mmbbl Rantu oilfield and the 400 Bcf Alur Siwah field. Prospectivity within SBA was further enhanced in May ‘13 when Premier Oil, as a participant in the nearby Matang discovery, reported a flow test of 25 mmcuft per day of gas with a 15% CO<sub>2</sub> content and an estimated recoverable Resource of between 100 and 400 Bcf of gas.

**South Block A, Stratigraphic Column & Key Plays**



Source: Lion

Lion’s conventional exploration focus in the PSC targets the proven Keutapang sandstone, the Baong Formation sandstones as well as sandstone and carbonate units in the underlying Peutu and Belumai Formations.

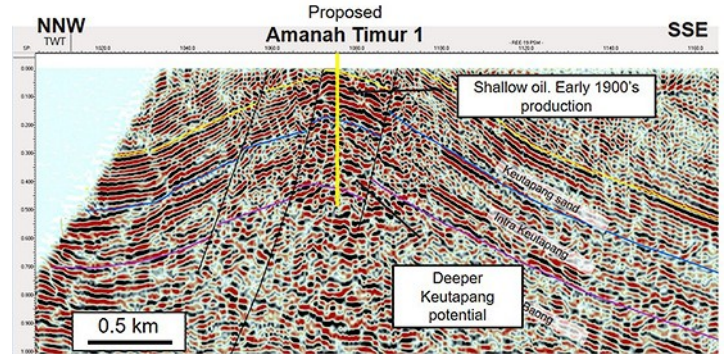
In 2012, Pertamina made the Benggala gas and condensate discovery within the Belumai sandstone in a location to the south of Lion’s PSC.



### AMANAH TIMUR

The company is now focusing its planning effort towards drilling a low cost, shallow oil target at the Amanah Timur prospect.

Drilling is set to target an estimated unrisked P50, resource totalling 3.9 mmbbls of oil plus 4.5 Bcf of gas. The prospect is set in a faulted anticline structure, which is similar in style to the nearby but much larger Rantau oil and gas field.



Site preparation commenced.

Shallow section to be drilled has proven oil production from pre-WWII wells.

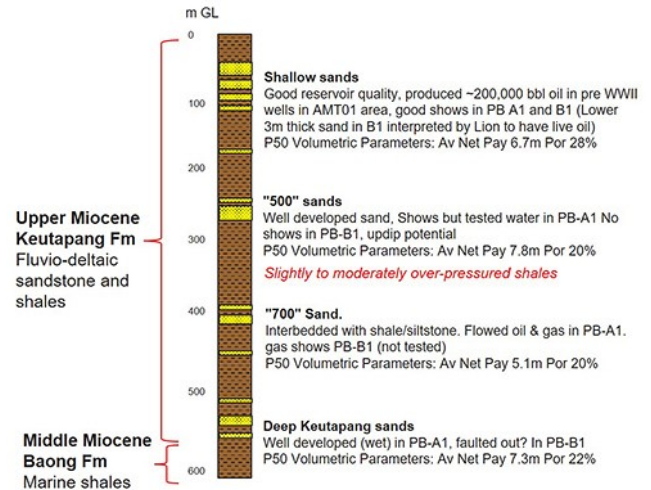
Deeper objectives have not been previously penetrated in a crestal location on the structure.

Site preparation has commenced with estimated total costs amounting to US\$1.2 million for a well that will be drilled to a total depth of ~600 metres.

Oil production from a discovery at this project could be trucked to facilities at the nearby Rantau oilfield, while gas could be sold into a nearby gas transmission line or for use in the nearby town of Langsa.

The company estimates that full field development might involve drilling 24 wells, lifting production to a peak of 1,800 BOPD plus associated gas of 2.5 mmcuf per day.

Applying a gas price of US\$7/mmBtu and the current Brent forward price curve to production estimates, while offsetting against estimated CAPEX and operating cost, delivers a mean project NPV of US\$14.8 million or US\$6 million to Lion's account, which equates to an NPV of ~US\$3.1 per BOE. Risking this value by the probability of success suggests a pre-drill value of US\$2 million to Lion.



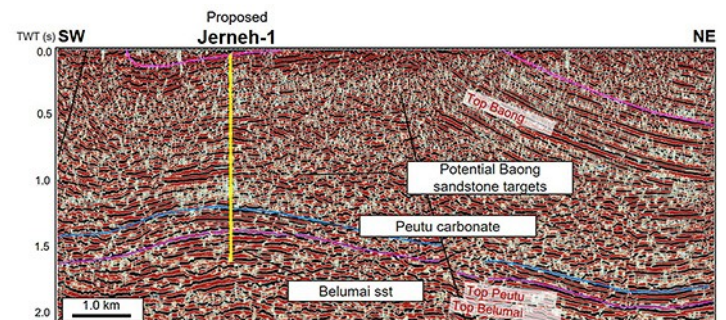
Source: Lion

Success value of A\$8 million for Lion.

### JERNEH

The Jerneh prospect remains arguably the largest undrilled structure delineated in North Sumatra. The prospect has a 4-way dip feature with an aerial extent of 7.9 km<sup>2</sup>, which is supported by a large, sub-thrust closure of 63 km<sup>2</sup>.

The company estimates a Prospective resource at the P50 level of 223 Bcf of gas plus 5.3 mmbbls of condensate for the Early Miocene Peutu carbonate and Belumai sandstone, with shallow Baong sandstones holding potential upside to these estimates. Overall probability of success for exploration at Jerneh is estimated at about 34%.



Target for 223 Bcf plus 5.3 mmbbls condensate with 34% POS.

A well drilled to 1,900 metres, which is expected to take 24 days to drill and a further two weeks for testing, is estimated to cost less than US\$6.5 million, with exploration costs still contracting in Sumatra.

Success at Jerneh is modelled as a project to produce at a plateau rate of 60 mmcuf per day plus associated condensate of 1,400 bbls per day. Applying the same commodity pricing structure to Jerneh as is used for Amanah Timur delivers an NPV/boe on the base case of US\$3.73/boe, which is about US60 cents per Mcf of gas. Success for Lion's 40.7% interest equates to US\$64.7 million with a risked value of US\$22 million after applying probability of success.

Lion has several options to fund this project. Strachan Corporate assumes that the company farms down ahead of drilling.

Success value of A\$67 million at 40.7% ownership / A\$27 million if 16.3% retained.

### UNCONVENTIONAL

Lion and its partners in SBA have preferential rights to conduct a study on the potential for unconventional petroleum targets within the SBA PSC. Oligocene to Miocene age shale units found in the lower Baong and Bampo Formations have been ranked against known productive shales in the USA, showing characteristics that are within the limits of those generally targeted by successful shale gas developers.

In the south of the SBA PSC, the Baong Formation is known to be oil prone, setting targets for both conventional and unconventional oil production. The company estimates that between 250 and 1,000 km<sup>2</sup> of its total PSC has potential to hold shales that could host commercial gas or condensate.

### TOTAL PROSPECTIVITY

The high impact **Simpang Deep** prospect has an estimated, P50 target of 220 Bcf plus 7 mmbbls of condensate in the same known reservoir forming Formations as the Jerneh prospect.

Strachan Corporate estimates that after discounting the value of gas for its expected 10-20% CO<sub>2</sub> content, discovery at the level estimated would be worth about A\$180 million. The ultimate value to Lion will depend on how much equity in the project it is able to retain.

### GAS MARKET

Gas supply from developed projects in North Sumatra is in rapid decline, from about 80 mmcft per day currently, heading to zero by about 2021. New and potential projects have the ability to lift output towards 180 mmcft per day by 2020, but this is still well short of current consumption at about 210 mmcft per day. The Arun LNG plant has already been converted into an LNG regasification terminal to meet local demand, with gas transported to the regional capital of Medan through a pipeline that passes through South Block A.

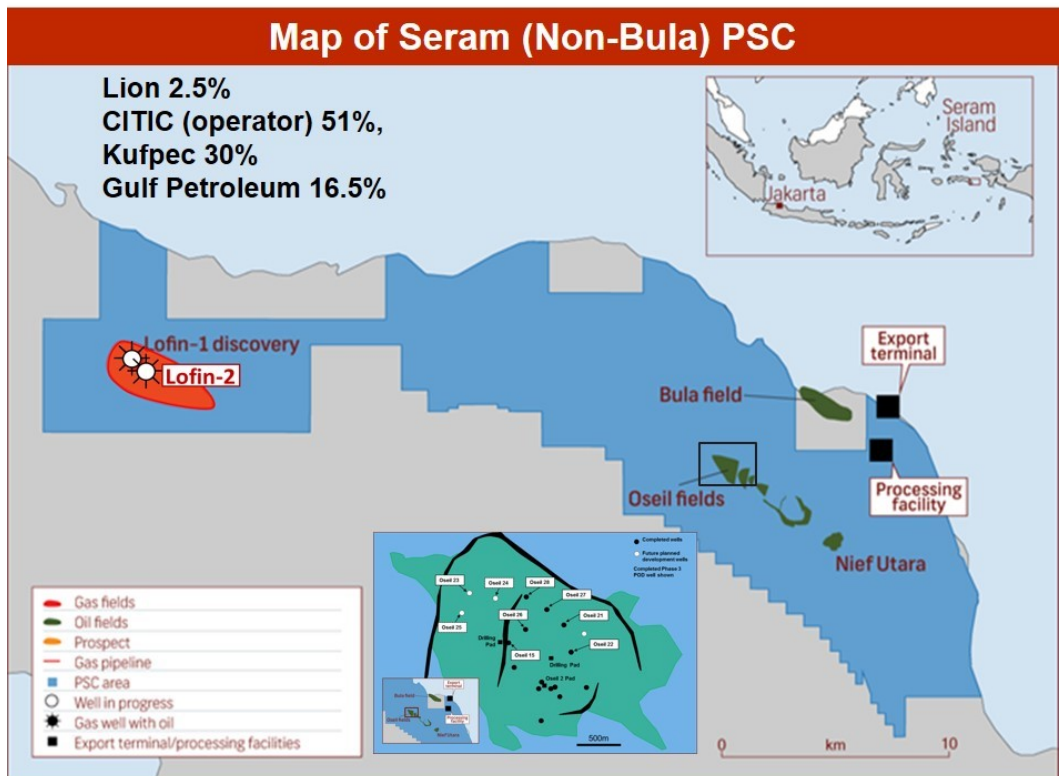
The domestic gas price is now linked to global LNG pricing. Additional supply is likely to spur further demand growth with potential for supply into LNG production at Tangguh.

### Seram Island Project 2.5%

Oseil oilfield production on Seram Island is operated by CITIC, with KUFPEC and Gulf Petroleum Investment as partners, while Lion holds a 2.5% working interest. The license has a renewal date in October 2019. Partners are developing a renewal strategy with Indonesian authorities before spending significant effort on field development. The project has significant unrecovered costs, such that no tax is likely to be incurred for several years.

*Seram cash flow supports corporate costs.*

#### Location of Seram PSC



Source: Lion



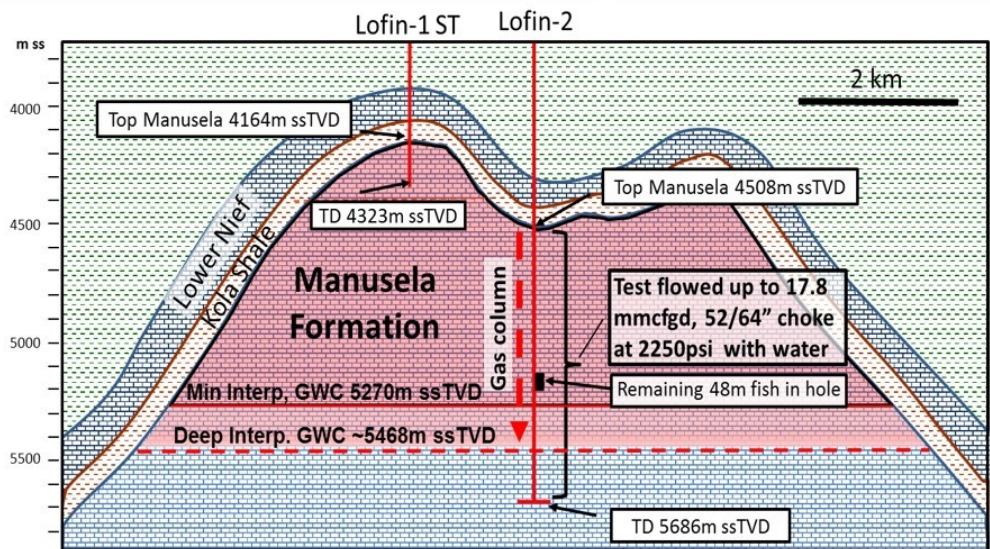
*Lofin gas & oil discovery depends on a gas market.*

CITIC has identified additional potential for 4.5 mmbbls of oil at Oseil plus exploration and appraisal upside for ~70 mmbbls of oil in place once renewal is approved.

Since first production in January 2003, the Oseil oilfield has produced over 15 million barrels of crude along with associated natural gas, most of which is utilised to generate electricity on site for operations. Ongoing production currently runs at approximately 3,600 barrels of oil per day (90 BOPD to Lion’s account), with costs reduced to US\$15.30/barrel and total remaining 1P Reserves are estimated at 4.9 mmbbls.

The project holds an exciting appraisal and development opportunity in which Lion would like to increase its equity if an opportunity arose. The **Lofin gas** and oil field was discovered in early 2012 by a well drilled to a total depth of 4,428 metres. At total depth, the well was estimated to have penetrated a gas-oil contact. Interpretation of logging and pressure data indicates a 160 metre hydrocarbon column to the depth of drilling. After acid stimulation, flow testing produced a flow of 15.7 mmcuft per day of gas along with 171 bbls per day of 36.1 API gravity oil with a strong flowing wellhead pressure of 4,750 psi on 24/64 inch choke. Pressure data indicates potential for a significant hydrocarbon column of up to 770 metres to the lowest closing contour, mapped from seismic data at 4,940 metres.

### Lofin Structure Schematic Section



Source: Lion

The Lofin Gas Field was discovered in early 2012 by a well drilled to a total depth of 4,428 metres. At total depth, the well was still in hydrocarbons with logging and pressure data indicates a 160 metre hydrocarbon column to the depth of drilling. After acid stimulation, flow testing produced a flow of 15.7 mmcuft per day of gas along with 171 bbls per day of 36.1 API gravity oil/condensate with a strong flowing wellhead pressure of 4,750 psi on 24/64 inch choke. Pressure data for Lofin-1 indicated the potential for a significant hydrocarbon column below the well total depth and provided encouragement for the joint venture to drill Lofin-2 in 2014/2015.

The Lofin-2 well outlined a gas column of up to 1,300 metres and tested gas at a rate of 17.8mmcuft/day through a 52/64" choke. Contingent resources (2C) certified by the Operator are 2,020 bcf gas and 18.3 mmbbl condensate with Lion’s working interest share estimated at 50 Bcf plus 0.46 mmbbls of condensate.

The project carries a risk associated with permit renewal and also a risk associated with gas market. As there is little domestic demand for gas on Seram Island the Lofin field could support an LNG plant or possibly a compressed natural gas plant that could supply gas to regional power plants and domestic customers on the Indonesian archipelago.

Strachan Corporate assesses a value of A\$21 million for the assets, but after allowing for commercial and regulatory risks, assesses a value of A\$8.6 million to Lion.

### Joint Study Applications

The Indonesian permit system characterises unconventional petroleum systems as those shale and other tight reservoirs that require fracture stimulation to promote commercial production.

Lion has submitted four unconventional Joint Study Applications (JSA) over 17,334 km within the North and Central Sumatran Basin of which two have been completed and also currently has one large conventional joint study underway over a prospective area in Eastern Indonesia. The joint studies are a pathway to being awarded PSC’s.

*Two approved & two completed applications for joint studies.*

Lion has identified significant areas within its application areas where these unconventional targets have potential to be in 'sweet spots' in terms of suitable depth of burial and rock characteristic

Lion holds a 55% interest in the completed Bohorok unconventional joint study, locates to the south of its SBA PSC interests in North Sumatra. The project's multi-Tcf potential, combined with a high gas price, rising gas demand and improved fiscal terms, support a commercial environment for the venture to proceed, once a PSC over the area is offered.

The company also has a 75% interest in the completed Central Sumatran, Bengkalis unconventional joint study and will have the right to match offers for any PSC gazetted over the oil rich province.

## Indonesian Market & Fiscal Terms

There is little doubt that Indonesia's demand for energy will continue to rise steadily. The country's population of 260 million is expanding by about 3.7 million per year. With GDP expanding by around 6% pa, the general level of wealth is also rising and with that its consumption of finite, non-renewable fossil fuels.

Indonesia, once a member of OPEC, is now a net importer of oil and is now an importer of natural gas as LNG. Gas exploration has been stimulated by recent gas contracts, reflecting a price upwards of US\$7/mmBtu payable to contractors.

Sumatra has a well developed gas transport network, taking gas to local markets as well as more distant markets in Java and Singapore.

Indonesian fiscal terms for conventional PSCs range from 15% to 30% contractor take after taxes for oil and from 30% to 40% contractor take for gas. The industry expects significant improvement of terms for unconventional PSCs with a contractor take for gas assumed to be similar to current CBM terms of 45%.

## Valuations

Strachan assesses five prospects and leads identified on SBA by Lion, assessing the more likely Amanah Timur and Jerneh prospects and applying probabilities of success at the P50 level ranging from 46% to 34% respectively. Other leads are assessed individually and where dual zones of interest are identified, only the lowest risk target is included in risked valuation to deliver separate risked values for each target.

Unconventional prospects have nominal value until permits are awarded and prospects further defined, even though multi-Tcf in-situ targets are postulated.

Strachan assumes a combined target of 400 Bcf with 25 mmbbls of liquids for the unconventional programme and the company is assumed to retain 20% of its JS interest if a PSC is awarded. Oil price assumption is based on the current Brent forward strip and conversion to AUD is at

76 US cents to the AUD.

## Risked exploration value matrix

Prospect	Equity		Target				LIO Value on PoS		Drill cost \$m	Risked Value \$/shr	
	Cur	Ret	Size		Insitu Value		Development				
	%	%	Gas Bcf	Oil mmbbl	Gas \$/Mcf	Oil \$/bbl	per shr				
<b>Lofin Gas</b>	2.5%	2.5%	2000	18.5	\$ 0.38	\$ 5.0	\$ 21	0.220	44%	0.8	<b>0.09</b>
<b>Simpang Deep</b>	40.7%	16.3%	220	7.0	\$ 0.62	\$ 6.0	\$ 29	0.299	23%	2.4	<b>0.04</b>
<b>Jerneh</b>	40.7%	16.3%	223	5.3	\$ 0.62	\$ 5.0	\$ 27	0.277	34%	2.0	<b>0.07</b>
<b>Pineueng</b>	40.7%	16.3%	68	1.2	\$ 0.65	\$ 7.0	\$ 8.6	0.088	27%	1.2	<b>0.01</b>
<b>Amanah Timur</b>	40.7%	40.7%	4.5	4.0	\$ 0.35	\$ 4.5	\$ 8.0	0.082	46%	0.5	<b>0.03</b>
<b>Sungai Iyu</b>	40.7%	40.7%	0	1.4	\$ 0.45	\$ 7.0	\$ 4.0	0.041	50%	2.4	<b>0.00</b>
<b>Unco Targets</b>	75%	15%	400	25	\$ 0.40	\$ 6.0	\$ 47	0.479	9%	4.5	<b>0.00</b>
											<b>0.24</b>

Source: Lion & Strachan Corporate

<b>PoS</b>	Probability of Success	<b>Size</b>	P50 estimated prospect size
<b>Equity</b>	Lion's interest in prospect	<b>Insitu Value</b>	Estimated market value of oil and gas in the ground
<b>Ret</b>	Estimated Retained holding	<b>Drill cost</b>	Investment required to establish P50 target size

Booming energy market  
with rising gas price.

Target risked value of 23 cps.

Substantial value for success.

## Board & Management

### **Mr Russell Brimage Executive Chairman**

Russell has over 40 years' experience in the upstream oil and gas industry, in public listed energy companies and the service industry, both onshore and offshore.

He was Managing Director of Oilserv Australia, an oilfield service company which he founded in 1982. He was an early mover in identifying shale opportunities in the US with a farm-in to approximately 60,000 acres in the Niobrara shale play in the states of Colorado and Wyoming in August 2009.

### **Stuart Smith Executive Director**

Stuart is a Chartered Accountant with over 20 years of experience in the energy industry, as an analyst and a corporate executive in capital markets. His financial market experience and commercial background are set to be a major contributor to Lion as it expands in Indonesia.

### **Mr Tom Soulsby Non-executive Director**

Thomas has 25 years' experience of the resources sector spanning investment banking, corporate business development and management/leadership roles. He is an accountant, having worked at KPMG and Western Mining and also worked as an energy and resources equity research analyst before taking a posted to Jakarta and ultimately Singapore as director of corporate finance and merchant banking for ANZ Bank.

### **Mr Roger Kenneth Whyte Principal advisor**

Roger Whyte is a Geologist with over 30 years of experience in the oil industry in senior managerial and technical roles.

He ran offshore seismic operations with Shell and held positions with Union Texas Corporation in Singapore, London and Jakarta, where he rose to the position of Chief Geophysicist with responsibility for offshore seismic acquisition, processing and interpretation in the Tomori Block, Indonesia.

### **Mr Kim Morrison Executive Director**

Kim has an Honours degree in Geology and Geophysics and a Diploma in Applied Finance and Investment from The Securities Institute of Australia. He worked in senior technical and managerial positions for several companies and has a strong background working in Indonesia with Marathon Oil, Fletcher Challenge and Shell.

### **Mr Christopher Newton Non-executive Director**

Christopher is a Geologist with 38 years experience in the oil and gas business who also holds a Grad Dip in Applied Finance and Investment from the Securities Institute of Australia.

He has spent more than 28 years in South East Asia in various industry capacities including Managing Director of Fletcher Challenge in Brunei, Managing Director of Shell Deepwater Borneo, President of Santos – Indonesia and CEO of Jakarta-listed oil and gas company, EMP. Along with Mr Soulsby, he was a co-founder director of Risco Energy Pte Ltd in July 2010.

### **Mr Sammy Hamzah Principal advisor**

Mr Hamzah has over 25 years of general management experience and formed Tower in 2012 to pursue early entry into unconventional exploration (non CBM) opportunities in Indonesia. He is the founding shareholder and Chief Executive Officer of Ephindo Energy Private Limited, Indonesia's leading first mover CBM explorer and was Unocal Indonesia Company's (now Chevron Indonesia Company) Senior Vice President in Indonesia.

He is Vice Chairman of the Indonesian Petroleum Association and Chairman of the Permanent Committee of Coordination of Energy Association at KADIN (Indonesian Chambers of Commerce) and is a founder of the CBM Advisory Board and a non-executive director of Rio Tinto Indonesia.

*Experienced team.*

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