

# Quarterly Report

1 July to 30 September 2021



## Highlights – green hydrogen strategy progresses, partners approvals received for onshore seismic and Lofin 2 test

Lion Energy Limited (“Lion” or “Company”) is pleased to report progress in both green hydrogen and oil and gas in Q3 2021.

Highlights include:

- Finalised the phase one GPA Engineering study into hydrogen production and refuelling and commenced a second phase.
- Developed a strong understanding of delivered green hydrogen costs in the Eastern States of Australia.
- Commenced evaluating the potential for building a network of modular hydrogen production and refueling stations in Australia.
- Progressed the Queensland University of Technology (QUT) study and it is expected to be completed in Q4.
- Commenced discussions with public transport authorities and fleet operators on the supply of green hydrogen.
- Obtained East Seram joint venture approval for shooting the largely partner-funded onshore 2D seismic program in the East Seram PSC in 2022.
- Approved the Seram (Non-Bula) 2022 work program and budget that includes a well test of the 1.5TCF Lofin gas discovery. Approval from Indonesian Government is expected in Q4.
- A crude oil lifting of 299,775 bbls was completed in July 2021, with proceeds net to Lion of USD486,392.
- Cash at quarter end was US\$2.2m (excluding joint-venture cash), a decrease of US\$0.1m from the end of Q2 2021.

Lion continues to develop its business case for green hydrogen in Australia, while preparing for the critical onshore seismic campaign in the East Seram PSC (Lion 60%), and for the Lofin well test in the Seram (Non-Bula) (“SNB”) PSC (Lion 2.5%).

Mr Soulsby, Lion’s Chairman said that “we have positioned Lion at the forefront of planning for hydrogen production and refuelling in Australia at a time when zero emissions are becoming more and more important for Federal and State Governments. We will further refine our proposed value chain proposing in the current quarter. Our modest position in the upcoming Lofin well test gives us leverage to Asia’s tight gas markets. Our East Seram PSC seismic campaign will cover some of the most material oil and gas prospects in Southeast Asia and could lead to drillable targets in 2023.”

### Lion at a glance

- ASX listed oil and gas E&P company with two conventional PSCs in Seram Island, Indonesia.
- Net production of around 37 bopd from the Seram PSC which also contains the Lofin gas/condensate discovery.
- New focus on green hydrogen opportunities in Australia.

### Contact

#### Lion Energy Limited

ABN 51 000 753 640

ASX Code: LIO

Suite 1  
295 Rokeby Road  
Subiaco WA 6008  
Australia

Post Box 557  
Subiaco WA 6904  
Australia

Tel +61 8 9211 1500 | Fax +61 8 9211 1501

info@lionenergy.com.au

www.lionenergy.com.au

### Directors & Officers

Tom Soulsby	Executive Chairman
Damien Servant	Executive Director
Russell Brimage	Non-Executive Director
Chris Newton	Non-Executive Director
Zane Lewis	Non-Executive Director
Arron Canicaïs	Company Secretary

### For more information contact

#### Tom Soulsby

+62 8121065956

tsoulsby@lionenergy.com.au

# Quarterly Report

1 July to 30 September 2021



## Green Hydrogen

During the quarter, Lion finalised phase one of the GPA Engineering study which was a high-level techno-commercial assessment of a 2,000kg per day generic hydrogen production and refuelling facility. The objective was to assess the potential business case for further investment into a hydrogen production plant in Australia. Lion is pleased to report that GPA will now undertake a second phase qualitative and quantitative review of the modular hydrogen compression, storage and dispenser offers received from various vendors.

Lion now believes that the heavy mobility sector is ripe for adopting hydrogen as a solution for zero-emission targets. For the bus industry in particular, some states have ambitious targets, with a requirement for all new public transport bus purchases to be zero-emission by 2025. Hydrogen buses are already commercially available, but the refuelling infrastructure is still missing. Lion is focussed on the potential for filling the gap.

Lion's belief is supported by the following activities during the quarter;

- Lion developed a strong understanding of delivered green hydrogen costs in the Eastern States of Australia
- Lion commenced evaluating the potential for building a network of modular hydrogen production and refueling stations in Australia
- Lion progressed the QUT study and it is expected to be completed in Q4
- Lion commenced discussions with public transport authorities and fleet operators on the supply of green hydrogen

Lion's rationale for a move into Green Hydrogen are (i) a buoyant market outlook (ii) significant tail winds from governments, (iii) the wide-ranging potential applications of green hydrogen (iv) Australia's global comparative advantage in renewable energy.

*Figure 1: Lion initial concept drawings for a potential 2,000kg/day hydrogen production and refuelling station*



# Quarterly Report

1 July to 30 September 2021



As part of the announcement, Lion stated the following provisional roadmap and has responded to the objectives as follows in the quarter under review.

*Table 1: Lion's provisional green hydrogen roadmap vs response*

Stated objective	Response
<b>Stage 1</b>	
Publish broad green hydrogen strategy	Completed
Register business name	Completed
<b>Stage 2</b>	
Establish team of hydrogen experts	Completed
Appoint experts to systematically analyse optimal electrolyser locations in Australia	Completed, QUT work expected to be completed Q4.
Review the best value and fit for purpose solar, wind and electrolyser technologies	GPA Engineering phase 1 completed, phase 2 has commenced
The review of opportunities in which Lion may be able to combine its expertise and resources with a suitable market and partner to progress a green hydrogen development using identified electrolyser locations and appropriate technologies	GPA Engineering phase 1 complete, MOU's signed with Wagner Corporation and Censtar Technologies, Lion is working with public transport authorities and bus fleet operators in Qld, NSW and Vic
Expand the scope of the Advisory Board to review opportunities in H2 distribution and hydrogen fuel cells for heavy equipment and vehicles	Advisory board have an ongoing role, GPA phase 1 complete, working on short listing locations in close consultation with government and fleet operators
<b>Stage 3</b>	
Appoint consultants to undertake a feasibility study to ascertain the economic viability of a short listed opportunity and the anticipated cost	Conditional upon stage 2 work being completed
Secure any required land rights conditional upon Lion proceeding with an opportunity	Conditional upon stage 2 work being completed
Investigate investing in a pilot or demonstration plant including H2 distribution and hydrogen fuel cell heavy equipment and vehicles	MOU's signed with Wagners and Censtar, and a key bus fleet operator
<b>Stage 4</b>	
Subject to a positive feasibility study, progress the opportunity by participating in the development of a smaller or larger solar/wind farm and relevant energy storage facilities to produce green hydrogen at low cost for domestic or export markets	Conditional upon stage 3 work being completed
Form a joint venture with a suitably experienced and funded partner	Conditional upon stage 2 work being completed

Lion aims to be among the first movers in green hydrogen production in Australia and is mobilising its resources to meet this objective with a focus on the Eastern States of Australia heavy mobility sector.

Lion appointed the Australian Road Research Board ("ARRB") on a business case for hydrogen buses in Queensland. ARRB will deliver an economic case and a transition plan which Lion may share with regulators, bus fleet owners and operators to assist with their decision making and transition planning.

Lion's work with QUT, which was announced June 2, 2021, is close to completion. The draft geospatial tool enables us to quickly ascertain the suitability of larger hydrogen production locations factoring in market and renewable energy delivery infrastructure. We will update the market on this work upon completion, expected by year end.

The work with Wagner Corporation also continues with discussions ongoing.

Separately, Mr Soulsby has been appointed as a Board Advisor to the Hydrogen Queensland Industry Group (H2Q), which is an industry led organisation committed to securing the economic, environmental and social opportunities hydrogen offers Queensland and Australia.



# Quarterly Report

1 July to 30 September 2021

**LION**  
energy

## Operations update

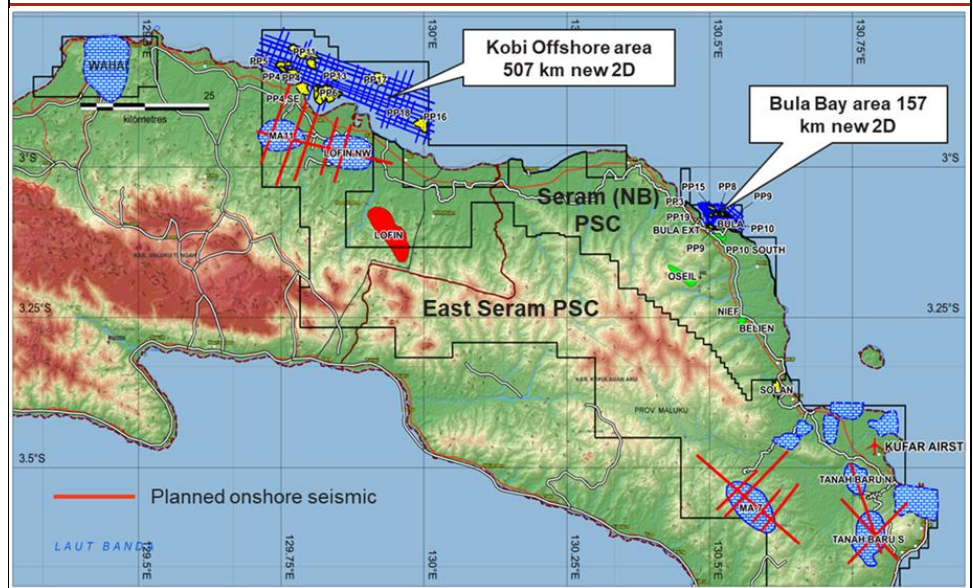
### East Seram PSC

Lion, via its wholly owned subsidiary Balam Energy Pte Ltd, holds a 60% participating interest in the East Seram PSC, located on and offshore east Seram Island in eastern Indonesia.

The recent marine seismic has allowed Lion to mature a material, deep and diverse portfolio of exploration opportunities.

Lion is planning onshore seismic operations in 2022, largely funded by its partner, and strategically planned to mature the existing material prospects and leads portfolio to "drill ready" status.

Figure 2: East Seram PSC – location map



Through the onshore seismic campaign, Lion is strategically positioning itself for a carried exposure to a high impact oil and gas exploration drilling program. Onshore, Lion has some of the largest undrilled structures in Southeast Asia together exceeding 1,100 mmbœ's<sup>1</sup> on a P50 basis.

<sup>1</sup> *Prospective Resource: the estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons. The prospective resource numbers shown are unrisks.*

Lion undertook a 664 km high resolution marine seismic survey in the Bula Bay and offshore Kobi Area of Seram Island in November 2020, with processing completed in March 2021 and interpretation of data finalised in June 2021.

The acquisition and processing of the seismic data has met the firm commitment obligations of the PSC. The data has also helped with selection of less prospective areas for a required 30% relinquishment of the East Seram PSC at the end of Permit Year 3. The new area of the PSC post relinquishment will be 4,557 km<sup>2</sup>.

Lion continues to plan for a first half 2022 start of an approximate 200 km onshore survey targeting world class onshore oil and gas leads. In the quarter, Lion progressed planning for the onshore survey including progressing securing an explosives bunker from a neighbouring PSC, preparing for a helicopter tender, negotiating with the lead seismic contractor which is now close to finalisation and obtaining partner approvals for the 2022 work plan and budget now submitted and presented to the Government of Indonesia. We expect approval for our work program plans in Q4.

The upcoming seismic program is largely funded by Lion's partner, OESC. As noted in Lion's press release on 27 September 2019, Lion signed a farmout agreement with OESC, a subsidiary of Taiwan's CPC Corporation. OESC has taken a 40% working interest under the farmout agreement.

# Quarterly Report

1 July to 30 September 2021

**LION**  
energy

## Seram (Non-Bula) PSC

Lion, via its wholly owned subsidiary Lion International Investment Ltd, holds a 2.5% participating interest in the SNB PSC, located onshore Seram Island in eastern Indonesia.

The block contains the Oseil oil field and surrounding structures that have yielded cumulative crude oil production of 19,127,267 barrels since production started in January 2003 through to 30 September 2021.

As previously reported by Lion, in 2015 the Lofin-2 appraisal well confirmed a highly material gas discovery in the SNB PSC. A Lofin 2 well test is expected to be carried out in H1 2022 to help re-affirm contingent resource estimates of 1.5 TCF for the discovery and confirm sustainable deliverability to support commercialisation planning. The joint venture recently approved plan and awaits Government of Indonesia approval.

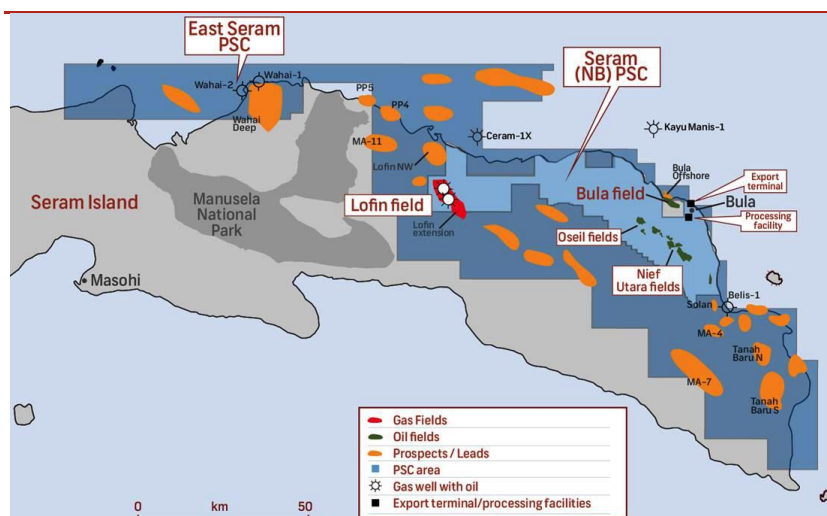
### Production

During the quarter, gross crude oil production from Oseil and surrounding oilfields was 137,826 bbls (Lion's gross share 3,446 bbls). Daily production averaged 1,498 bopd (Lion's net interest being 37 bopd). Crude oil available for lifting at 30 September 2021 was 107,320 bbls.

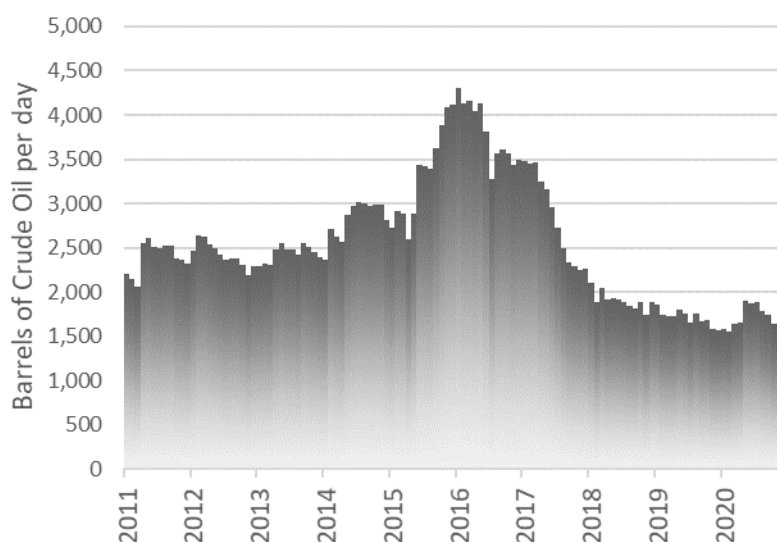
A crude oil lifting of 299,775 bbls was completed on 30 July 2021, with Lion receiving net revenue of USD486,392.

During the Quarter, one well service was carried out on Oseil-9, to replace the downhole electric pump (ESP).

Seram (Non-Bula) Block PSC - location map



Seram (Non-Bula) Block - daily production per calendar month (bopd)



# Quarterly Report

1 July to 30 September 2021



## Corporate

The Company continues to maintain a focus on costs, whilst pursuing upstream activities in Indonesia and a Green Hydrogen strategy in Australia. Lion expects G&A costs to track steady year on year below US\$1m.

### Related Party Payments

During the quarter, the Company made payments of US\$120,000 to related parties and their associates. These payments relate to the existing remuneration agreements for the Executive and Non-Executive Directors.

## Summary of petroleum tenements held as at 30 September, 2021

	% interest	Tenement	Location
Held at end of quarter	60%	East Seram PSC	Seram Island, Indonesia
	2.5%	Seram Non-Bula PSC	Seram Island, Indonesia

### ENDS

This ASX announcement was approved and authorised for release by the Board of Directors.

### Qualified petroleum reserves and resources evaluator requirements

In accordance with ASX Listing Rule 5.43 the Company confirms that references to petroleum reserves, contingent resources and prospective resources have previously been announced (7/9/2018, 10/9/2018, 04/03/2019, 13/04/2021 and 16/06/2021). The Company confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all the material assumptions and technical parameters underpinning the estimates in this announcement continue to apply and have not materially changed.

### Glossary

bbl: barrels

bcf: billion cubic feet

bopd: barrels oil per day

BOP: blow out preventer

ESP: Electric submersible pump

FTP: first tranche petroleum

JV: joint venture

KB: Kelly bushing

mmscfd: million standard cubic feet of gas per day

mmbbl: million barrels

MD: measured depth

POS: probability of success

PSC: Production Sharing Contract

psi: pounds per square inch

tcf: trillion cubic feet

Sq.km: square kilometres

ss TVD: sub-sea true vertical depth

TD: total depth