

## Quarterly Activities Report - 31 March 2019

### Calima Energy Limited

ABN: 17 117 227 086

ASX Code: CE1

Calima Energy Limited is an international oil and gas company with more than 72,000 acres of drilling rights prospective for the Montney Formation in British Columbia, the most active oil and gas play in Canada.

1,237,262,750 fully paid ordinary shares (quoted)

51,842,834 Escrowed to 28-8-19

155,779,486 Escrowed to 30-4-19

### Directors

Glenn Whiddon  
(Chairman)

Alan Stein  
(Managing Director)

Jonathan Taylor  
(Technical Director)

Neil Hackett  
(Non-Executive Director)

### Joint Company Secretary

Neil Hackett  
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**Calima is listed on the ASX (ASX:CE1). The principal activity of Calima is investing in oil and gas exploration and production projects internationally. Calima's core asset lies within a liquids-rich sweet-spot of the Montney Play in Northeast British Columbia.**

Calima Energy Limited (**ASX: CE1**) (**Calima** or the **Company**) is pleased to provide shareholders with the following summary of its activities during the March 2019 quarter.

## Key Activities and Highlights

### Operations

Calima's Q1 operations focused on drilling to test the prospectivity of the Montney Formation in the Company's 72,000-acre lease holdings in Northeast British Columbia (**Calima Lands**), considered to be prospective for the Montney Formation.

### Calima Lands

The Company completed its planned three well drilling programme in Canada during the quarter and all three wells were drilled on schedule and without any health, safety or environmental incidents.

The Calima-1 vertical well reached a total depth of 1,872.5m. The top of the Montney Formation was encountered at 1,559.5m against a prognosis of 1,562.2m and it is 256.5m thick against a prognosis of 257.3m. Core data was collected over 90% of the Montney interval. This is one of the most complete cores cut through the Montney interval in British Columbia.

Prior to completing the Calima-1 well a full suite of wireline logs was acquired to compliment the 230m of core already collected. The wireline log data was acquired and evaluated by Schlumberger with a separate evaluation of the logs undertaken by Nutech. The log data are clearly correlateable to nearby wells (Figure 1) with analyses showing hydrocarbon saturations and porosity measurements throughout the Montney to be comparable, or better, with offset wells that are currently producing in adjacent acreage and it confirmed the presence of three target zones (Figure 1 – Upper, Middle and Lower) within the Montney.

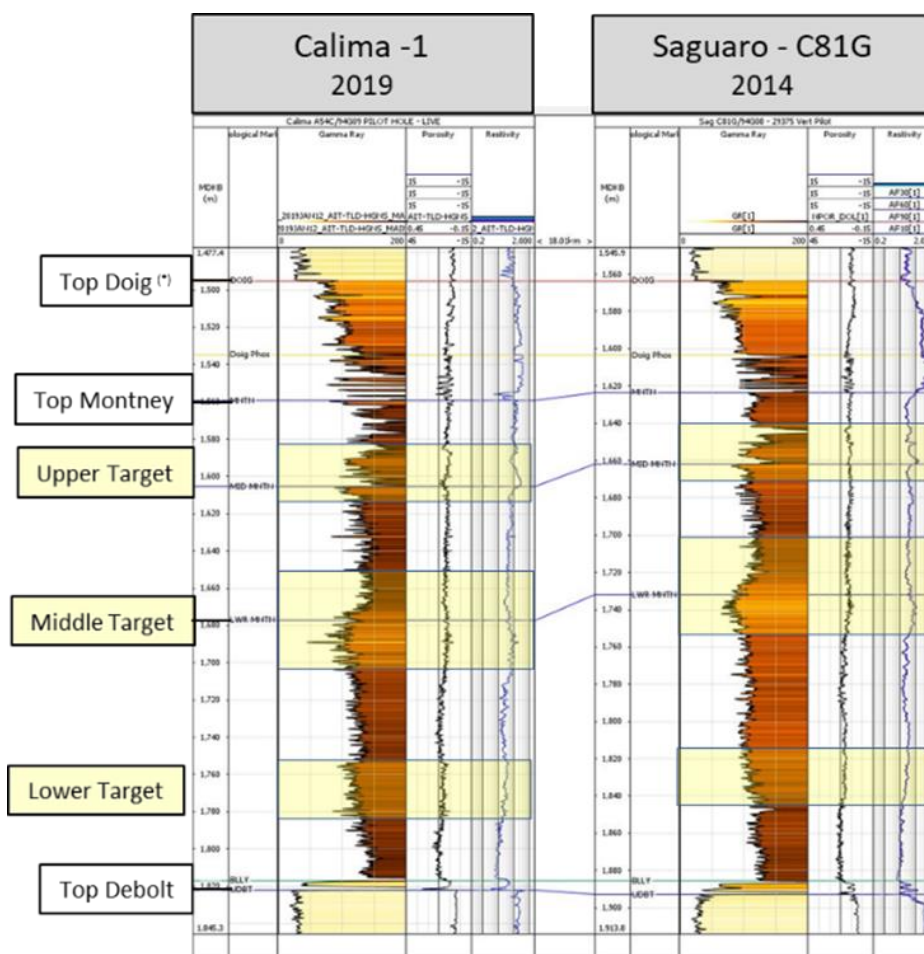


Figure 1– The log data acquired from the Calima-1 borehole are clearly correlateable with other wells drilled in the area. The Saguaro C81-G vertical well is 18km to the southeast of Calima-1. There are three target levels for horizontal drilling within the Montney Formation at this location referred to here as the Upper, Middle and Lower targets<sup>(1)</sup>.

Following the successful drilling of Calima-1, the Calima-2 well was drilled to a target length of 4,425m, including a 2,508m horizontal section and the Calima-3 well was drilled to a planned total length and a horizontal section was completed with a total length of 2,561m.

Reservoir stimulation operations followed at the Calima-2 and Calima-3 wells. The completion was done in 92 stages per well using multistage sliding sleeve completions technology. The coiled tubing and pumping equipment required for this style of completion was installed without any complications. Calima-2 targeted Middle Montney which took up the full proppant amount (45 tons or 1.5t/m) at almost every stage location.<sup>(2)</sup>

The reservoir section targeted by the Calima-3 well also received the full proppant load of 45 tons per stage or 1.5t/m at almost all stage locations. Rigging down of completion equipment and cessation of water management was completed after the reservoir stimulation operations and production testing equipment was installed on both Calima-2 and Calima-3 horizontal wells.<sup>(3)</sup>

The first phase of the production test recovers the load water injected during reservoir stimulation. As the water rate decreased the flow of gas increased and eventually light oil and other natural gas liquids were recovered. During the final stages of the clean-up phase the well flowed at a calculated maximum rate of 1,640 boe/d<sup>(4)</sup> comprised of ~ 10.2 mmcf/d of gas and ~151 bbl/d<sup>(5)</sup> of light oil and natural gas liquids.<sup>(6)</sup>

The well was then shut in as planned to allow installation of production tubing before being brought back on production.

Comparisons with nearby wells suggested that Calima-2 should match or exceed the liquids rates from adjacent areas. The Company retained one of Calgary's leading oil and gas consultancies, GLJ Petroleum Consultants, to analyse the test results and provide commentary on the data being generated. Early data provided by GLJ (Figure 2) demonstrated that Calima-2 delivered initial performance in the upper quartile of the peer group.

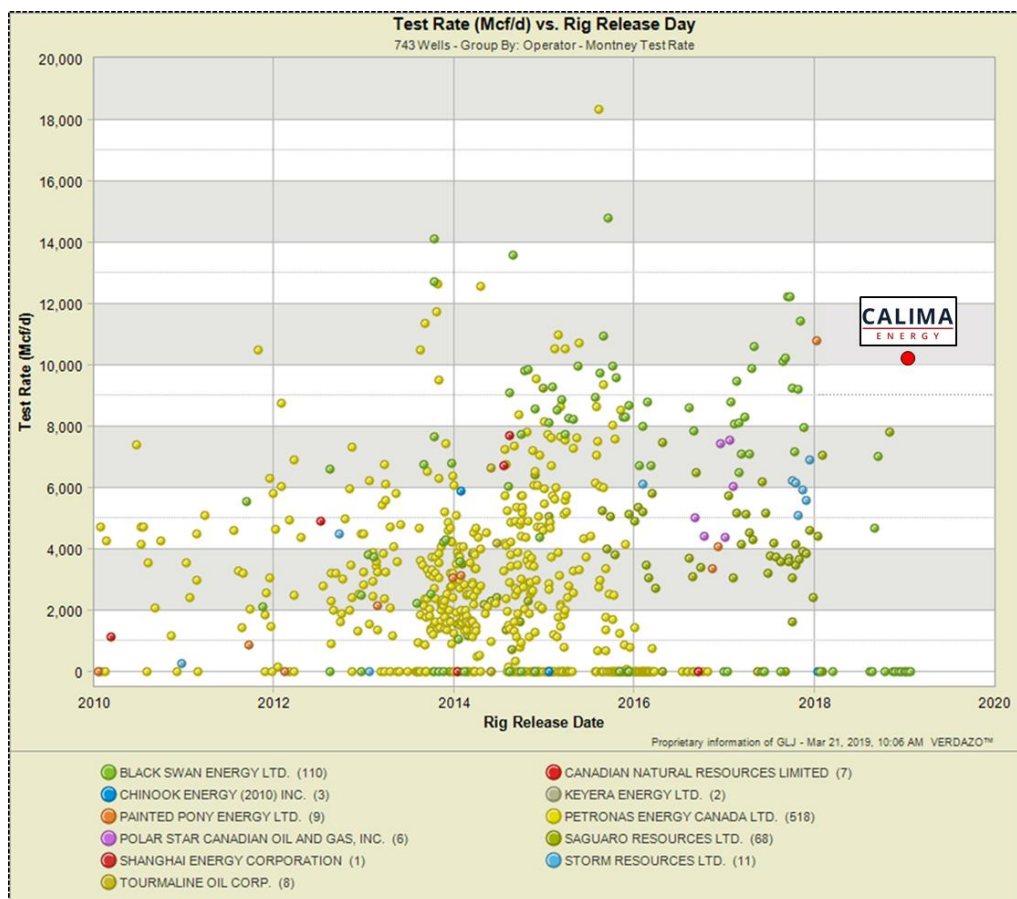


Figure 2 – Test rate (mmcf/d) after 48 hours vs rig release date showing that in terms of initial performance Calima-2 has performed within the top quartile of the peer group.

Continued production testing at Calima-2 resulted in further increases in the rate of liquid recovery. During the final eight hours of production testing, the well achieved a condensate-gas-ratio (CGR) of 22.15 bbl/mmcf<sup>(4)</sup> (plant recovery estimate 44.30 bbl/mmcf<sup>(4)</sup>) through a choke size of 38.1mm. The measured CGR continued to increase until testing operations were ceased. The Company anticipates further enhancement to liquids ratios once both wells are brought onto production and the water injected

during stimulation operations is recovered. A number of Montney operators have observed substantial improvements both in total production rates and CGRs by allowing wells to sit for a period of time (typically 6-9 months) prior to being brought on production. This is commonly referred to as “soak time”<sup>(7 & 8)</sup>.

The Calima-3 well testing performed as expected until the arrival of an unseasonal early spring melt curtailed testing operations requiring a full decommissioning of the drill site over a short period of time. The Calima-3 test of the Upper Montney was flaring gas in the early stage of unloading (recovery of water injected during stimulation) at rates in excess of 2.5mmcf/d<sup>(9)</sup>. These rates are consistent with the early Calima-2 test rates and encouragingly were reached in a shorter period of time (Figure 3). Management is confident that with additional testing time Calima-3 would have achieved similar maximum flow rates to Calima-2. This is confirmed by preliminary core and log data analysis which give an indication of the productive potential of both wells.

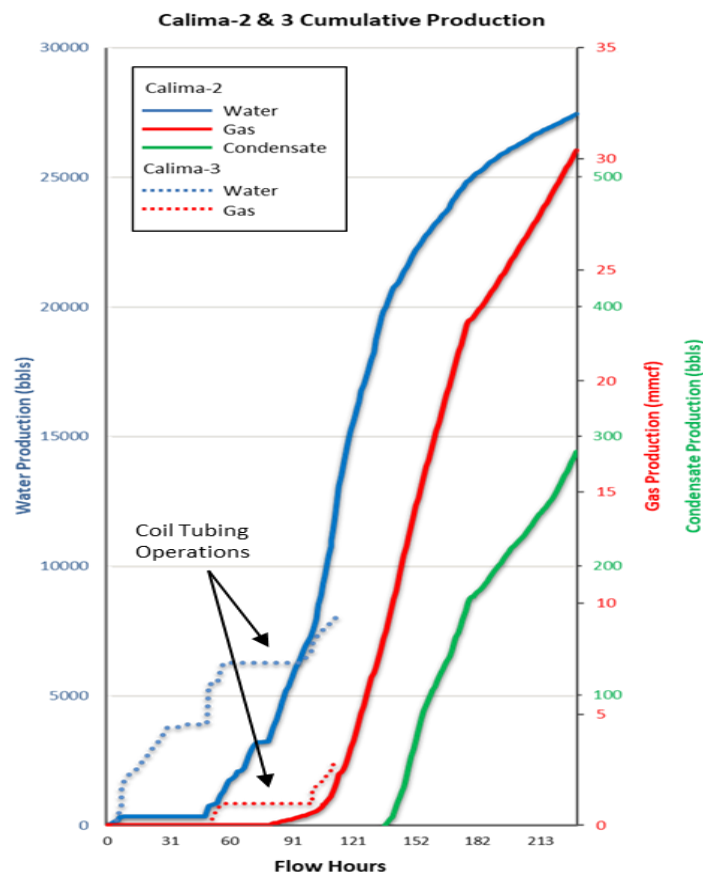


Figure 3 – Comparison of cumulative production for Calima-2 and Calima-3 wells.

In common with many areas in the Montney, early stage drilling is done during the winter when frozen ground allows the movement of heavy equipment on undeveloped access tracks. This includes the use of snow bridges over creeks. When the frozen ground begins to melt in the spring it is no longer possible to move heavy equipment and drilling operations cease. In the future, as development progresses, all weather roads can be constructed which allow year-round operations.

Through the cumulative drilling of 9,353m over the campaign, the Company has earned the right to convert ~35,000 acres of drilling licences to 10-year production leases. This corresponds to approximately 60% of the central area of the Calima Lands (Figure 4). The remainder of the central area is retained under drilling licences that are valid until 2021.

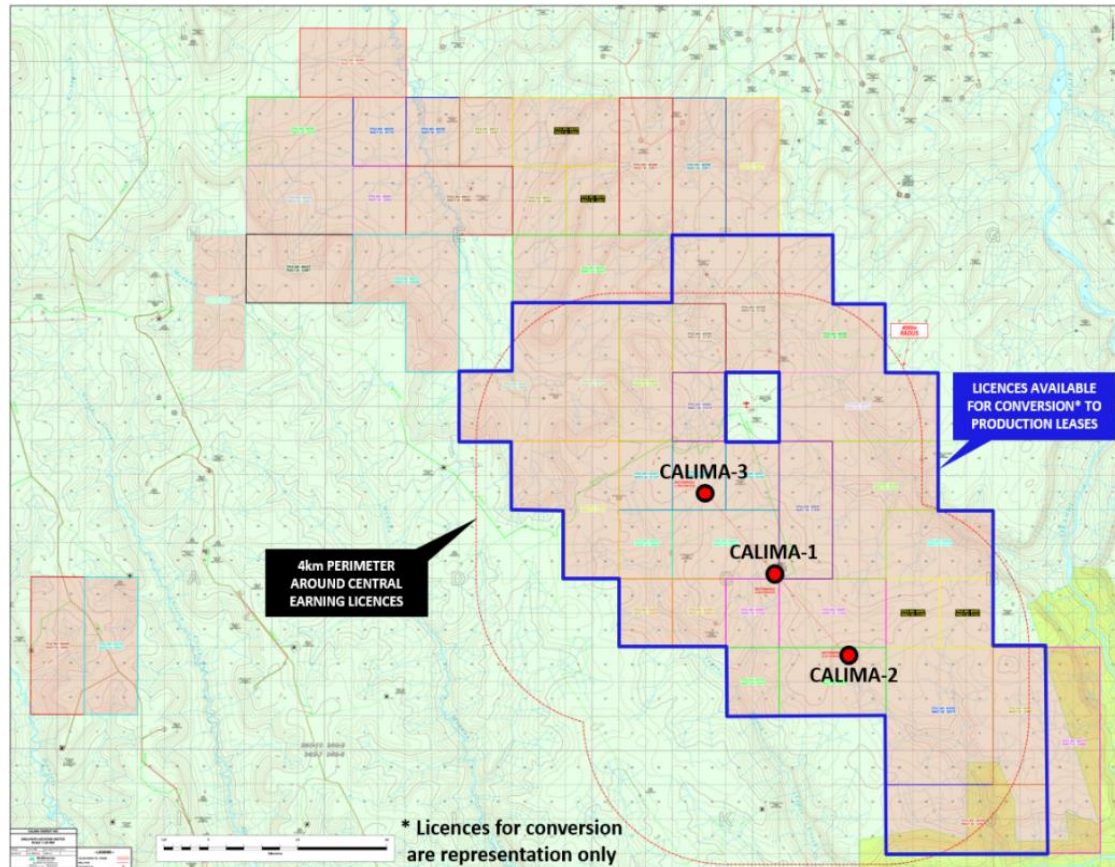


Figure 4 – Location map of earning licenses as a result of 2018/19 drilling campaign [Bottom hole locations of wells indicated]

Subsequent to the end of the quarter, the company received ongoing core, log and gas data analysis from the Montney drilling campaign that confirmed a significant extension of the liquids-rich Montney fairway in British Columbia.

- Core Analyses** - Studies of the Calima-1 Montney core conducted by AGAT Laboratories, determined significantly elevated oil saturations throughout the entire 230m of core. Oil saturations of up to 59% and 64% have been measured in the Upper and Middle Montney Targets respectively. (shown in green in Figure 5) from the nearest offset wells with Montney core confirm that the oil saturations encountered in Calima-1 are elevated. <sup>(10)</sup>

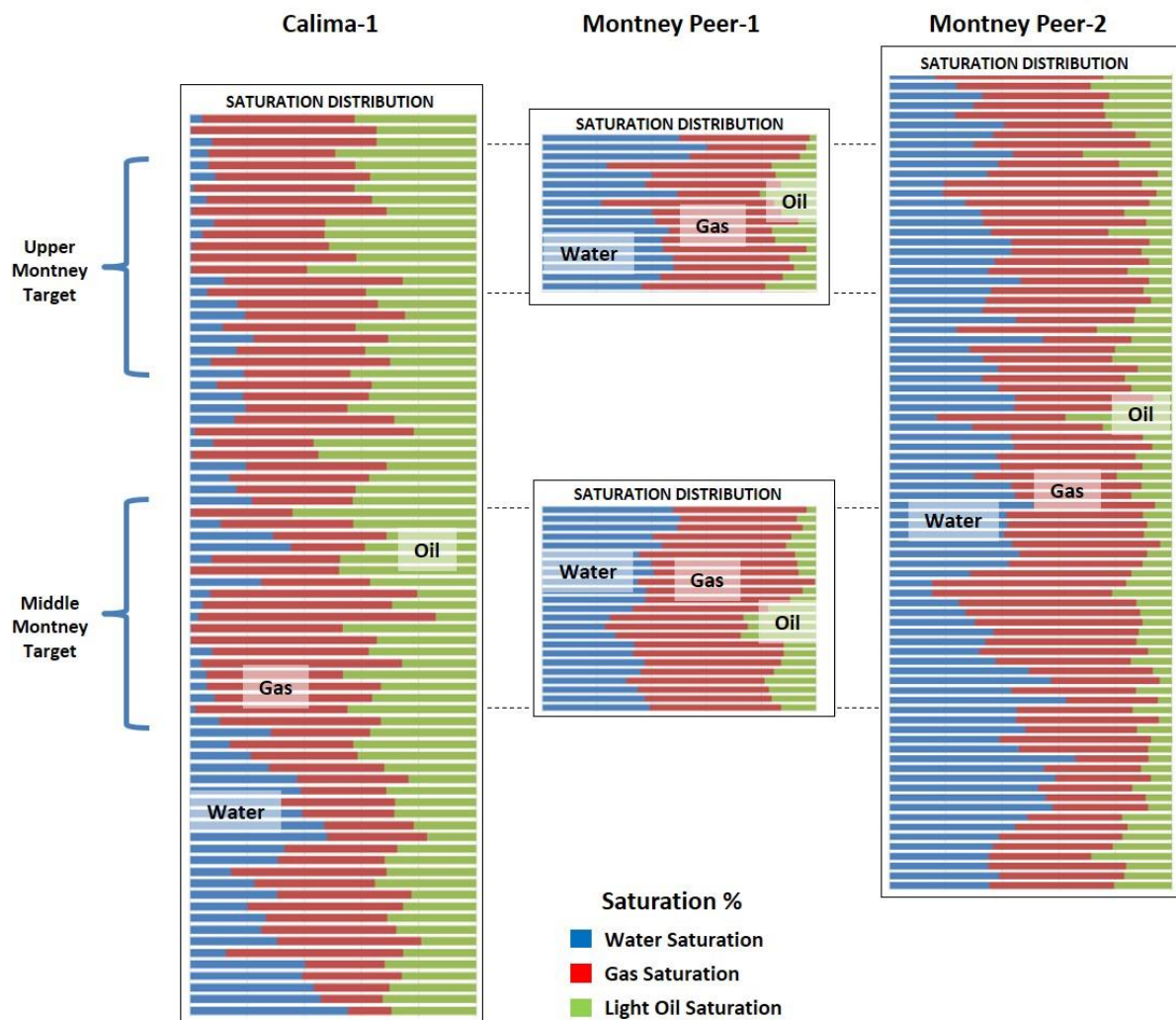



Figure 5 – Oil-gas-water saturations calculated from core data in Calima-1 (left) relative to saturation data calculated from core acquired in nearby wells by Montney peers. Data are aligned relative to Top Montney depth.

- **Wireline Log Analyses** – Analyses of the Montney reservoirs for comparisons of nearby wells, highlighted the reservoir quality of the Montney reservoir targets in Calma-1. This is summarised in Table 1 below. <sup>(10)</sup>
- **Porosity** – Average porosities in Calima-1, for the Upper and Middle Montney targets, are 28% and 20% higher, respectively, than the average of the offset wells. Porosity is a measure of the available pore-space capable of holding hydrocarbons and water and thus has a direct influence on the volumes of hydrocarbons in-place. <sup>(10)</sup>
- **Hydrocarbon saturation** – Average hydrocarbon saturations in Calima-1, for both the Upper and Middle Montney targets, are 14% greater than the average of the offset wells. The hydrocarbon saturations calculated in the wireline analyses are confirmed by AGAT’s core analyses. Hydrocarbon saturation defines the percentage of hydrocarbons taking up pore space within the reservoir rock and will have a direct bearing on the volumes of hydrocarbons in-place. <sup>(10)</sup>

- **Gas and Associated Liquids Compositions** - Analyses of Calima's gas samples identified that compositions of the gas and additional liquids recovered from the gas (representative of liquids separated at the processing facility) are almost identical to the average of 33 wells drilled by an adjacent Operator. <sup>(11)</sup>

Compiled for Calima Energy (March 2019) by: 


		LOCATION A	LOCATION B	 CALIMA-1	LOCATION C	LOCATION D
<b>UPPER TARGET</b> (tested with Calima-3)	Porosity (%)	3.8	4.5	<b>5.3</b>	4.1	4.1
	Hydrocarbon Sat. (1-Sw) %	67.8	87.7	<b>87.5</b>	68.7	82.6
	Thickness (m)	48	49	<b>46</b>	38	35
	Clay (%)	18.6	16.6	<b>14.3</b>	18.2	16.1
	TOC (%)	1.48	2.13	<b>1.7</b>	1.36	2.0
<b>MIDDLE TARGET</b> (tested with Calima-2)	Porosity (%)	3.7	4.1	<b>4.5</b>	3.8	3.4
	Hydrocarbon Sat. (1-Sw) %	67.7	82.0	<b>75.2</b>	65.9	48.5
	Thickness (m)	73	70	<b>73</b>	65	64
	Clay (%)	23.7	23.3	<b>20.6</b>	20.8	18.8
	TOC (%)	1.05	1.33	<b>1.3</b>	0.92	0.93
<b>LOWER TARGET</b> (upside potential)	Porosity (%)	4.3	5.1	<b>4.9</b>	4.7	4.5
	Hydrocarbon Sat. (1-Sw) %	70.3	72.5	<b>62.0</b>	63.1	62.7
	Thickness (m)	146	132	<b>136</b>	158	136
	Clay (%)	30.0	27.4	<b>27.0</b>	30.2	28.4
	TOC (%)	0.87	0.87	<b>1.1</b>	0.65	0.59

Table 1 – Reservoir parameters determined from Calima-1 wireline log data (highlighted in red) compared with wireline log analyses of nearby wells by Montney peers. Location B (grey outline) lies within the Calima Lands and providing further evidence that the exceptional reservoir quality encountered in the Calima wells extends further north into the Calima Lands.

Management are also pleased by the results calculated for the closest of the offset wells as part of this analysis, as it is located within the Calima Lands. The well, identified as Location B in Table 1, is located ~8km northwest of Calima-1 and only 5km from the bottom hole location of Calima-3. Well B was drilled vertically by a previous operator to target a conventional reservoir below the Montney. The results of the Well B analysis validate the northwards extension of the exceptional Montney reservoir quality encountered in the Calima wells. The Well B location could be a de-risked future well pad.

The recent core and log analyses of the Calima-1 well confirm the liquids-rich nature of the Montney Formation in the Calima Lands, including the Upper Montney target as tested by Calima-3. The Calima-1 log and core analyses support the production test results and together will allow for a full evaluation of the Upper and Middle Montney targets, with no further testing of Calima-2 or -3 being required.

## **Corporate**

### **Cash Position**

Calima has cash reserves of circa \$10 million as at 31 March 2019. This is made up of \$6.3 million with Calima as per the Appendix 5B and AUD equivalent of \$3.7 million sitting in a trust account with our in-country management company CWL Energy Management Ltd for payment of exploration activities.

### **Forward sales of Paradise Oil**

Calima forward sold CAD1,200,000 of net production revenue from the Paradise well for the consideration of CAD1,000,000 which was received during the quarter. Calima owns 100% of the Paradise well (Official designation; Boundary 5-1-86-15 00/11-01-08615W6/0), located 40 km to the northeast of Fort St John and 180 km to the southeast of the Company's extensive Montney interests in northeast British Columbia. The forward sale facility will be repaid monthly from net well production payments over a period of 36 months. In the event of there being any shortfall the lender can require repayment of the outstanding balance in cash or, subject to shareholder approval, shares (at the 20-day VWAP prior to such election).

Within the last six months of the facility, or earlier if the loan amount has been repaid, the lender has the right to acquire the Paradise well.

### **Notes**

(1) Refer to ASX announcement 22 January 2019

(2) Refer to ASX announcement 8 March 2019

(3) Refer to ASX announcement 13 March 2019

(4) Barrel of oil equivalent (boe); All boe conversions in the text are derived by converting gas to oil at the ratio of six thousand cubic feet of natural gas to one barrel of oil equivalent. A Boe conversion rate of 1 Boe:6Mcf is based on an energy equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead. Given that the value ratio of oil compared to natural gas, based on current prevailing prices, is significantly different than the energy equivalency ratio of 1Boe:6Mcf, utilising a conversion ratio may be misleading if used in isolation.

(5) The numbers of barrels recovered at the well-head is not indicative of the total number of barrels typically won from production. Based on expected deep cut recoveries through standard processing facilities in the area the liquids recoveries would be expected to increase by more than 100% after treatment.

(6) Refer to ASX announcement 27 March 2019

(7) Source Pipestone Corporation March 20 2019 – Operations Update.

[https://pipestonecorp.com/news/2019/3/20/pipestone-energy-corp-announces-progress-on-its-development-program-and-a-significant-increase-in-the-value-of-its-reserves-and-resources.](https://pipestonecorp.com/news/2019/3/20/pipestone-energy-corp-announces-progress-on-its-development-program-and-a-significant-increase-in-the-value-of-its-reserves-and-resources)

(8) Refer to ASX announcement 25 March 2019

(9) Refer to ASX announcement 29 March 2019

(10) Refer to ASX announcement 8 April 2019

(11) Refer to ASX announcement 16 April 2019



## **Forward Looking Statements**

*This release may contain forward-looking statements. These statements relate to the Company's expectations, beliefs, intentions or strategies regarding the future. These statements can be identified by the use of words like "anticipate", "believe", "intend", "estimate", "expect", "may", "plan", "project", "will", "should", "seek" and similar words or expressions containing same.*

*These forward-looking statements reflect the Company's views and assumptions with respect to future events as of the date of this release and are subject to a variety of unpredictable risks, uncertainties, and other unknowns. Actual and future results and trends could differ materially from those set forth in such statements due to various factors, many of which are beyond our ability to control or predict. These include, but are not limited to, risks or uncertainties associated with the discovery and development of oil and natural gas reserves, cash flows and liquidity, business and financial strategy, budget, projections and operating results, oil and natural gas prices, amount, nature and timing of capital expenditures, including future development costs, availability and terms of capital and general economic and business conditions. Given these uncertainties, no one should place undue reliance on any forward-looking statements attributable to Calima, or any of its affiliates or persons acting on its behalf. Although every effort has been made to ensure this release sets forth a fair and accurate view, we do not undertake any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.*

For further information visit [www.calimaenergy.com](http://www.calimaenergy.com) or contact:

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## **About Calima Energy**

**Calima Energy Limited (ASX:CE1)** is an international oil and gas company with more than 72,000 acres of drilling rights prospective for the Montney Formation in British Columbia, the most active oil and gas play in Canada.

Calima's neighbours in the Montney play include international operators Shell, ConocoPhillips and PETRONAS, as well as Canadian producers Black Swan Energy, Saguaro Resources and Painted Pony Energy. The region's liquids-rich hydrocarbon reserves are being targeted for LNG export alongside domestic and international oil market opportunities.

## Appendix One

### Calima-2 (Middle Target)

Name & Type	Calima 02 Hz Tommy a-054-C/094-G-09 (Horizontal)
Location	NE British Columbia, Canada
Working Interest	100%
Rock Type	Montney Formation - siltstone
Vertical Depth / Lateral Length	1683m TVD / 2508m
Test Type & Duration	Production test – 48 hours
Hydrocarbon phases recovered	Gas and Light Oil/Condensate
Other recoveries	Stimulation water
Completion Stages	92 stages at 30m spacing with 1.5t/m proppant loading
Choke size	38.1mm

### Calima-3 (Upper Target)

Name & Type	Calima Hz Tommy a-A054-C/094-G-09 (Horizontal)
Location	NE British Columbia, Canada
Working Interest	100%
Rock Type	Montney Formation - siltstone
Vertical Depth / Lateral Length	1606m TVD / 2561m
Test Type & Duration	Initial clean-up and flow back – 48 hours (interrupted by coil operations)
Hydrocarbon phases recovered	Gas
Other recoveries	Stimulation water
Completion Stages	92 stages at 30m spacing with 1.5t/m proppant loading
Choke size	38.1mm

## Appendix Two - Schedule of Interest in Tenements and Capital Structure

COUNTRY	BLOCK ID	LOCATION	WORKING INTEREST
CANADA	65276	Onshore	100%
CANADA	65277	Onshore	100%
CANADA	65350	Onshore	100%
CANADA	65355	Onshore	100%
CANADA	65391	Onshore	100%
CANADA	65393	Onshore	100%
CANADA	65450	Onshore	100%
CANADA	65452	Onshore	100%
CANADA	65454	Onshore	100%
CANADA	65537	Onshore	100%
CANADA	65539	Onshore	100%
CANADA	65556	Onshore	100%
CANADA	65557	Onshore	100%
CANADA	65558	Onshore	100%
CANADA	65559	Onshore	100%
CANADA	65591	Onshore	100%
CANADA	65635	Onshore	100%
CANADA	65636	Onshore	100%
CANADA	65659	Onshore	100%
CANADA	65662	Onshore	100%
CANADA	65663	Onshore	100%
CANADA	65691	Onshore	100%
CANADA	65733	Onshore	100%
CANADA	65735	Onshore	100%
CANADA	66255	Onshore	100%
CANADA	66256	Onshore	100%
CANADA	66312	Onshore	100%
CANADA	66313	Onshore	100%
CANADA	66338	Onshore	100%
CANADA	66386	Onshore	100%
CANADA	66419	Onshore	100%
CANADA	66420	Onshore	100%
CANADA	66421	Onshore	100%
CANADA	66422	Onshore	100%
CANADA	66440	Onshore	100%
CANADA	66441	Onshore	100%
CANADA	66442	Onshore	100%
CANADA	66443	Onshore	100%
CANADA	66479	Onshore	100%
CANADA	66480	Onshore	100%
CANADA	66481	Onshore	100%
CANADA	66515	Onshore	100%
CANADA	66550	Onshore	100%
CANADA	66581	Onshore	100%
WESTERN SAHARA	Daora	Offshore	50%
WESTERN SAHARA	Haouza	Offshore	50%
WESTERN SAHARA	Mahbes	Offshore	50%
WESTERN SAHARA	Mijek	Offshore	50%
NAMIBIA	2813B	Offshore	56%

## Capital Structure

Securities on Issue as at 18 April 2019:

- 1,237,262,750 fully paid ordinary shares (quoted)
- 51,842,834 Fully paid ordinary shares escrowed to 28 August 2019
- 155,779,486 Fully paid ordinary shares escrowed to 30 April 2019
- 19,450,000 performance rights escrowed to 28 August 2019
- 20,029,226 performance shares escrowed to 28 August 2019
- 10,000,000 options exercisable at \$0.09 on or before 25 August 2022
- 10,000,000 options exercisable at \$0.12 on or before 25 August 2022
- 10,000,000 options exercisable at \$0.045 on or before 25 August 2022
- 2,000,000 options exercisable at \$0.07 on or before 31 December 2019
- 750,000 options exercisable at \$0.07 on or before 6 November 2021

In relation to the Performance rights:

- a) No performance rights were issued during the period.
- b) The Performance Rights will vest, subject to completion of a minimum of 18 months' continuous service, on satisfaction of at least two of the following three conditions:
  - The VWAP for Calima shares for any period of 30 consecutive trading days being above \$0.15;
  - Calima raising more than \$5 million (excluding the Public Offer) at an average price of \$0.15; and
  - Calima's market capitalisation exceeding \$50 million (based on the VWAP for Calima shares for any period of 30 consecutive trading days).
- c) No performance rights were converted or redeemed during the period.
- d) The milestone for the performance rights was not met during the period.

In relation to the Performance Shares:

- a) No Performance Shares were issued during the period.
- b) Class A, Class B and Class C Performance Shares will vest and convert on a one for one basis into a share on achievement of either of the following milestones:

Class A – Milestone A

- any of Calima's Production Sharing Contracts with the SADR Government (or a replacement title) commencing and taking effect in accordance with the applicable Assurance Agreement with the SADR Government; or
- the Company selling all or part of Calima's Production Sharing Contracts with the SADR Government (or a replacement title) for an amount greater than A\$0.132 million.

Class B – Milestone B

- spudding of an exploration well in any of the lands licenced by the Montney JV before 1 March 2019; or
- the Company selling the TMKM Shares for an amount greater than A\$0.394m on or before the Expiry Date.

Class C – Milestone C

- spudding of an exploration well in any Offshore Comoros Blocks licensed by Bahari; or
  - the Company selling the Bahari Shares for an amount greater than A\$1.32m.
- c) No performance shares were converted during the period.
  - d) Milestone B for the performance shares were met during the period.