



**EMPEROR ENERGY**  
LIMITED

12<sup>th</sup> November 2018

ASX Market Announcements  
Australian Stock Exchange Limited  
20 Bond Street  
Sydney NSW 2000

## **Independent Resource Statement - Judith Gas Field**

### **Offshore Gippsland Basin, Victoria**

### **100% Emperor Energy Owned**

#### **Highlights**

- 2C Contingent Resource (Sales Gas) of 122 Bcf
- P50 Unrisked Prospective Resource (Sales Gas) of 844 Bcf
- Resource Statement completed by respected Independent Resource Certifier, **RISC**

#### **Summary**

Emperor Energy Limited (Emperor) wish to advise that an Independent Resource Statement has been completed for the Judith Gas Field within the 100% Emperor Energy owned Vic/P47 Exploration Permit located in the offshore Gippsland Basin, Victoria.

Emperor Energy along with Consultants 3D-Geo have previously assessed the gas-in-place and recoverable gas volumes in the Judith-1 gas discovery and nearby prospects. This followed the merging and reprocessing of the Northern Fields and 3D seismic surveys in VIC/P47 conducted in 2016/17.

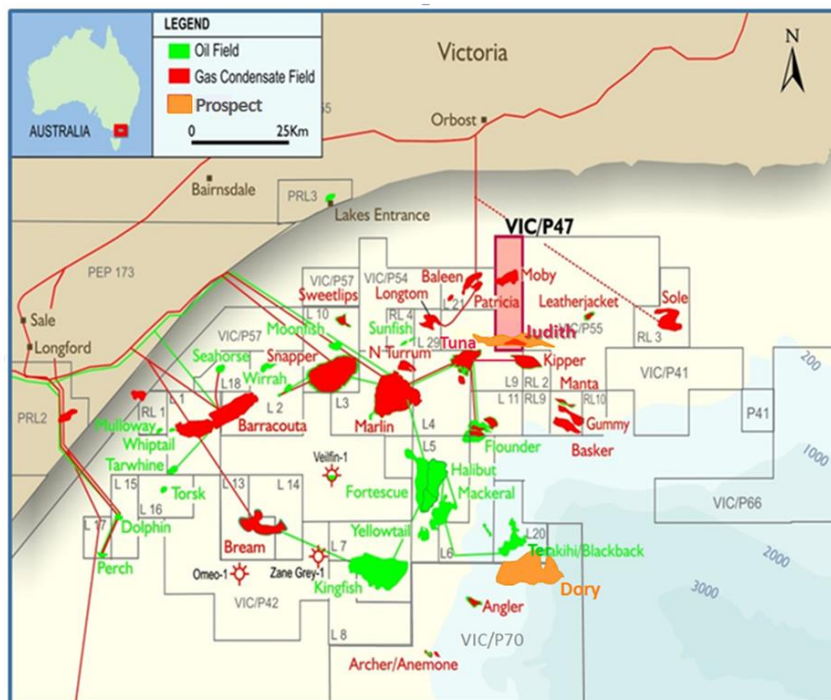
Independent Resource Certifier RISC has now completed its assessment of Contingent and Prospective Resources for the Judith Field within Vic/P47. The resources are 100% attributable to VIC/P47. Emperor Energy holds 100% equity in VIC/P47.

A Resource Statement comprising both Contingent and Prospective Resources was provided to Emperor in November 2018 by RISC.

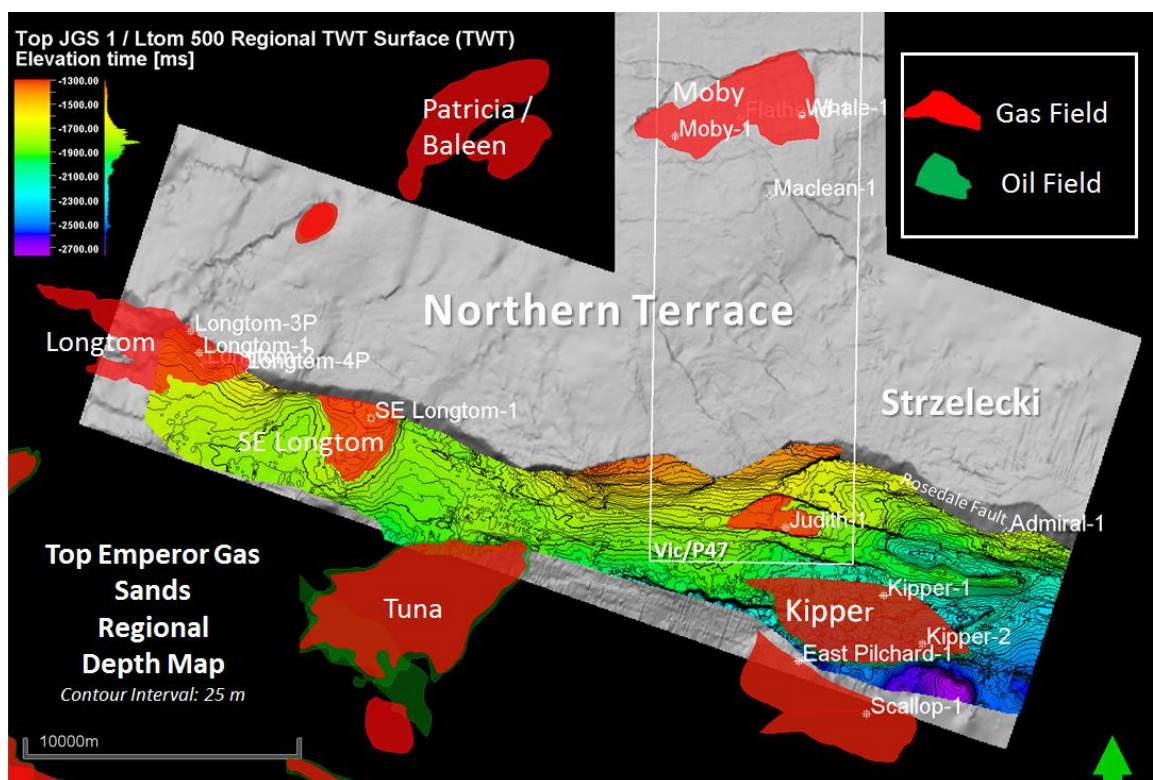
RISC has apportioned resources in accordance with the Society of Petroleum Engineers' internationally recognised Petroleum Resources Management System (SPE- PRMS 2007). The results are provided in Table 1 below.



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**Figure 1: Location of 100% Emperor Energy owned Vic/P47 Exploration Permit - Offshore Gippsland Basin showing regional permits along with oil and gas fields**



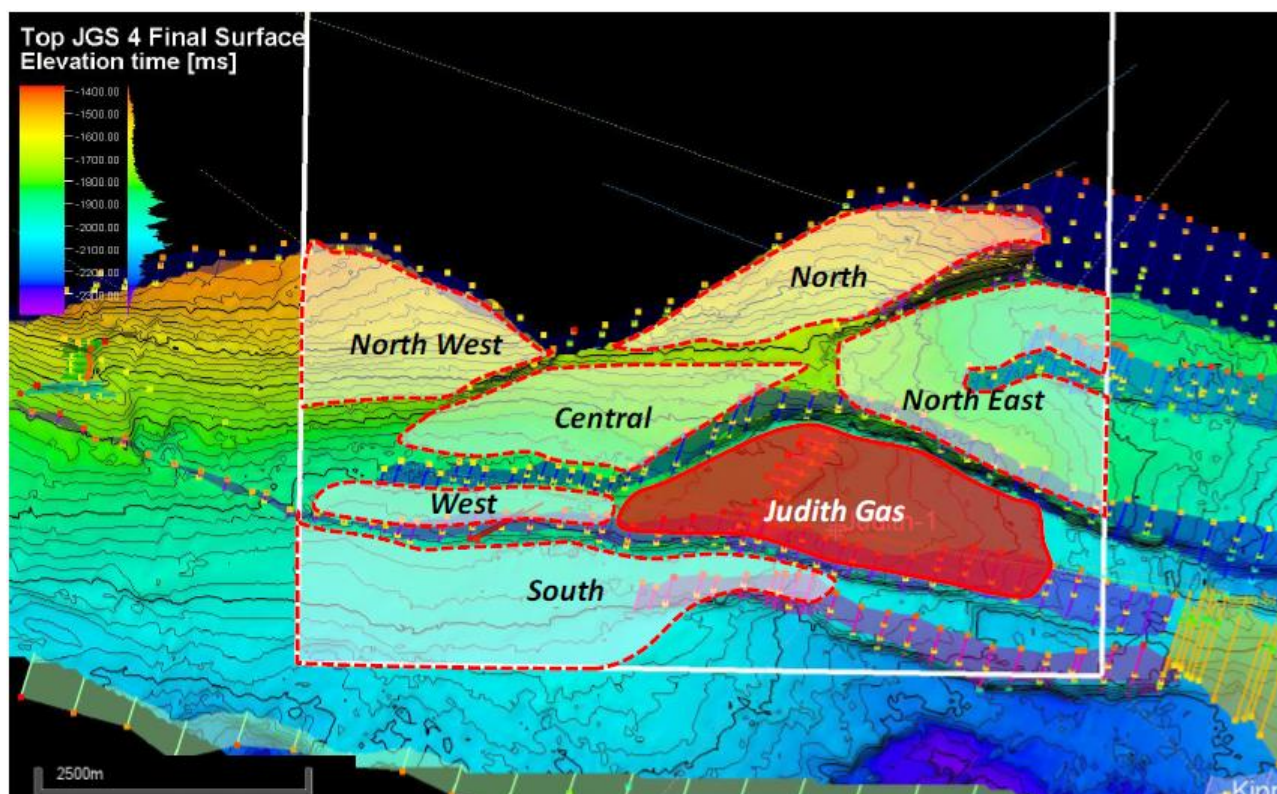
**Figure 2: Regional Map of Top Emperor Gas Sands showing oil and gas fields adjacent to Vic/P47**



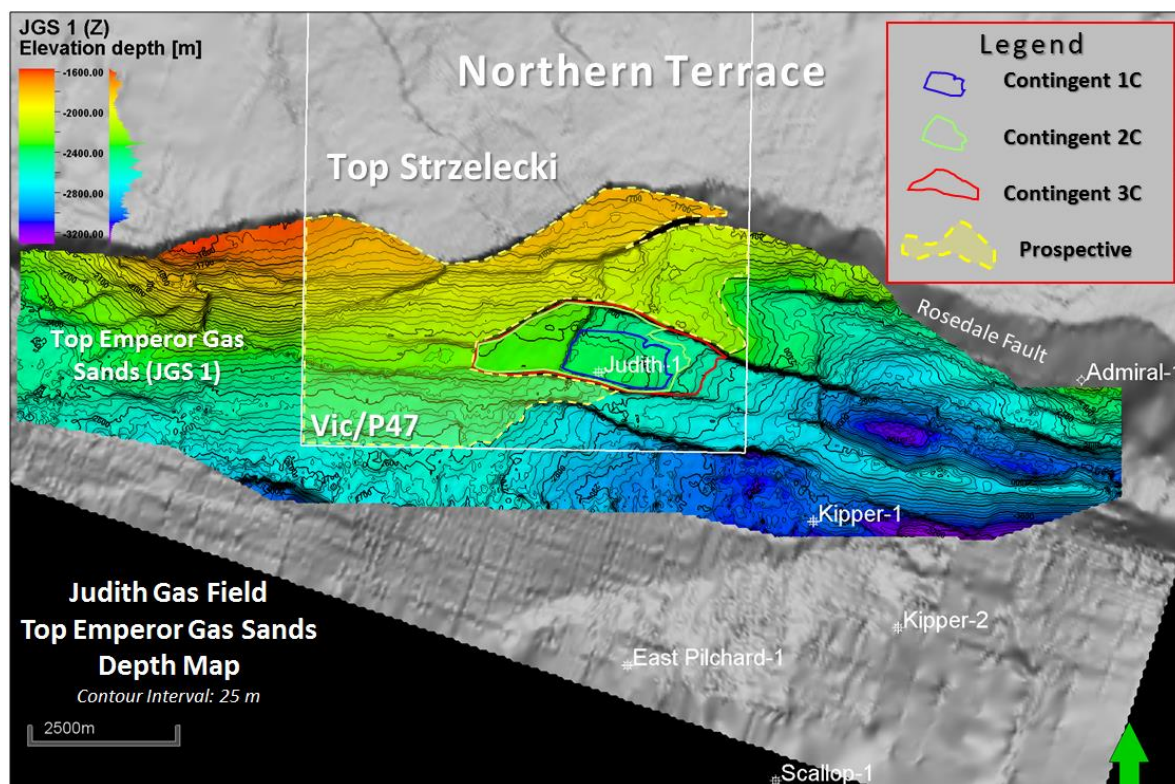
Judith Gas Discovery		Contingent Resources		
		Low 1C	Best 2C	High 3C
GIIP	Bcf	85	229	302
Sales gas	Bcf	34	122	202
Condensate	MMbbl	0.6	1.3	3.8

Greater Judith Area Prospects		Unrisked Prospective Resources (Sales Gas)		
		P90	P50	P10
Judith Deep	Bcf	46	63	82
West	Bcf	54	65	77
Central	Bcf	120	183	268
North	Bcf	98	137	180
North East	Bcf	169	239	321
North West	Bcf	63	89	120
South	Bcf	30	68	181
<b>Total</b>	Bcf	<b>580</b>	<b>844</b>	<b>1229</b>

**Table 1: Summary of Contingent and Prospective Resources for Judith area of VIC/P47 (RISC, November 2018)**



**Figure 3: Judith Gas Field, Prospects and Leads (RISC, November 2018)**



**Figure 4: Top Emperor Gas Sands interpreted and mapped from reprocessed 3D seismic data within Vic/P47 showing location of Judith-1 drilled structurally down-dip from structural crest close to gas – water contacts.**

## Background

Judith-1 was drilled and operated by Shell Company of Australia in 1989 and is contained within the Vic/P47 Permit held 100% by Emperor Energy, located within close proximity of the Kipper Gas Field operated by Esso (Exxon Mobil).

On 10<sup>th</sup> August 2017 Emperor Energy announced that the outcomes of seismic reprocessing and subsequent analysis completed during 2017 had resulted in a significant increase in the Gas-in-Place Estimate for the Judith Structure within Vic P47.

On 22<sup>nd</sup> February 2018 Emperor Energy announced that the Vic/P47 permit had been renewed for 5 years with a work program including drilling of an exploration well in the Judith North Structure by early 2021.

On 26<sup>th</sup> March 2018 Emperor Energy announced that it had completed a thorough well log evaluation of the Judith-1 well and gas discovery. The Judith-1 results were then compared and contrasted with open file data not previously available from the four wells drilled on the Longtom Gas Field located some 22 km west of Judith-1 and the more recent South East Longtom-1 gas discovery by Esso in 2010. Like Judith-1



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and the Longtom wells, the South East Longtom-1 discovered gas in multiple Emperor Reservoir sandstones in a structural closure sealed by the Rosedale Fault.

On 7<sup>th</sup> June 2018 Emperor Energy Limited announced that it had engaged respected Independent Resource Certifier RISC to complete a Resource Statement in relation to the Judith Gas Field in the 100% Emperor Energy owned Vic/P47 Permit in the offshore Gippsland Basin, Victoria.

The Resource Statement by RISC was then scheduled for delivery following completion of both Static and Dynamic Modelling of the Judith Gas Reservoir Sands by Melbourne based Consultants 3D-Geo.

### **Judith 1 Well Results**

Judith-1 was drilled and operated by Shell Company of Australia in 1989 and intersected gas in Turonian aged Emperor Group reservoirs over the interval 2,391.7 – 2,935 m located close to the Total Depth (TD) of the well at 2,958 m.

A gross thickness of 543.3 m was intersected in four discrete gas sands (JGS1 – JGS4) defined by separate Lowest Known Gas (LKG) limits, with highest known water and interpreted gas-water-contacts in three of the reservoir units (JGS2 – JGS4). A possible additional fifth gas sand is present near the TD of the well.

Reservoir quality is generally modest in the gas column due to the presence of abundant argillaceous clasts in a lithic sandstone lithology which reduce permeability. Although RFT pressure surveys were acquired, no sampling was attempted or DST's run. Judith-1 is interpreted to have discovered moveable gas based on the wireline log interpretation, permeability interpreted from the RFT pressure data and comparison to the Longtom gas field which provides an analogue to the Judith reservoirs.

Interpretation of reprocessed data from the G01a Northern field and GA04 Moby 3D seismic surveys show the Judith gas field to be trapped in a hanging wall fault terrace on the Rosedale fault system of the northern Gippsland basin. The trap was initially interpreted by Shell as a rotated fault block as determined on 2D seismic at the time of drilling. The Judith gas accumulation is in one fault block on a larger structural nose on which several exploration prospects lie. These prospects are considered analogous to the Judith gas discovery, but with potentially shallower and more favourable reservoir depths with respect to reservoir properties.

### **RISC Resource Assessment**

The review of the Judith contingent resources and nearby prospective resources is based on:

- Judith-1 well data
- Merged and reprocessed 3D seismic data completed by 3D-Geo in 2016/17
- Offset well data, particularly the Longtom and Longtom SE wells
- Longtom gas field analogue



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- Public domain 3D seismic volumes including the G01 Northern Fields 3D seismic surveys

Interpretation of the reprocessed seismic data was undertaken by 3D Geo and by Emperor's Geoscience Advisor. This interpretation was reviewed by RISC with some additional confirmatory interpretation undertaken by RISC itself.

The seismic interpretation extends beyond the permit area to the key South East Longtom-1 and Longtom gas field wells. This extended interpretation was undertaken on the G01 Northern Fields 3D seismic data.

RISC's approach to the evaluation of the Judith gas discovery has been to utilise the detailed work that 3D-Geo and Emperor has completed as much as possible and update or undertake independent evaluation where considered necessary.

3D-Geo/Emperor constructed and populated a static geological model in Schlumberger's Petrel software with which they evaluated the resources in Judith and the nearby exploration prospects. Parameter averages were then extracted for each fault compartment and fluid contact scenario and input into a Monte Carlo statistics package by 3D-Geo from which probabilistic Gas-Initially-In-Place (GIIP) and Recoverable Resources (sales gas and condensate) were calculated.

RISC has reviewed the Gas-Initially-In-Place for the Judith structure and has undertaken an independent evaluation to classify the resources in the different areas and to provide an independent audit. RISC limit the Low/1C volume to the fault compartment tested by the Judith-1 well.

For the exploration prospects, following review, the prospective resources were adjusted in discussion with 3D Geo/Emperor to reflect RISC's independent view and assessment of the area.

The Judith gas reservoir is subdivided into four main units being Gas Sands S1 to S4, with a possible fifth unit near the well TD. Each of these sandstone units are separated by lacustrine shales that appear to act as effective top seals.

Gas-Initially-In-Place for the Judith structure is estimated by RISC using both probabilistic and deterministic methods based on the S1 – S4 depth grids provided by 3D Geo/Emperor, supplemented with the alternative S3 depth grid generated by RISC. The depth grids were loaded into the Petrosys mapping software to calculate Gross Rock Volume (GRV).

Net pay and reservoir parameters were those calculated by RISC from the log analysis provided by 3D Geo and reviewed by RISC. The probabilistic analysis was undertaken with the Crystal Ball software.



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## **Judith Prospective Resources**

Several fault compartments are mapped north and west of Judith that comprise exploration opportunities near the Judith Gas Contingent Resource. 3D Geo/Emperor provided detailed assessments of each of the potential reservoir units for the prospects. RISC has undertaken independent audit of the prospects based on the mapping provided by 3D Geo and Emperor.

RISC undertook a probabilistic assessment for each of the prospects based on inputs and results provided by 3D Geo/Emperor and adjusted the evaluations where considered necessary. Only the Judith West Prospect required adjustment.

The Prospective Resources identified on the Judith exploration prospects are provided in Table 1.

## **Judith Contingent Resources**

The main control on the volumetric range for the Judith discovery is the GRV distribution with the reservoir parameters a secondary control.

Deterministic Low, Best and High estimates were generated by applying Best Case reservoir parameters to the Low, Best and High case Gross Rock Volume (GRV) scenarios. The deterministic estimates for each sand were arithmetically summed to calculate the total.

RISC uses the deterministic Low, Best and High cases for resource estimation because it is considered that the deterministic evaluation best represents the range of possible volumetric outcomes for Judith. This approach also provides a more transparent evaluation of Contingent Resources.

The Contingent Resources identified in the Judith Structure are provided in Table 1.

## **Exploration, Appraisal and Development**

Future exploration, appraisal and development plans of the Judith gas accumulation remains to be determined. Emperor is developing an appraisal and exploration program for the Greater Judith Structure of which further evaluation of the Judith gas discovery will be considered. Development pathways for Judith gas are potentially available through existing nearby infrastructure.

Although oil production in the Gippsland Basin is in the late stages of decline, the Gippsland fields remain a major source of gas for the eastern Australia domestic market and currently produce around 1,000 terajoules (1,000 MMscf) per day.

The nearby Esso-operated petroleum infrastructure is well developed with a network of pipelines transporting hydrocarbons produced offshore to onshore petroleum processing facilities at Longford.



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Further infrastructure exists at the onshore gas plant owned by APA Limited at Orbost and the associated Patricia/Baleen pipeline infrastructure owned by Cooper Energy.

Gas from these facilities is delivered across the inter-connected South Eastern Australia pipeline network to Sydney, Adelaide and Tasmania.

## **Competent Persons Statement**

### **Consents**

The Resources information in this ASX release is based on, and fairly represents, data and supporting documentation supplied in an Independent Technical Specialist's Report (ITSR) prepared by RISC. The preparation of this report has been managed by Mr Ian Cockerill who is an employee of RISC.

Mr Cockerill holds a BSc. Geological Sciences – 1st Class (Honors) - University of Leeds, 1996, and a MSc. Basin Evolution and Dynamics - Royal Holloway, University of London, UK, 1999. Mr Cockerill has over 19 years' experience in the sector and is a member of PESA, AAPG, SEAPEX and CSPG.

Mr Cockerill is a qualified petroleum reserves and resources evaluator (QPPRE) as defined by ASX listing rules. The Resources information in this ASX announcement was issued with the prior written consent of Mr Cockerill in the form and context in which it appears.

RISC is an independent oil and gas advisory firm. All the RISC staff engaged in this assignment are professionally qualified engineers, geoscientists or analysts, each with many years of relevant experience and most have in excess of 20 years.

RISC was founded in 1994 to provide independent advice to companies associated with the oil and gas industry. Today the company has approximately 40 highly experienced professional staff at offices in Perth, Brisbane, Jakarta and London. RISC have completed over 2,000 assignments in 70+ countries for nearly 500 clients.

Reserves and resources are reported in accordance with the definitions of reserves, contingent resources and prospective resources and guidelines set out in the Petroleum Resources Management System (PRMS) approved by the Board of the Society of Petroleum Engineers in 2007.

The Independent Technical Specialist's Report (ITSR) has been prepared in accordance with the Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports 2005 Edition ("The VALMIN Code") as well as the Australian Securities and Investment Commission (ASIC) Regulatory Guides 111 and 112.

SPE-PRMS Society of Petroleum Engineer's Petroleum Resource Management System - Petroleum resources are the estimated quantities of hydrocarbons naturally occurring on or within the Earth's crust. Resource assessments estimate total quantities in known and yet-to-be discovered accumulations, resources evaluations are focused on those quantities that can potentially be recovered and marketed by commercial projects. A petroleum resources





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management system provides a consistent approach to estimating petroleum quantities, evaluating development projects, and presenting results within a comprehensive classification framework. PRMS provides guidelines for the evaluation and reporting of petroleum reserves and resources.

Under PRMS “**Reserves**” are those quantities of petroleum which are anticipated to be commercially recoverable from known accumulations from a given date forward. All reserve estimates involve some degree of uncertainty. The uncertainty depends chiefly on the amount of reliable geologic and engineering data available at the time of the estimate and the interpretation of these data. The relative degree of uncertainty may be conveyed by placing reserves into one of two principal classifications, either proved or unproved. Unproved reserves are less certain to be recovered than proved reserves and may be further sub-classified as probable and possible reserves to denote progressively increasing uncertainty in their recoverability.

“**Contingent Resources**” are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, but the applied project(s) are not yet considered mature enough for commercial development due to one or more contingencies. Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development, or gaining access to existing infrastructure or where evaluation of the accumulation is insufficient to clearly assess commerciality. Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by their economic status.

“**Prospective Resources**” are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective Resources have both a chance of discovery and a chance of development. Prospective Resources are further subdivided in accordance with the level of certainty associated with recoverable estimates assuming their discovery and development and may be sub-classified based on project maturity.

The estimated quantities of petroleum that may potentially be recovered by the application of 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.

Yours faithfully

**Carl Dumbrell**

**Company Secretary**

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## **Corporate Directory**

### **Board of Directors**

Carl Dumbrell  
Vaz Hovanesian  
Justyn Peters

### **Company Secretary**

Carl Dumbrell

### **Geological Consultant**

Geoff Geary

### **Operations Consultant**

Phil McNamara

### **Registered office & Principle place of business**

Level 32, 1 Market Street  
Sydney NSW 2000

### **Mailing Address**

GPO Box 5360  
Sydney NSW 2001

### **Auditors**

Deloitte  
550 Bourke Street  
Melbourne Vic 3000

### **Lawyers**

Hopgood Ganim  
Level 27, Allendale Square  
77 St Georges Tce, Perth WA 6000

### **Share Registry**

Automic Pty Ltd ACN 152 260 814 Trading as Automic Registry Services

Level 3, 50 Holt Street  
Surry Hills NSW 2010

Phone: 1300 288 664    Overseas callers: +61 2 9698 5414    Facsimile: +61 2 8583 3040

### **Capital Structure**

The company currently has issued capital (as at 11 November 2018) of:

Ordinary fully paid shares	(ASX: EMP)	907,859,728
Options expiring 31 March 2020 (Ex \$0.005)	(ASX: EMPOC)	518,051,398
Options expiring 17 November 2018 (Ex \$0.046)	(ASX: EMPAA)	6,700,000



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**Top 20 Shareholders – 11 November 2018**

<b>Position</b>	<b>Holder Name</b>	<b>Holding</b>	<b>%</b>
1	Citicorp Nominees Pty Limited	93,905,249	10.34%
2	Scintilla Strategic Investment Limited	65,000,000	7.16%
3	Raxigi Pty Ltd	59,296,287	6.53%
4	Bond Street Custodians Limited	52,247,101	5.75%
5	Sama Zarah Pty Ltd	48,855,000	5.38%
6	Jojo Enterprises Pty Ltd	31,260,001	3.44%
7	Merrill Lynch (Australia) Nominees Pty Ltd	27,199,984	3.00%
8	Daniel J Peters	25,962,954	2.86%
9	Sang Min Kim	25,000,000	2.75%
10	Harness Pty Ltd	20,125,000	2.22%
11	LittleJohn Embrey Engineering Pty Ltd	19,564,589	2.16%
12	Acec Superannuation Fund Pty Ltd	15,100,000	1.66%
13	Philip McNamara	15,000,000	1.65%
14	Mark O'Leary	15,000,000	1.65%
15	Arlam Pty Ltd	15,000,000	1.65%
16	Lilyfield Holdings Pty Ltd	12,600,000	1.39%
17	Colin R Searl & Cynda Searl	12,410,000	1.37%
18	Buduci Fond Pty Ltd	10,400,950	1.15%
19	HSBC Custody Nominees (Australia) Limited	10,000,000	1.10%
20	Matthew Steven Klein	10,000,000	1.10%