

Date: 19 August 2024

ASX Code: CND

Capital Structure

Ordinary Shares: 578,000,343  
 Current Share Price: 3.1c  
 Market Capitalisation: \$17.9M  
 Cash: \$2.0M (June 2024)  
 EV: \$15.9M  
 Debt: Nil

Directors

Matt Ireland  
 Non-Executive Chairman

Scott Macmillan  
 Non-Executive Director

Ricardo Garzon Rangel  
 Non-Executive Director

Contact Details

First Floor  
 10 Outram Street  
 West Perth WA 6005  
 Australia

Tel: +61 8 6243 0429

[condor-energy.com.au](http://condor-energy.com.au)

# New Seismic Studies Upgrade Raya Prospect

## Highlights

- **Leading Quantitative Interpretation (QI) company, e-Seis Inc, completes LithSeis and amplitude versus offset (AVO) volumes on legacy 3D seismic data covering the Company’s Peruvian Tumbes TEA.**
- **New seismic inversion and AVO studies have produced indications of high-quality reservoirs and hydrocarbon fill at the Raya Prospect, significantly upgrading its prospectivity.**
- **A robust fairway of highly porous sandstone has been delineated coincident with the location of the Raya Prospect.**
- **This is complemented by recently completed field work which mapped sediment input points leading into the Tumbes TEA during deposition of the Zorritos Formation.**
- **Reprocessing of the 3D seismic data is nearing completion. Once delivered, these data will be interpreted to allow for the estimation of resources in the Tumbes TEA.**

Condor Energy Ltd (ASX: CND) (Condor or the Company) is pleased to advise that Quantitative Interpretation (QI) and AVO studies on the legacy 3,800km<sup>2</sup> of 3D seismic data covering most of the Company’s Tumbes Technical Evaluation Agreement (TEA or Block) have potentially identified a highly porous sandstone fairway spanning the Raya Prospect, significantly enhancing the probability of success.

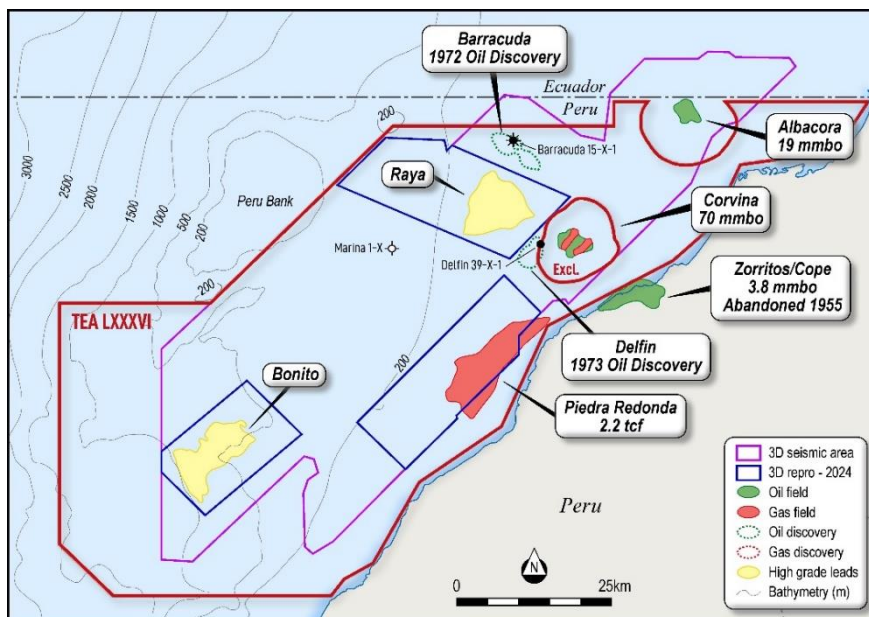


Figure 1 – Peru TEA with Prospects and areas selected for 3D seismic reprocessing.

The Raya Prospect is defined as a structural high against an east-west fault within the Zorritos Formation, the primary reservoir in the basin, with a combined 46km<sup>2</sup> structural and stratigraphic trap with shales overlying the Zorritos Unconformity providing a regional seal<sup>1</sup> (Figure 2).

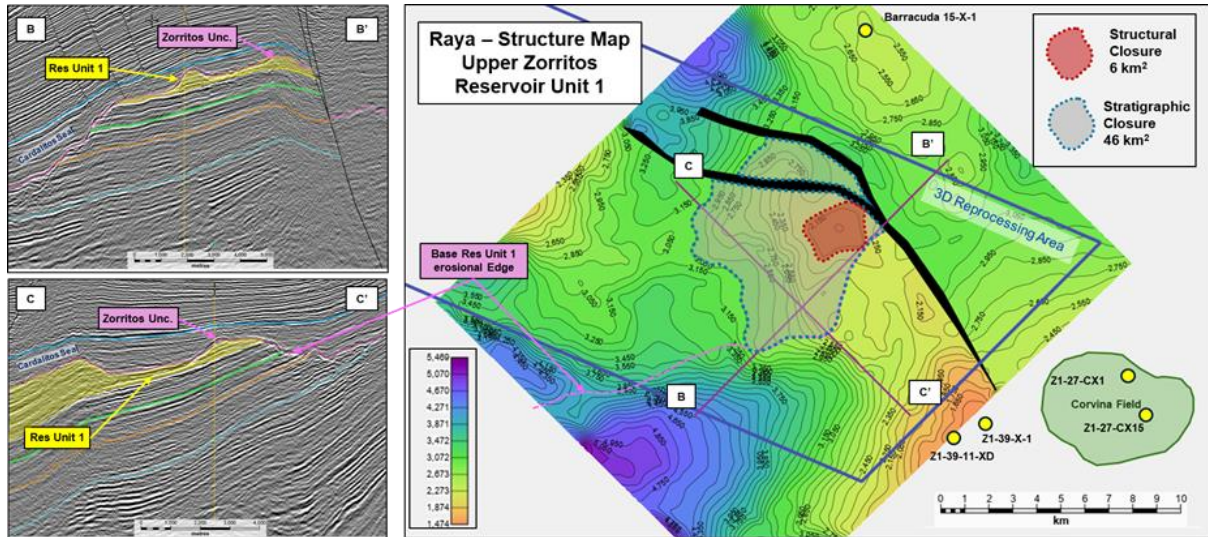


Figure 2 – Raya structure map and illustrative seismic sections.

The Company notes that results from the adjacent Delphin and Barracuda wells confirm the presence of oil charge in the area and, in order to determine reservoir quality, has conducted Quantitative Interpretation (QI) studies of the seismic data covering the Raya prospect.

eSeis Inc., a leading Houston-based QI company, has provided LithSeis and Amplitude Versus Offset (AVO) volumes over the entire 3D data set.

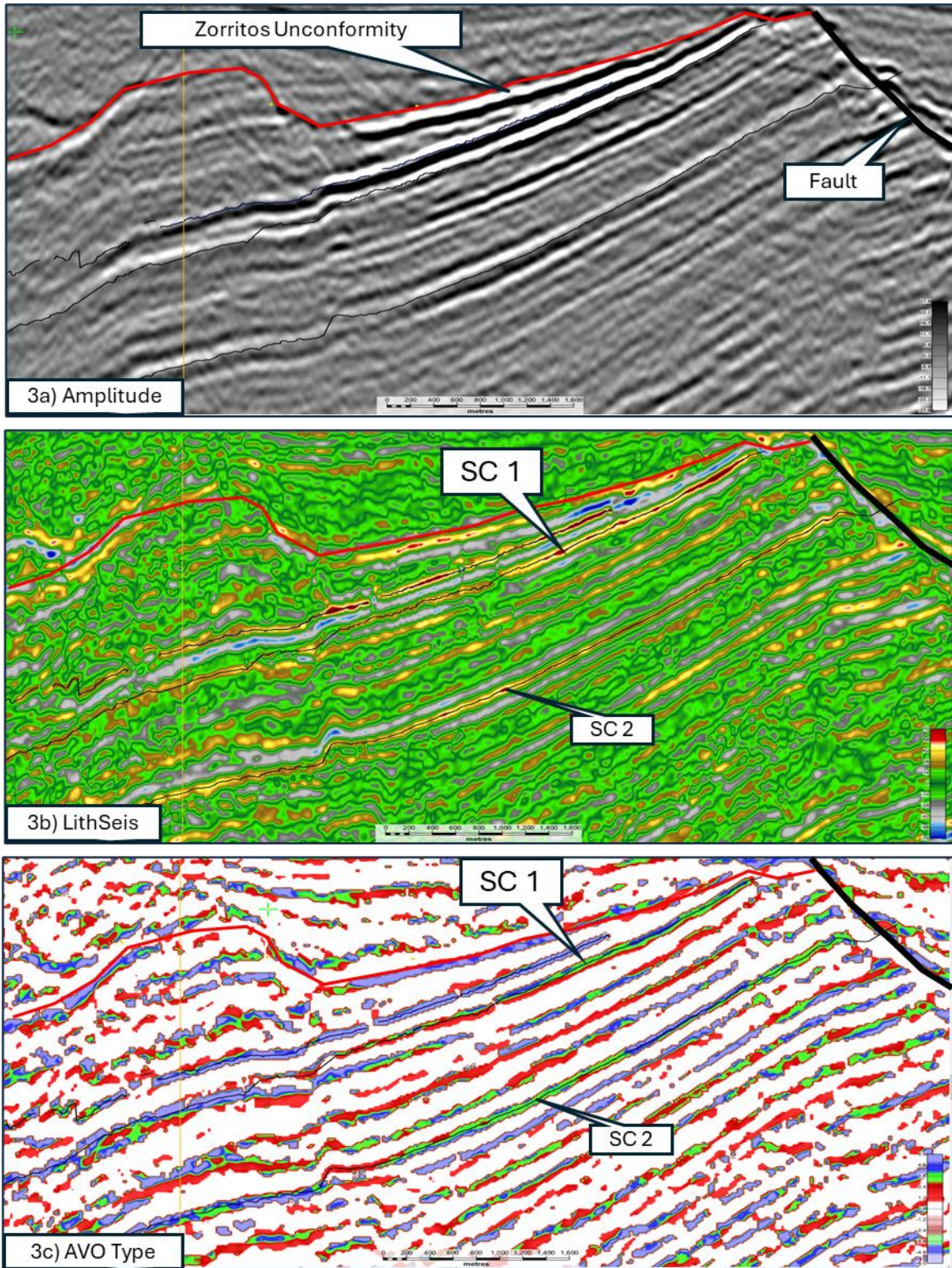
The LithSeis cube, although uncalibrated by well data, is a pre-stack seismic-based petrophysical analysis that yields lithology, porosity, and possible hydrocarbon fill. In the LithSeis section (Figure 3b), yellow colours are interpreted to represent porous sandstones, with red reflectors interpreted to represent very high porosity and/or where hydrocarbons are present. In this case, several layers of high porosity at the top of potential reservoir zones (such as layer SC 1) are evident.

The AVO sections illustrate the responses of seismic reflections to increasing angles of offset and uses a colour bar to differentiate between the five commonly recognised classes of AVO responses; in this area, Class 2 or Class 3 responses are of particular interest as they may be indicative of a hydrocarbon-filled reservoir (either gas or oil).

The highly encouraging culmination of these analyses are the mapped responses of LithSeis and AVO across the SC 1 layer (Figure 4). The strong and consistent LithSeis response suggests the presence of a highly porous sandstone fairway running NE-SW across the Raya prospect, potentially derived from one of the feeder systems identified during field mapping.

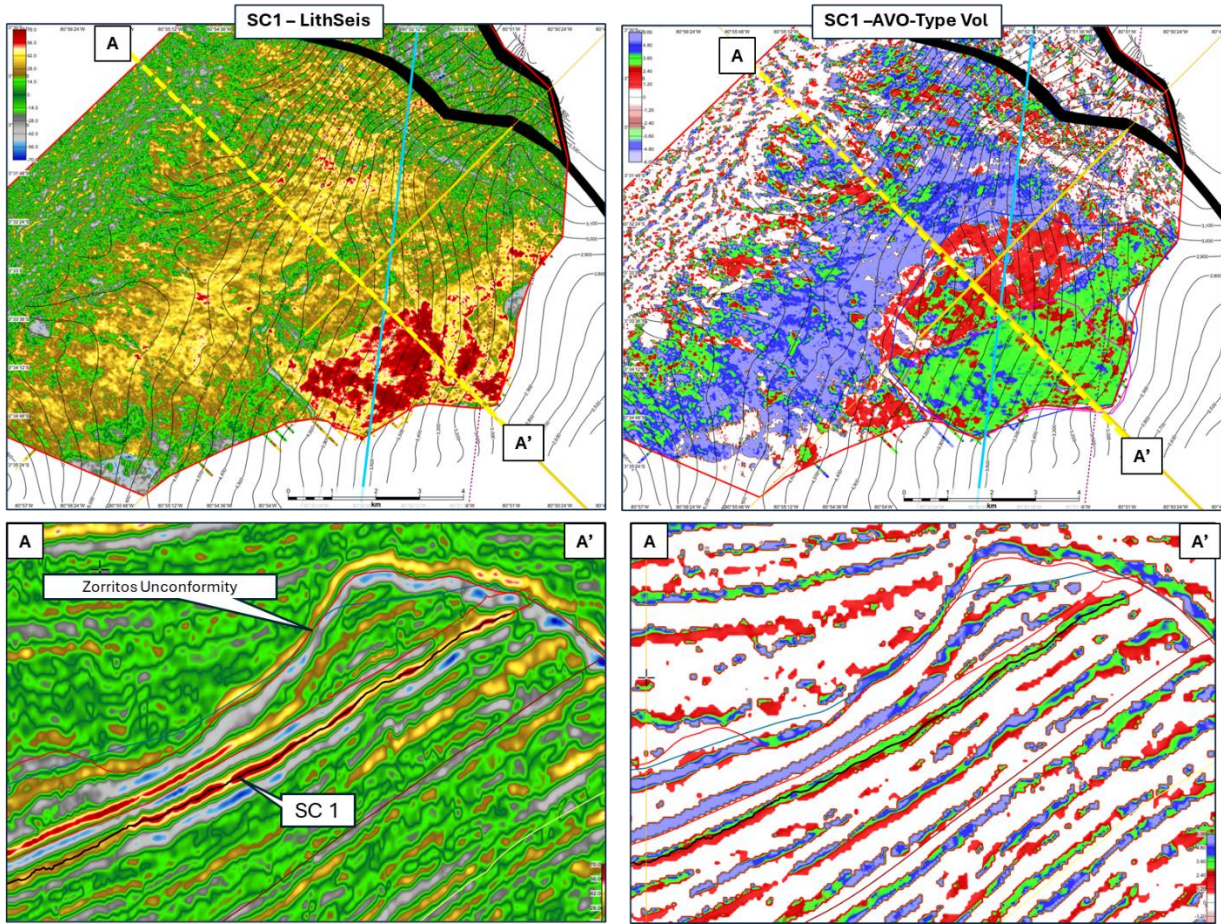
<sup>1</sup> See ASX announcement dated 24<sup>th</sup> February 2024

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**Figure 3** – Raya Prospect. 3a – Conventional seismic amplitude section, 3b – LithSeis section where coherent yellows and reds may correspond to the top of sandstone sections with porosity, 3c – AVO Class volume where the types of variations in seismic amplitude with increasing angles of offset of the seismic energy are indicated with different colours.

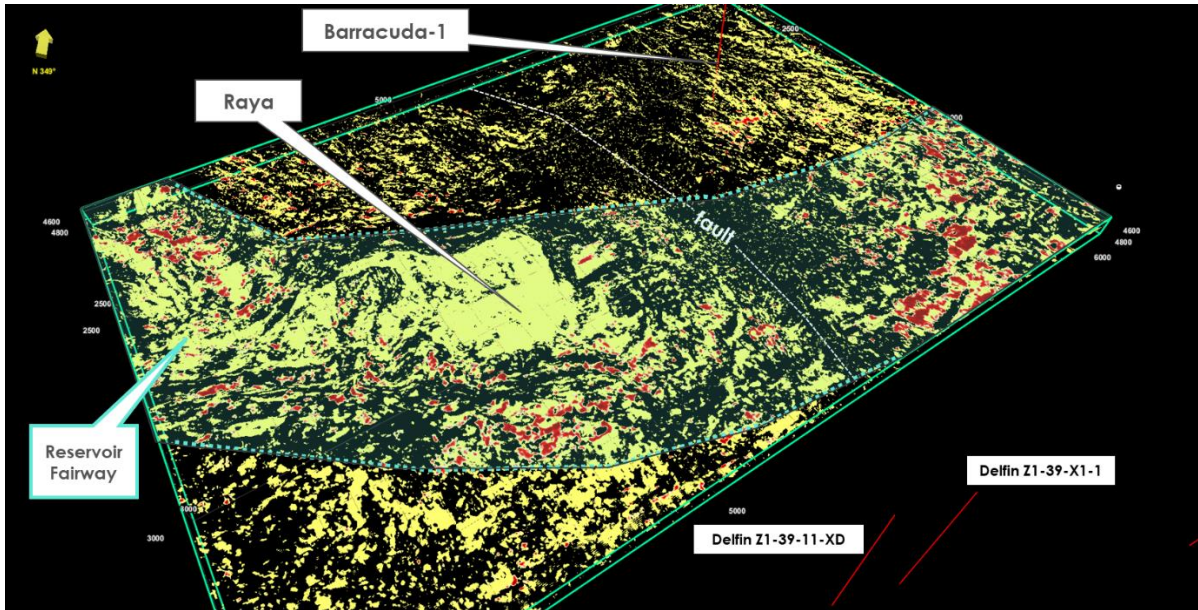
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**Figure 4** – LithSeis and AVO responses of the SC1 interval mapped as a coherent red/yellow event on the LithSeis volume.

The red colouration on the LithSeis section may indicate higher porosity or a stratigraphically trapped hydrocarbon phase. The highly coherent AVO response (Class 2 in red, Class 3 in green) supports this interpretation. The responses cross the structural contours, suggesting a lithological response, such as sand channels, rather than structurally trapped fluids. However, the distribution of fluids within the sand channels eg oil vs water could be stratigraphically controlled.

To investigate reservoir quality, the seismic volume was flattened on the Zorritos Unconformity, and an opacity cube was created over the upper-most section of the Zorritos Formation. The opacity cube allows the responses of the LithSeis cube to be sculpted, leaving only the yellows and reds visible. The resulting cube (Figure 5) represents raw data rather than an interpreted surface. The NE-SW trend of bright yellow and red, interpreted as a reservoir fairway, runs through the centre of Figure 5. Fan and channel-like geometries, as might be expected, are present.



**Figure 5** –LithSeis opacity cube of the uppermost Zorritos Formation beneath the flattened Zorritos Unconformity. The cube has been scripted to only display the yellow and red responses on the LithSeis cube which are potentially porous sandstones.

Reprocessing of the 3D seismic data covering the Raya prospect is nearing completion. Once delivered, these data will be interpreted, and resource estimates for Raya and several other features will be determined.

### About Quantitative Interpretation

The seismic reflection method has long been the most widely used tool in the search for oil and gas. By transmitting sound waves into the subsurface and measuring the echoes returned from different rock layers, it is possible to map their configurations. These maps are instrumental in identifying potential traps where oil and gas may accumulate. While the seismic reflection technique excels in delineating the "form" or "shape" of subsurface rock layers, a more comprehensive understanding beyond just the geometry of these layers is required.

A notable advancement in the seismic reflection method involves utilising the gathered data to understand the "fabric" of rock layers, specifically their composition and the fluids contained within their pore spaces. Different rock types (e.g., sandstone versus shale) exhibit distinct physical characteristics, resulting in varying responses to the sound waves generated by the seismic reflection method. The sound signal produces pressure waves and shear waves, and different rocks react differently to each type of signal. These differences are further influenced by the direction of the incoming sound waves, whether they come from directly above (short offset) or at an oblique angle (long offset). Additionally, within certain rock types, the presence of different fluids (e.g., water versus oil versus gas) can further alter physical characteristics. By quantifying and understanding these varying responses, it becomes possible, under optimal conditions, to predict both the shape and fabric of the rock layers and, ideally, the fluids within their pore spaces.

The application of seismic reflection data to determine rock type and fluid content is commonly referred to as Quantitative Interpretation (QI). Many methods used to convert seismic reflections into rock properties fall under the category of seismic inversion. In simple terms, seismic inversion is the process of transforming seismic reflection data into a quantitative description of rock properties.

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Calibration, necessary to understand how physical properties of rocks vary, typically comes from well data. Thus, these techniques are most effective where there are numerous wells providing data points. However, this reliance on well data has limited the use of these techniques in areas where such data are sparse, often the case when exploring new basins. Recognising that rocks across most typical basin types exhibit similar variations in properties, researchers have developed catalogues of rock physics properties. These catalogues enhance the ability to predict rock characteristics and improve seismic inversion methods in areas lacking wells. Uncalibrated QI techniques are now routinely employed in frontier basin exploration, with recent successes offshore Mozambique, Guyana, and Namibia indicating their efficacy in reducing risk.

Condor is utilising QI methods to enhance the understanding of the prospectivity of the Tumbes TEA. Houston-based eSeis Inc., a leading provider of QI services to the oil and gas industry, has been contracted to deliver its proprietary LithSeis product derived from the legacy 3D seismic data within the Tumbes TEA.

LithSeis is a seismic data processing technology designed to extract lithology, porosity and pore-fluid information from pre-stack seismic data. Based on a ten-fold classification of amplitude variation with offset (AVO) classes, it employs proprietary algorithms to integrate a cross-plotting approach with AVO classification, thereby deriving lithology and pore data at each common data point. The result is a more accurate, rock-based description of the subsurface. The data are provided in a format that enables interpreters to use them in any industry-standard workstation.

Using these data, interpreters can swiftly identify features of interest that exhibit favourable combinations of lithology and porosity attributes, as well as AVO class characteristics expected in the area. As leads mature into prospects through the integration of conventional seismic interpretation methods, subsurface information, and mapping techniques, the LithSeis volumes offer objective criteria for risk assessment and opportunity ranking.

Further information can be obtained from <https://e-seis.com/>

### **About Condor Energy and the Tumbes Basin TEA**

A Technical Evaluation Agreement (TEA) is an oil and gas contract that provides the holder with the exclusive right to negotiate a Licence Contract over the TEA area.

In August 2023 the Company, with its partner Jaguar Exploration, Inc. (Jaguar), entered into the 4,858km<sup>2</sup> TEA offshore Peru with Perupetro. The TEA area covers almost all of the Peruvian offshore Tumbes Basin in shallow to moderate water depths of between 50m and 1,500m.

The underexplored block is surrounded by multiple historic and currently producing oil and gas fields and contains the undeveloped shallow water Piedra Redonda gas field which contains 'Best Estimate' Contingent Resources of 404 Bcf (100% gross) and 'Best Estimate' Prospective Resources of 2.2 Tcf<sup>#</sup> (gross unrisks) of natural gas.

Condor is 80% holder of the TEA, with Jaguar and its nominees holding the remaining 20%.

<sup>#</sup>Cautionary Statement: The estimated quantities of gas that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both a 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 recoverable hydrocarbons.

### **Authorised by the Board of Condor Energy Limited.**

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**For further information please contact:**

Scott Macmillan – Director  
[info@condor-energy.com.au](mailto:info@condor-energy.com.au)

**Competent Persons Statement**

The information in this report is based on information compiled or reviewed by Mr Scott Macmillan, Non-Executive Director of Condor Energy Ltd. Mr Macmillan is a Reservoir Engineer with more than 15 years' experience in oil and gas exploration, field development planning, reserves and resources assessment, reservoir simulation, commercial valuations and business development. Mr Macmillan has a Bachelor degree of Chemical Engineering and an MSc in Petroleum Engineering from Curtin University and is a member of the Society of Petroleum Engineers (SPE).

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