



Empyrean Energy PLC - EME Duyung PSC, Operational Update
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Highlights:

- **Planning for two well programme complete and approved by Duyung Production Sharing Contract ("PSC") partners and the Indonesian authorities**
- **The programme will:**
 - **test the Tambak exploration prospect and appraise the central area of the Mako gas field - Tambak-1 (mid-case resource potential of circa 250 Bcf); and**
 - **perform a large step out (over 13.5 km) to appraise the southern area of the Mako gas field - Tambak-2 (gross 2C resources of 276 Bcf (48.78 MMboe) of recoverable dry gas in the Mako field with gross 3C resources of 392 Bcf (69.3 MMboe)**
- **Asian Endeavour-1 jack up rig contracted for the drilling campaign**
- **Initial well spud anticipated in October 2019**
- **Continuous drilling & testing programme is planned to last through to December 2019**
- **Empyrean's partner, Coro Energy Plc, funding the first US\$10.5MM of the drilling campaign costs**

Empyrean Energy Plc, the oil and gas development company with interests in China, Indonesia and the United States, is pleased to provide an operational update in relation to the upcoming drilling campaign in the Duyung PSC in the West Natuna basin, offshore Indonesia, in which Empyrean holds an 8.5% interest.

The campaign will comprise of two wells, an exploration well designed to test the Tambak prospect beneath the central area of the Mako gas field, and an appraisal well designed to primarily appraise the intra-Muda sandstone reservoir in the southern area of the Mako field, as well as gather stratigraphic information from the Lower Gabus interval. The Indonesian authorities have requested the naming convention Tambak-1 for the exploration & appraisal well and Tambak-2 for the appraisal well. The Asian Endeavour-1 jack up rig, owned by China Oilfield Services Limited (“COSL”), has been contracted for the drilling campaign.

Tambak-1

The Tambak-1 well will appraise the central area of the Mako field and will evaluate the intra-Muda sandstone reservoir of the Mako field, which is prognosed at a depth of approximately 385 metres below sea level. A full suite of wireline logs will be run before the well is deepened to test the Lower Gabus Tambak prospect beneath the base Muda unconformity. The well is expected to be drilled to a total depth (“TD”) of approximately 1,370 metres sub-sea.

The Tambak prospect is a three-way dip closed inverted anticlinal structure, of approximately 15 square km in areal size. The reservoir is prognosed to be early Oligocene-age fluvial & lacustrine sandstones of the Lower Gabus formation, and to be charged by the underlying syn-rift lacustrine source rocks of the Benua shale. Numerous nearby analogue fields found in similar inversion structures are seen in the West Natuna basin, including Kerisi, Anoa Forel and KF.

Amplitude versus Offset (“AVO”) modelling work across the Tambak prospect supports the potential for gas-charged reservoir sandstones being present in the structure, with a strong correlation between the modelled seismic response and the actual seismic data being seen. This helps de-risk the prospect, which the partners believe has a 45% chance of technical success and a mid-case resource potential of circa 250 Bcf.

Including an extensive testing programme in the event of success, the drilling time from spud to completion is expected to be around 33 days. The well will be plugged & abandoned at the end of the drilling programme.

Tambak-2

Tambak-2 is designed to evaluate the reservoir properties and deliverability of the intra-Muda sandstones in the southern area of the Mako field. The intra-Muda sandstone reservoir is prognosed to be encountered at a depth of c. 380 metres below sea level. A full suite of logging and coring is planned across the Mako reservoir and the well is expected to TD at approximately 595 metres below sea level. The expected total time to drill, log, core & evaluate the well is approximately 33 days.

The well will be the most southerly test of the Mako field and represents a significant step out from the Mako South-1 well (over 13.5 km to the northeast). An independent review by Gaffney Cline & Associates ascribed gross 2C resources of 276 Bcf (48.78 MMboe) of recoverable dry gas in the Mako field with gross 3C resources of 392 Bcf (69.3 MMboe) representing additional field upside. The well has the potential to move 3C resources to the 2C category and likewise 2C resources to the 1C category, which will further improve the commercial attractions of the field itself, as well as help the gas marketing effort.

Costs & Timing

The gross cost of the programme is expected to be approximately US\$17MM-19MM to the PSC partners on a fully tested basis, including rig mobilisation and de-mobilisation, for which London listed Coro Energy Plc ("Coro") is funding US\$10.5MM. Empyrean will fund 8.5% of the drilling campaign costs over and above the Coro funding. The upside range of costs reflects the additional costs involved in testing the Tambak prospect should logging provide encouragement for testing. The Asian Endeavour-1 jack up rig will shortly mobilise for Singapore from the COSL yard in Shanghai. On the current schedule, the rig is expected to mobilise from Singapore to the first location in late September 2019.

Empyrean CEO Tom Kelly commented, *"The upcoming drilling campaign at the Duyung PSC in Indonesia promises to be very exciting and somewhat unique in that we are combining a lower risk appraisal component with a high impact exploration prospect. In our view, the main aim of the drilling is to appraise the Mako gas discovery and convert the current 3C resources into 2C resources. This alone would increase the value significantly at Mako. Any new discovery at Tambak would be an absolute bonus. We look forward to providing updates as this exciting drilling campaign swings into action shortly."*

Further announcements will be made in due course, as appropriate.

The information contained in this announcement has been reviewed by Empyrean's Executive Technical director, Gaz Bisht, who has over 29 years' experience as a hydrocarbon geologist and geoscientist.

****ENDS****

For further information:

Empyrean Energy plc

Tom Kelly

Tel: +61 8 9380 9920

Cenkos Securities plc

Neil McDonald

Tel: +44 (0) 131 220 9771

Pete Lynch

Tel: +44 (0) 131 220 9772

St Brides Partners Ltd

Priit Piip
Frank Buhagiar

Tel: +44 (0) 20 7236 1177
Tel: +44 (0) 20 7236 1177

The Mako Gas Field, Duyung PSC, Offshore Indonesia

The Mako gas field is an extremely large, shallow structural closure, with an area extent of over 350 square km. The reservoir is a Pliocene-age sandstone, with a gas-water contact at approximately 391m true vertical depth sub-sea. The field has excellent seismic definition with direct hydrocarbon indicators being very evident.

Having been drilled but not tested by prior operators of the acreage, the commercial viability of the Mako gas field was demonstrated by the Mako South-1 well drilled by Empyrean and its partner and operator, Conrad Petroleum Limited in 2017. The well was drilled to core and test the Mako reservoir, flowing up to 10.8 MMscf/d of dry gas on test. Overall four wells have penetrated the reservoir section, and while further appraisal is planned given the huge areal extent of the field, the reservoir distribution is reasonably well understood.

The Mako field is located in the prolific West Natuna basin, approximately 16 km from the WNTS pipeline system which delivers gas from Indonesia to Singapore. A plan of development has recently been approved by Indonesian authorities and initial gas marketing discussions have commenced, with a gas buyer in Singapore for the Mako gas. An independent report on the field's potential was recently carried out by Gaffney Cline & Associates, giving a 2C recoverable resource assessment of 276 Bcf and 392 Bcf of 3C recoverable resources.

Near Field Exploration Potential, To Be Tested in 2019

A series of prospects both beneath and above the Mako field have been mapped. Of particular note is the Tambak (formerly 'Mako Deep') prospect, a Lower Gabus structure that sits beneath the northern end of the Mako field. The target interval within Tambak exhibits seismic amplitude brightening, conformable with structural closure. The prospect has a prospective resource range of 200 to 300 Bcf with a mid-case 250 Bcf and a CoS of 45%.

At the southern end of the field, over the structure's crest, sits the Mako Shallow prospect. This again shows a very strong direct hydrocarbon indicators on seismic, conformable with closure in shallow Muda sandstones. The Shallow Muda prospect has potential to add a further 100 Bcf of recoverable resources and a very high CoS of 75%.

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