

# OIL & GAS INVESTMENT OPPORTUNITY IN SOUTH SUMATRA, INDONESIA

# The Opportunity

The Deras Field, onshore South Sumatra, located in the main Pendopo Field opera7on area, is offered for re-licensing as a new KSO contract by Pertamina to newly created local government entity Penukal Abab Lematang Ilir (PALI). The operating company PT Pali Anagerah Sejahtera (PT PAS) has been constituted by PALI as the vehicle to participate in the opportunity and Equatorial Energy has entered into an exclusivity agreement with PT PAS to act as its technical partner in the project. Equatorial Energy is now seeking financial investment to move to the licensing phase of the venture.

The Deras opportunity calls for a staged capital investment of up to \$5.7 MM to generate cumulative cash flow of \$7.9MM with an IRR of up to 44.4%. In addition to these returns, the successful implementation of the new Deras KSO will act as an entry project to similar Pertamina offerings in the Pendopo area.

Therefore, for the right investor, an attractive opportunity exists to develop an oil and gas portfolio, starting with the Deras Field, which has minimal entry cost and near term cash flow within a year of the KSO signing, with the ability to add further KSOs to an established production operation.

# **Equatorial Energy Background**

Deras and surrounding opportunities are a good strategic fit with Equatorial Energy's oil and gas exploration and appraisal projects in Bunga Mas PSC also located in South Sumatra. For Bunga Mas, Equatorial Energy has a fully established field operations centre at Lahat, from which in 2014 it undertook a successful three well testing programme to establish a potential oil and gas cluster development.





# **Opportunity Highlights**

- 1 Production & Cash Flow
- 2 Low cost field redevelopment
- 3 Pertamina & Local Government Relationship

- 1 MMscfd from existing wells DRS-6 & -7 in BTL reservoir
- Up to 2 MMscfd including production from a new well in VZ reservoir
- Cumulative Cashflow up to \$7.9MM over 15 years
- Re-entry & workover programme @ \$0.35MM/well
- Facilities rehabilitation @ \$1.5MM
- New production well in 2019 @ \$3.5MM
- Entry level opportunity with new local government area (PALI)
- Existing working relationship with Pertamina to facilitate KSO negotiations
- Pertamina have indicated that additional KSOs will be made available

# **Equatorial Energy**



### **Deras Field Technical Details**

# **Regional Geology**

The Deras gas field is located on the southern flank of the prolific South Sumatra Basin where local tectonics have generated a series of NNW-SSE-striking oil and gas bearing structures known as the Pendopo trend. Reservoirs in this area include Lower Miocene Talang Akar Formation sandstones, Lower Miocene Baturaja Formation carbonates and Middle Miocene Muara Enim Formation sandstones. All plays are sourced from mostly older Oligo-Miocene Lemat Formation shales. Regional seals are the Gumai and Upper Muara Enim shales and intraformational seals are also locally effective.

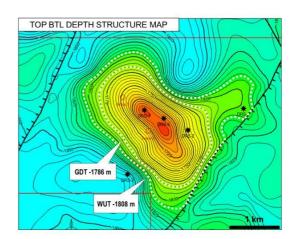
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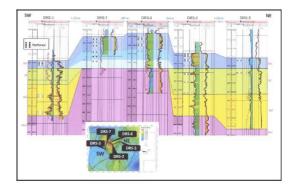
# **Field Discovery and Development**

The field was discovered by Stanvac in 1951 and produces gas with minor condensate from the Baturaja Basal Telisa Limestone (BTL) which is locally developed into a porous build-up facies over a basement high. Small amounts of both gas and oil have also been recovered from deeper Miocene Vaginuilla Zone carbonates (VZ) and from Talang Akar sandstones, both of which are developed on the flanks of the structure.

The original discovery well DRS-2 was drilled to 1955m and proved GDT -1786m in the BTL formation, testing gas and oil from at 4.4 MMscfd + 104 bopd. In addition oil and gas-cut mud was recovered from the deeper VZ formation. The well was put into production reaching a peak of 11.5 MMscfd in 1957 and remained the only well producing on the field until the 1970s. Well DRS-5 was drilled on the flank of the structure and proved WUT in the BTL formation at -1808m. It also proved the effectiveness of the VZ formation with a test of 1.6 MMscfd + 35 bopd, but was not put into production from this reservoir.

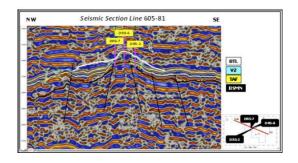
In 1979 two new BTL production wells were drilled on the crest of the structure, DRS-6 and DRS -7, to depths of 1934m and 1834m respectively. DRS-6 tested 2.1 MMscfd + 27 bopd and DRS-7 tested 4.6 MMscfd +110 bopd, both from the BTL formation. These two wells were put into production in 1984 with an initial production of 12 MMscfd and finally shut in in 1995 and 2009 respectively when production had declined to 0.8 MMscfd.





# **Additional Prospectivity**

The area is covered by a skeletal 62.5 km 2D seismic database of varying vintage 1981-1991 which ties all the field wells. The data are fair to good quality, albeit of generally low frequency content. Maps in time and depth have been prepared at the principal reservoir levels using a Petrel interpretation system and allow definition of prospective areas for the deeper reservoirs on the NW and SE flanks of the structure. Provisional Interpretation identifies a structure at VZ level prospective for 4.5 Bscf OGIP.



# **Equatorial Energy**



### **Historical Production**

The Deras field had been in production since Apr 1951 and was shutin in March 2009 having produced a stated 60.6 Bscf + 1.8 Mmbo. Of the initial five wells that were drilled on the Deras structure, only the DRS-2 well produced from 1951 to 1970. After a production hiatus, the DRS-6 & 7 wells were drilled and came on-stream in September 1984. DRS-6 produced until Jan 1995 and the field was shut in at 0.8 MMscfd from the DRS-7 well in Mar 2009.

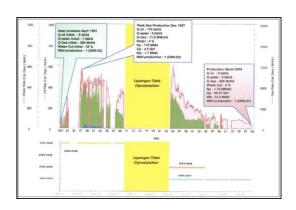
### **Technical Evaluation**

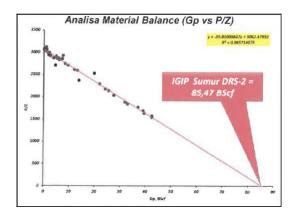
PT PAS received a technical outline of the project in February 2016 from Pertamina and in October 2016 requested Universitas Pembangunan Nasional Yogyakarta (UPN) to undertake a separate GGRE and economic evaluation of the project. Production performance and pressure analysis has consistently indicated a connected gas volume of 85 Bscf OGIP. Therefore, in the BTL, the remaining reserves are primarily dependent on the shut in reservoir pressure. Equatorial Energy is in the process of arranging a site visit to verify current pressures in the field.

# **Rehabilitation Opportunity**

Historically, the decline in production rate has been caused by well productivity degradation in addition to the decline in reservoir pressure. Previously, productivity degradation has been successfully reversed and acidizing has been shown to work in the field to improve well rates. The production performance, shortly before shut-in in 2009 shows a dip in productivity to below the decline curve, and suggests some improvement to well rates can be made

The BTL reservoir is likely to be close to ultimate recoverable reserves, but a low cost rehabilitation solution could yield attractive economic returns. The solutions employed here can be applied to other similar re-developments.





WELL	Pre-acid	Post acid		
RATES	workover	workover		
A.O.F.P.	2.4 mmscf/d	7.5 mmscf/d		
@ 850 psig	1.5 mmscf/d	-		
@ 800 psig	-	5.8 mmcsf/d		

# **Export and Gas Utilization**

Gas export lines are already in place and connected to the Pertamina Grid. In addition, PT PAS has entered into an MoU with Adaro Energy to build power plant for Pali. Adaro is one of the biggest coal mining company and power producer in Indonesia. Equatorial Energy has been conducting direct discussion with Adaro and had concluded that the joint venture opportunity will come into effect from a gas portfolio producing >5mmcf with target gas price of US\$5.5-\$6.5 mmbtu.

# **Expected Work Programme and Costs**

Equatorial Energy will adopt a phased approach to reach first gas and exploit potential additional resources as follows:



# **Equatorial Energy**



# **Economic Assessment**

A preliminary economic evaluation has been undertaken, using the following assumptions:

• Equity Split 50% partner

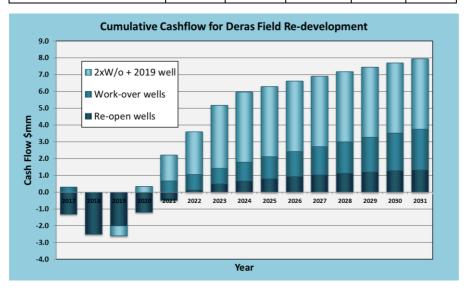
Cost Recovery Cap 80%DMO 25%

Gas Price \$6/mmbtu escalated at 4% per annum

Income Tax 40.5%Discount Rate 10%

Results for the re-entry/workover and the new well cases are as follows.

CASE	Spend US\$	Recovery (Bcf)	NPV 10% US\$	IRR %	Prod/day MMscf
Reopen 2 wells + WO	2.2	4.93	2.734	41.4	1
Reopen 2 wells/WO/Drill	5.7	9.9	5.24	44.4	2



# **Indicative Process & Timetable**

Stage 1		Stage 2	Stage 3	Stage 4	Stage 5
Establish and finalise funding Q3 2017	$\rangle$	Negotiate and sign KSO Q4 2017	Contracts and Operations Q1/2 2018	First Gas from the Deras Field Q3 2018	Establish further KSOs with Pertamina
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# **Contacts**

Additional information for this project is available upon request from

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