

MOZAMBIQUE'S DRIVE TO BECOME A MAJOR NATURAL GAS PRODUCER

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Recent offshore discoveries have placed Mozambique firmly on the oil and gas industry map. The size of reserves and a geographical position close to hungry Asian markets is impressive, but significant infrastructure shake-up will be needed to fulfil potential.

MOZAMBIQUE has recently emerged on the oil and gas radar thanks to significant natural gas discoveries off the coast of the country. These discoveries are driving Mozambique to position itself as a major natural gas producer, particularly given the size of the reserves and the country's relative proximity to the Asian markets.

Mozambique's offshore exploration area is split into six (Areas 1–6 in figure 1). Between October 2011 and March 2012, offshore exploration by Eni (Italy's largest oil company) resulted in huge discoveries in Area 4, which is assessed as having a potential of around 50 trillion cubic feet (Tcf) of gas. In 2012, ENI is expected to carry out exploration on another five wells, and to make a Final Investment Decision by the end of 2012. Meanwhile, in May 2012, Anadarko Petroleum Corporation also discovered a large offshore field in the Indian Ocean containing an estimated 20 Tcf of recoverable gas in Offshore Area 1.

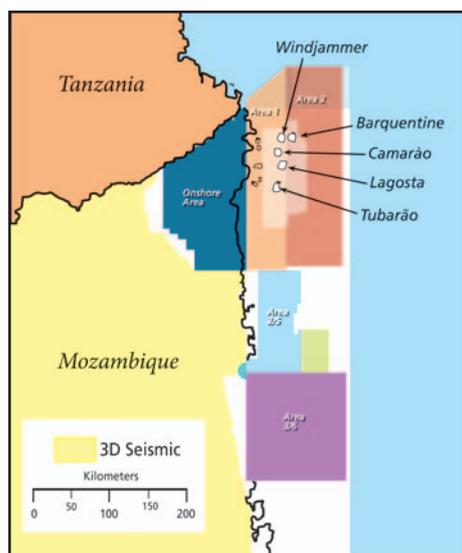


Figure 1: Mozambique's licensed areas and discoveries
Source: Instituto Nacional de Petróleo (modified)

Furthermore, during June, Anadarko made another discovery at the Atum exploration well in the Rovuma Basin, and will now begin four wells immediately to appraise the find. The estimated potential recoverable reserves of gas in Offshore Area 1 stands at 30–60 Tcf as of June 2012, and may even reach 100 Tcf. To put these numbers in perspective, Qatar, holding the world's third largest natural gas reserves and positioned as the single largest supplier of LNG today, is producing around 4.5 Tcf of LNG per year.

HOPE AND OPPORTUNITY

These developments are an exciting boost for the former Portuguese colony that, until a couple of years ago, had been written off as a failed state due to civil war, government corruption and an extremely weakened economy. The discoveries bring hope to the people of Mozambique with the expectation of economic change, and offer huge opportunities for overseas contractors looking for growth potential in developing markets. Undoubtedly, there will be huge challenges ahead in developing this country's potential, and recognition is needed that a change in tack will be required if oil companies are to avoid the mistakes made in other African countries.

INFRASTRUCTURE FIRST

Yet if Mozambique is to take advantage of its offshore discoveries (which may represent some of the most important in the last 15 years), the country will need to embark on a massive infrastructure development programme to reach the stage of being able to produce and sell LNG. Parallels can be drawn with Qatar, which embarked on a similar journey in 1995 with a US\$2bn (£1.3bn) project to build trains 1, 2 and 3, and which today has 14 LNG trains in operation. Qatar embarked on a series of in-country developments, including development of road infrastructure, port facilities, labour camp facilities, workshops, and power



Deepwater Millennium Drillship, Mozambique
Photo: Anadarko

stations. For Mozambique, the whole supply chain of LNG will require dedicated equipment, from the LNG trains required

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BLOCK/ LICENSE NAME	OPERATOR	OFFSHORE	HYDROCARBON	WELLS PLANNED IN 2012+
OFFSHORE AREA 1	ANADARKO	DEEP OFFSHORE	GAS	6
BLOCKS 2 & 5	STATOILHYDRO	DEEP OFFSHORE	NOT MENTIONED	
AREA 4	ENI	DEEP OFFSHORE		

Overview of exploration activity planned in Mozambique 2012+. Source: Derrick Petroleum 'Planned Wells Exploration Database'

for production to the LNG tanks for storage, export terminals to load vessels, and carriers for transportation.

A host of opportunities are expected to emerge over the coming years in Mozambique for contractors with expertise in port facilities, camp building and all the other infrastructural requirements. This is in addition to the obvious engineering, procurement and construction opportunities that will emerge from the actual development of the LNG trains, of which estimates indicate that there may be sufficient gas in place in Offshore Area 1 alone for up to six LNG trains for a total of 25 million tons a year of LNG capacity.

TRANSPORTATION

Planning will be key to the success of this development programme over the coming years. But in addition to the timely implementation of the various in-country infrastructural requirements, there will also be a need to consider the dynamics that exist in the gas market, and which differentiate it from the oil market. Unlike



Natural Gas flow test, Mozambique Photo: Anadarko

oil, which can be transported and stored at a relatively low cost, natural gas has typically posed challenges when it comes to transportation. While this makes pipelines the preferred option for transport, pipelines require high capital investment and are only an option when reasonable distances are being considered from production sites to consumers. The development of LNG, transforming natural gas to a liquefied state, is a great way to overcome some of these constraints, but the process can be energy intensive costing up to one third of the amount of the original energy in gas. As such, price will be a key point when considering the feasibility of gas opportunities.

LOCAL BENEFIT

Ensuring the beneficial impact of Mozambique's oil and gas discoveries on

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the people of the country must be a crucial component of any development plans. A key factor of the success of the programme therefore will be any Corporate Social Responsibility measures taken. Already key stakeholders involved in the development of these opportunities are putting steps in place to ensure that the investment in the region is meaningful and that the growth can be used to stimulate opportunities for education, employment and improvements in the quality of living for the people of Mozambique. Existing government initiatives include a review of taxation and regulatory policies with the aim of ensuring that there is sufficient participation by the indigenous population, alongside initiatives to improve the quality of education for the children of Mozambique.

Contax Partners will be tracking the development of the various projects and initiatives taking place in Mozambique over the coming months and years with great interest, and looks forward to seeing these exciting plans come to fruition.



Deepwater Millennium Drillship, Mozambique Photo: Anadarko

DISCOVERY NAME	NET PAY (FT)	GROSS PAY (FT)	OIL/ GAS	TOTAL DEPTH	DATE	RESERVOIR ROCK	FUTURE WORK
WINDJAMMER	555	> 1200	GAS	16,930	MAR-2010	OLIGOCENE + PALEOCENE	CORING PROGRAM COMPLETED (PART OF APPRAISAL WORK)
COLLIER		-	-	10,500	APR-2010	-	PLUGGED AND SUSPENDED FOLLOWING PORE PRESSURE ISSUES. DID NOT EVALUATE THE DESIRED SECTION.
IRONCLAD	124		OIL	17,402	AUG-2010	CRETACEOUS	PLUGGED AND ABANDONED AS SANDS HAD LOW POROSITY AND PERMEABILITY
BARQUENTINE	416		GAS	16,880	OCT-2010	OLIGOCENE + PALEOCENE	APPRAISAL
LAGOSTA	550		GAS	16,307	NOV-2010	OLIGOCENE + EOCENE	CORING PROGRAM COMPLETED (PART OF APPRAISAL WORK)
TUBARAO	110		GAS	13,900	FEB-2011	EOCENE	APPRAISAL

The non-commercial Ironclad well is significant as it was the first time oil was discovered in offshore Mozambique. Source: Derrick Petroleum Services