

Angolan subsalt prospects boosted by new discovery

Encouraging operational results and a batch of licence awards have signalled Angola's subsalt region as one to watch

By Kevin Godier

- **Maersk has made a subsalt find in the Kwanza Basin**
- **Angola has clarified the holdings of international companies in the new subsalt permits**
- **The costs will be high but success in Brazil has driven up enthusiasm**

Exploration hopes have shone brightly on Angola's subsalt oil potential over the past month, with positive recent news from both Maersk Oil and Cobalt International Energy. Maersk's find in Block 23, allied with a slew of final subsalt block drilling licence awards in the Kwanza Basin by Luanda in December 2011, have bolstered hopes among explorers that a new exploration frontier is emerging off the coast of Angola that could be similar to massive subsalt oilfields found in Brazil.

"The real significance of this well is that it shows us that the [subsalt] in this part of the Atlantic works," Maersk's head of exploration, Lars Nydahl Jorgensen, said in a phone interview with Bloomberg. "We now have a lot of data that we didn't have before."

Cobalt encountered difficulties at its first subsalt well but a statement from the US-based company in late December gave an upbeat assessment of the Cameia-1 well in Block 21. Once this well is completed, Cobalt intends to spud the subsalt Bicuar-1 well in the same block.

The country's potential subsalt reserves are seen as a major factor in the West African country's push to maintain the surge in oil output that enabled the country top Nigeria temporarily in 2009 as Africa's number one crude producer. Patchy production in some fields – and a lessening of civil unrest in the Niger Delta – have allowed Nigeria to regain pole position, but major volumes of new Angolan offshore production are anticipated this year, which should take overall output levels past the 2 million barrel per day mark.

As Angola spreads the scope of its

exploration, its oil output could rise to as high as 2.4 million bpd by 2017, according to a June 2011 prediction by Business Monitor International.

Technical challenges

In this respect, Luanda's hopes to maintain and augment Angolan production in the medium to long term depend strongly on the deepwater exploration thrust successfully extending to a layer of rock in the seabed known as subsalt – and sometimes referred to as pre-salt – located in a similar geological formation to the massive Tupi offshore field in Brazil.

Petrobras began to pump oil from the Tupi deposits in late 2010, beginning an extraction effort that is predicted to boost Brazil's economic fortunes in the decades ahead by almost doubling the country's proven oil reserves. As much as 70 billion barrels of subsalt oil may be contained offshore Brazil.

Drilling subsalt wells is a technically challenging exercise because the deposits lie below a thick layer of salt under the bottom of the sea, which is difficult to penetrate. This started to accumulate between 150 and 230 million years ago, covering deposits of organic material on both sides of the Atlantic Ocean, when a single southern super-continent, Gondwana, began to split into Africa and South America.

Unlike those deposits above the salt layer, the geological structures beneath resting as much as 3,000 metres beneath the ocean surface and 3,000-5,000 metres below the seabed, have generally remained unchanged since Gondwana broke up.

Nevertheless, BP, Total, Statoil, Eni and other international companies showed their appetite for the challenge in Angola when successfully bidding for 11 deepwater exploration concessions for ultra deepwater subsalt blocks that were quietly awarded in January 2011 by an Angolan government that is more eager than ever to maximise the country's deepwater potential.

The final equity percentages were confirmed last month, covering territory in the Kwanza Basin that is seen as sharing promising geological similarities with the prolific Santos and Campos Basins in Brazil where the Tupi find is situated.

Maersk find

Such potential, of course, means next to nothing until oil is found. In the wake of Cobalt's 2011 disappointment, Maersk's January 4 press statement that its Azul-1 well in the Kwanza Basin was found to have a potential flow capacity of "greater than 3,000 bpd" was therefore a cheering sign as a new round of oil production possibilities opened up for Angola.

The well test that was carried out “enabled the recovery of two good quality oil samples,” the oil unit of AP Moeller-Maersk, Denmark’s biggest company, said. “Taking into account these encouraging results, Maersk Oil will further evaluate the results of this discovery and will proceed with exploration work in the block,” it added.

Maersk operates the block with a 50% share alongside the state-owned Sonangol and Sweden’s Svenska Petroleum Exploration, which hold respective 20% and 30% shares. The Azul-1 well is situated about 250 km south of Luanda, and was drilled to a depth of 5,334 metres in a water depth of 923 metres using the Ocean Valiant semi-submersible drilling rig.

However, Jorgensen warned that it would be some time before the full potential of the block was gauged. “There is substantial evaluation work ahead of us to determine whether the discovery is enough to invest further to get production going,” Jorgensen commented in the statement. “This will be done by, amongst other things, state of the art reprocessing of seismic data. Fully appraising the discovery will take several years and it is far too early to guess the outcome.”

A note from Tudor Pickering Holt was cautious on the Azul well, noting that Maersk had provided few details and that 3,000 bpd was “a relatively low flow rate.” The analysts went on to say this made the “flow test at Cobalt’s Cameia discovery later this month even more critical for both the prospect and the basin.”

New licensing awards

The recent licence awards were announced by Sonangol’s chairman, Manuel Vicente, on December 20. The awards stemmed from a restricted bid round that saw BP, Total, Statoil, ConocoPhillips, Eni and Repsol emerge in early 2011 as the major names to secure rights to blocks.

Details on signature bonuses were scarce, although thought to be high, with Statoil saying its total price tag, which included the bonus as well as the planned work programme, was US\$1.4 billion.

Statoil has been awarded 55% operatorship stakes for Blocks 38 and 39 and a 20% partner position in Blocks 22, 25 and 40, the Norwegian company said in a December 20 stock exchange statement. “Early access to a multiple block portfolio in exploring this new play gives Statoil exposure to significant upside potential, should the play be proven,” said Statoil’s executive vice president for exploration, Tim Dodson.

BP, which has already made at least five significant discoveries in the Angolan subsalt, said it had signed production-sharing agreements (PSAs) for four new blocks – 19, 24, 20 and 25 – covering 19,400 square km in the Kwanza and Benguela basins. “This new access builds on the major presence we have developed in Angola over the past 10 years, investing a total of US\$21 billion in the business,” said BP’s CEO, Bob Dudley. The company also reached a deal on Block 26, taking a 40% stake under a deal with Petrobras.

A raft of companies is now focused on seeking to replicate the hydrocarbons discoveries made in Brazil by transferring the model across the Atlantic Ocean to the coast of West Africa. Similar geological conditions alone are no surefire indicator that Angola is heading for a similarly sized discovery, but if the deepwater drilling to come suggests anything like the same level of subsalt oil deposits found in Brazil, the African country stands on the verge of yet another remarkable chapter in its oil production annals. ■