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# Advance bullish on Buffalo bonanza off East Timor

UK-listed Advance Energy has successfully raised the capital to acquire a 50% stake in the Buffalo project off East Timor. Drilling at the redevelopment project later this year is targeting a potential oil bonanza.

12/04/2021 by Damon Evans

A mural of the East Timorese flag on a wall in Dili, the capital of East Timor. Photo by Damon Evans.

UK-listed Advance Energy has successfully raised the capital to acquire a 50% stake in the Buffalo project off East Timor. Drilling at the redevelopment project later this year is targeting a potential oil bonanza.

The operator, Australian-listed Carnarvon Petroleum, and new partner Advance Energy, are hoping to develop more than 30 million barrels of oil that previous operators, including BHP and Nexen Petroleum, appear to have missed.

Advance will get a 50% stake in Buffalo by funding the Buffalo-10 appraisal well on a free carry basis up to a cap of $20 million. Petrofac has been hired to manage the drilling and the target is to spud Buffalo-10 in the second half 2021.

Although some industry watchers are skeptical that previous operators could have missed such a large volume of oil, Advance's chief executive, Leslie Peterkin, explained to Energy Voice his rationale behind the bullish bet on Buffalo.

The Buffalo oil field was originally discovered in 1996 by BHP and produced 20.5 million barrels of light oil between 1999 and 2004. BHP operated the field for two years before selling out to Nexen. Both operators failed to unlock the oil sitting at the geological crest of the field, known as the attic.

Nexen drilled in the west of the field, particularly with the Buffalo-9 well, which was pretty much a failure, said Peterkin. Having failed to locate the crest of the field and with the lease about to expire on the floating production storage and offloading (FPSO) unit, Nexen took the decision not to drill further wells and abandoned Buffalo. As a result, the geological puzzle has remained unresolved ever since.

Significantly, back in the late 1990s and early 2000s, it was challenging to map the field with the available imaging technology, as a huge carbonate reef, known as Big Bank Shoal, sits right above the field.

Sensing an opportunity to re-evaluate the field with modern technology, Carnarvon Petroleum acquired the rights to Buffalo in 2016. The Perth-based player reprocessed the 3D seismic and remapped the field. Improved seismic imaging shows that the crest of the field is further east than previously mapped and drilled in the original development, according to independent advisory firm RISC. Buffalo-10 will be drilled in the eastern part of the field offshore East Timor, also known as Timor Leste.

**A prolific opportunity**

During the first decade of the 21st century, Peterkin spent 10 years working on many of the assets in Timorese waters north of Australia. He had stints working on various fields, including Bayu Undan and Greater Sunrise, for Santos and Woodside Petroleum, respectively.

“I know all of the fields in Timorese waters and the reservoir very well. It’s extremely prolific and that is one of the key aspects of this opportunity,” Peterkin told Energy Voice.

The field originally pumped 40,000 barrels of oil per day (bopd) from two wells and it was still producing 1,000 bopd when Nexen shut it down. Therefore, there is still an oil column, added Peterkin.

“The question is what is the length of the oil column that remains and that’s dependent on where the crest of the field lies,” he said.

Following lots of reprocessing with modern Full Waveform Inversion (FWI) techniques, Carnarvon believe they have identified the crest of the field that holds the missing oil. Reprocessing of the data was carried out by two separate companies – Perth-based DownUnder GeoSolutions (DUG) and CCG.

“Both of these reprocessing efforts show the crest in the same place, albeit with a slightly different view as you might expect. But it is essentially the same,” said Peterkin.

“If you take that crest, you end up with an 80-metre oil column, and that’s how you end up with 34 million barrels of remaining oil. We are going to drill in the attic area and see what we get,” he added.

RISC estimates 2C contingent resources at 34.3 million barrels of oil and 16 million barrels on a 1C basis.

“The downside is capped, even at 16 million barrels it’s still economic, so it’s a low-risk appraisal opportunity in a reservoir that produces very high rates,” said Peterkin.

**Skepticism?**

Some industry watchers remain skeptical over the remaining potential at the Buffalo field.

An industry source that was involved with the discovery and development of the Buffalo field in the mid-1990s told Energy Voice “I have always been suspicious of the Carnarvon claim that 30 million barrels remains.”

“BHP is a very good exploration and production company. I simply do not believe they missed 30 million barrels,” added the source.

Still, “Carnarvon think they can see something on the reprocessed seismic that was not on the legacy data. They think it is a viable development and they have been shopping it around for several years,” a geologist that has reviewed the latest seismic interpretation told Energy Voice.

“The re-processing technique used was technologically like replacing a 1950s newspaper picture image of your face with a HD picture. On the previous (1950s) picture you could see the hair, eyes, nose and mouth. You can now (HD picture) see everything in between and the wrinkles too. Given how poor the prior data was it’s no surprise there is more to be found, but there is still a risk that the original map was correct,” cautioned the geologist.

**Appropriate partner**

Crucially, Carnarvon do not have enough money to develop Buffalo alone. Although the global pandemic and weak oil price environment made it tough for developers to attract investment, Carnarvon announced a deal with Advance in December 2020.

“Carnarvon’s farm-in partner is appropriate for this relatively small, but highly profitable opportunity, now that the oil price is back towards $70 per barrel,” Peter Strachan, a Perth-based independent energy analyst told Energy Voice.

**Development options**

The Buffalo-10 well is intended to confirm the depth of the remapped crest of the field. It will be suspended and subsequently completed as an oil producer if all goes according to plan.

A number of development options are being considered using existing available FPSOs or mobile oil production units (MOPUs). A final investment decision (FID) is expected in early 2022 after the appraisal well results are known, with first oil targeted for late 2023.

Development costs are estimated to be $145 million including $69 million for appraisal and development wells. This equates to a development capital expenditure of less than $4 per barrel, according to RISC. Annual average operating costs are estimated to be $60 million per year.

**More opportunities?**

Buffalo will be Advance Energy’s first asset and the company is seeking more acquisitions. The strategy is to find attractive non-operated discovered or undeveloped opportunities, said Peterkin.

He said there are few opportunities left in East Timor and that Buffalo will very likely be the last oil field development offshore the Southeast Asian nation. “Somebody might come up with a bright idea, but it has been picked over pretty well over the years. From our point of view, there is no likely opportunity in East Timor. We have looked at Chuditch, there is an opportunity, but it’s not easy,” added Peterkin.

As for Carnarvon, they will also be focused on their Dorado field, operated by Santos. Dorado is forecast to cost around $2 billion to develop. The field off Western Australia could potentially be one of the largest oil field developments in Australia over the past decade, with a best estimate of contingent resources pegged at around 150 million barrels of liquids in the first phase. Santos operates Dorado with an 80% share on behalf of Carnarvon, which holds a 20% stake. Although Santos is seeking to farm down its share.

Santos plans to take FID at Dorado in 2022.

“Carnarvon has been listed for over 20 years and ran a successful onshore oilfield in Thailand before selling it at the top of the market. The company invested funds wisely and has so far discovered about 222 million barrels of oil and 1.5 trillion cubic feet of gas, in which it has a 20% equity interest alongside Santos,” said Strachan.