

Gas Exploration in the Offshore North Sumatra Basin

Sampurno, Sonny¹, Benny Eza¹, John Grant¹, Chris Atkinson² (1) Serica Energy, Jakarta, Indonesia
(2) Serica Energy, Singapore, Singapore

The deliberate search for gas to fuel the growing domestic market is a relatively new phenomenon in Indonesia. The Medan/Pangkalan Brandan region of North Sumatra faces perhaps the biggest challenge with existing supply from onshore fields in steep decline and growth projections for future energy needs showing a significant shortfall. In order to satisfy this demand gas will need to be found and found quickly. The Offshore Asahan PSC and Glagah Kambuna TAC lie approximately 20-50 kilometres offshore of the Medan region. Despite three out of nine exploration wells having tested gas in the 1970's and 1980's (NSO-1S, Kambuna-1, Glagah-1) it was only in 2005 that the 1985 Kambuna discovery was appraised and proven to be commercial. In addition, the successful discovery of gas in the Togar-1A exploration well also drilled in 2005 heralds well for the offshore basins to be considered viable alternatives to supply gas to the nearby market.

A variety of play types exist in the offshore area: (i) combination structural/stratigraphic pinch-out traps within the late syn-rift/early post rift section (lower to middle Miocene) adjacent to basement highs, (ii) structural traps in the post-rift section (middle to upper Miocene) above basement highs and (iii) three-way fault defined traps in the post rift/sag succession (upper Miocene to Pliocene). Exploration drilling has proven that all three play types can be successful and that all three can have associated seismic AVO anomalies which significantly reduce pre-drill risk. A fourth play type, the classic North Sumatran reef play exists in the area but has been largely unsuccessful to date primarily because of a lack of change in places where the reefs are best developed.