

Stranded Accumulations Held in Retention Leases: Improving Subsurface Knowledge is the Key to Commercial Viability

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Provisions for the award of a Retention Lease were added in 1985 to the Petroleum (Submerged Land) Act 1967 to provide security of title for offshore petroleum accumulations that are less than commercial but are likely to become commercially viable within 15 years. Of the Retention Leases granted to date, about 40 have been awarded over gas accumulations and about 15 have been awarded over oil accumulations. In addition, several Retention Lease applications are currently under consideration. A limited number of Retention Leases have been converted to Production Licences. Thus, the number of stranded accumulations held within Retention Leases is increasing.

Retention Leases now cover an area of approximately 17,000 square km, which is larger than the area of the Barrow or Dampier Sub-basin, offshore Western Australia. Jurassic or Triassic sandstones of the Westralian Super-basin constitute the primary petroleum reservoirs in the majority of the stranded accumulations.

In many instances, remoteness from infrastructure and deep water are the main factors that give rise to the perception that an accumulation is stranded. However, a closer examination of Australian stranded accumulations indicates that insufficient geological and reservoir engineering knowledge is often the reason why the accumulations are not considered commercially viable. A lack of reliable information on gross rock volume, lateral continuity, net pay, hydrocarbon saturation, hydrocarbon-water contact or flow potential is common.

Seven and eleven exploration wells had been drilled on the gross geological structures of North Rankin and Goodwyn respectively, before decisions on LNG development were made. In contrast, few appraisal wells have been drilled on many stranded accumulations. Adequate appraisal work in conjunction with marketing efforts is necessary to monetise these accumulations.