

Proterozoic Hydrocarbon Potential of the Beetaloo Basin, Northern Territory, Australia

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Thick, oil-prone source rocks have been mapped in the Beetaloo Basin, Northern Territory, Australia, and highly encouraging oil & gas shows were noted in several wells. Reinterpretation of the basin's burial history and reprocessing of seismic data have revealed vast exploration potential not realized by earlier efforts there. The source rocks, reservoirs, seals and traps are all Proterozoic.

Eleven wells have been drilled in the entire basin. Total depths in the previous wells rarely exceeded 2000 m, though at least 3000 m of potentially prospective section is present. Huge structural traps and conventional sandstone reservoirs have been identified but no production has yet been established.

Proterozoic sediments are 9000 to 15,000 m thick. The Neo-Proterozoic Hayfield and the upper portion of the Meso-Proterozoic Roper Group are the key objectives. New work on the burial history of these strata suggest that peak hydrocarbon generation may be much younger than previously thought, increasing the potential for preserved traps.

Seismic reprocessing, new 2-D data and recent analytical work all indicate plays, leads and prospects that were not evaluated previously. Proterozoic clastics may be most prospective along large structural arches and in continuous-type gas accumulations in tight sandstones near the basin center.