McArthur Basin

key points

- Palaeoproterozoic to Mesoproterozoic age
- 180 000 km² outcropping, up to 350 000 km² subsurface extent
- Frontier basin with very large unconventional oil and gas potential
- Multiple proven petroleum systems
- 51 exploration wells
- Over 8000 km 2D seismic acquired to date

main industry players

Armour Energy Ltd, Santos Ltd, Origin Energy Ltd, Sasol Petroleum Australia Ltd, Pangaea (NT) Pty Ltd, Energy and Minerals Group, Imperial Oil and Gas Pty Ltd, Inpex Oil and Gas Australia Pty Ltd.

geology

Relatively undeformed late Palaeoproterozoic to Mesoproterozoic basin up to 15 km in thickness. Main petroleum systems are in 1640 Ma McArthur Group and equivalents, and 1400–1320 Ma Roper Group. The Beetaloo Sub-basin is a thick, unexposed depocentre of Roper Group stratigraphy.

production

No commercial production to date.

recent discoveries

Tanumbirini-1 and Kalala-S1 wells intersected thick columns of gas within the prospective middle Velkerri Formation shale in the Beetaloo Sub-basin.

current activity (2015–2016)

Six wells drilled in 2015 in the Beetaloo Sub-basin including one horizontal well. Further vertical and horizontal drilling and appraisal planned by Origin Energy and Pangaea in 2016.

unconventional potential

Very high unconventional gas and oil potential particularly in thick black shale units in McArthur Group (Barney Creek Formation) and Roper Group (Kyalla and Velkerri Formations).

conventional potential

Numerous conventional targets included marginal and intrabasinal structural highs in the Beetaloo Sub-basin, and fractured carbonate rocks within the McArthur Group.

Diagnostic Coxco Needles in Coxco Dolostone Member of the Teena Dolostone.

Gas flare from Glyde #1 lateral well from gas reservoired in fractured Coxco Dolostone. Image from Armour Energy Limited. ASX release 10 August 2012.

www.minerals.nt.gov.au/ntgs