

Wanganui Basin

Key facts

Where

A basin of about 20,000 sq km onshore and offshore the southwest coast of the North Island.

Geology

Up to 4 km of Pliocene basin fill.

Wells drilled

Five onshore wells.

Industry infrastructure

Proximity to gas pipeline system.

Prospects

Large closures mapped onshore and offshore but uncertain petroleum system.

Potential source rocks

Organic-rich paralic facies may exist along the southern margin of the basin. Migration from other basins is another possibility.

Potential reservoir rocks

Pliocene sandstones.

Exploration potential

The South Wanganui Basin covers an onshore and offshore area of over 20,000 sq km straddling the southwest coast of the North Island. The basin is believed to have formed by the subducting Pacific Plate dragging crust downwards, creating accommodation space for over 4000 m of sediments since the Early Pliocene. Several large closures have been seismically mapped onshore and offshore.

Only five wells have been drilled within the basin, all onshore, with the last in 1996. The low level of exploration is due mainly to perceived lack of source rock and low maturation. Organic-rich paralic facies have been postulated along the onlapping southern margin of the basin, but are not yet proven. Thick mudstones have been proposed as low-grade sources, but TOCs are low. However, a suite of samples from the northeast margin of the basin contain biomarkers indicating moderately-highly mature oil of dominantly marine origin and probable Cretaceous age. The host rocks are immature, so this biomarker anomaly suggests either that older organic-rich sediments are buried beneath the Plio-Pleistocene cover, or that oil migrated from the adjacent Taranaki or East Coast basins.

Numerous potential reservoir units are present throughout the Pliocene, typically fine-medium grained, well sorted sandstones of shelf and slope origin. Well samples have fair to good permeabilities, with some porosity reduction due to burial compaction and ductile deformation, but generally low clay cementation.

- [Wanganui Basin Map](#)