

New Zealand – current exploration trends and developments

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New Zealand is an under explored country, but even recognising that fact, 50 years of drilling has found only the commercial Taranaki Basin plus about five further basins with proven hydrocarbon systems or non-commercial discoveries. Is this modest record of success indicative of a fundamental lack of prospectivity or are there other factors which explain the past and identify what might change in the future?

Until around the mid-1990s the following ‘truths and facts’ dominated the perception of potential New Zealand explorers:

- New Zealand was a gas province. The onshore Kapuni and offshore Maui gas condensate discoveries seemed to demonstrate that the source rocks were always going to favour gas over oil.
- The two discoveries had filled the New Zealand market with cheap gas. There was no obvious home for new gas and undeveloped fields awaited new markets.
- There were no big oil fields to be found. The modest sized onshore oil discoveries in Taranaki were a result of focused local state oil company activity.
- New Zealand geology is complex. The country is cut by a major plate boundary. Active tectonics and leaky traps are common.
- New Zealand is located at the end of the world with high rig and seismic vessel mobilization costs.
- Several of the interesting basins are in deep water with challenging environmental conditions.

The conclusion was that while New Zealand was a wonderland for tourists and magical holidays it was not a significant hydrocarbon province.

However by the mid-1990s several companies realised the commercial environment was changing. Maui was approaching

late life and gas prices were going to improve. Several ventures commenced geotechnical programmes and exploration well drilling which eventually led to a number of discoveries, most notably the offshore Pohokura gas condensate field and Tui oil field.

Perception is a harsh teacher when it is realised that every geologist who has landed at the New Plymouth airport has passed within a few hundred metres of the Pohokura Field location. We really didn’t know as much as we thought we did!

Over the past five years four offshore fields have been developed in the Taranaki Basin: Pohokura, Tui, Kupe and Maari. This activity has led to an increase in exploration activity partly because of changes in perceived prospectivity and partly because of savings in rig mobilisation cost.

Other important developments are:

- The continuance of a viable gas price.
- The seismic acquisition programme instigated by the NZ Crown Minerals Group in new basins. This is linked to permitting rounds and has increased interest in several under explored areas.
- The evolution of deep water technology which will permit exploitation of discoveries in the frontier basins.
- Research work at GNS Science which has improved understanding of oil generation potential in particular facies.
- A more optimistic assessment of basin potential by several new company entrants to the New Zealand exploration scene.

Maintaining this momentum will be tough and both the industry and regulator will need to be flexible. For example, current permitting period lengths are unrealistic for remote deep water basins where lead times for deep water rigs may take up half the permit term. Alignment of permit timelines and cooperation between operators on equipment is essential if a high level of work is to be delivered—as usual, the geology is only half the story.

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