

RESOURCE GROWTH THROUGH PETROLEUM EXPLORATION IN PNG

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Mesozoic and Tertiary clastic and carbonate reservoirs are prolific producers of high quality liquid-rich gas onshore PNG. LNG projects are among the lowest cost and most profitable globally. Accordingly there has been a recent resurgence of petroleum exploration in PNG.

In 2015 Oil Search undertook a country-wide petroleum Common Risk Segment analysis that highlighted potential for giant new oil and gas fields of sufficient scale to support future LNG projects. It also concluded that 40 trillion cubic feet of gas plus 550 million barrels of oil resources remain to be found (representing approximately 60% of PNG's total petroleum resource).

In 2016 Oil Search completed an ambitious integrated structural, stratigraphic, burial, maturation, migration, uplift and erosion model of PNG's total petroleum system to quantify the locations for highly prospective under-explored regions.

Tectonic events at plate and basin scales were re-assessed and correlated within a new country-wide PNG Chrono-stratigraphy of regionally mappable sequences and flooding events, some of Global extent.

A Base Tertiary Mega-Sequence Boundary is mappable over the entire onshore to deepwater regions. 130 1D burial models combined with restored 2D structural and stratigraphic cross sections, have contributed to a new regional petroleum charge model of the Foldbelts, Foreland and Offshore regions.

It is concluded that petroleum was generated pre- foldbelt during Late Cretaceous times in interior PNG while petroleum is currently being generated at the present day mountain front.

A holistic 4D charge model explains why very young foldbelt traps are petroleum charged.