

# **Reservoir Systems of Browse Basin, Northwest Shelf of Australia, in a Sequence Stratigraphic Framework**

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The Browse basin of Australia contains large gas fields discovered in the 1970s (Scott Reef – 12Tcf, Brecknock – 7Tcf, Brewster/Ichthys – 7Tcf). These fields are now being developed to supply the growing Asia-Pacific gas demand, and put pressure on discovering additional reserves in the basin.

Construction of chronostratigraphic diagrams, identifying major sequences, and creating Gross Depositional Environments (GDE) maps from regional seismic mapping and all available well data illustrate reservoir, source rock and seal distribution through time. Middle-Upper Triassic sediments were deposited in a shallow sea and are characterized by a series of lowstands with fluvial/alluvial clastic sedimentation, and flooding events during which shallow water carbonates were deposited. Geochemical data and modelling highlight coaly terrestrial source rocks in the Permo-Triassic and as the main source for the gas. The reservoir effectiveness of typically deep sandstone and dolomitic Triassic reservoirs is limited.

Jurassic shallow marine Plover sandstones with good reservoir quality form the main reservoirs in Scott Reef and Brecknock fields. A major Callovian unconformity marks the opening of the oceanic basin, and is characterized by extensive volcanics in outer Browse. In the early Cretaceous, a series of deep water fans are deposited on a relatively flat “terrace” behind the Becknock-Scott Reef highs. Brewster/Ichthys fields are reservoired in extensive Berriasian basin floor fan sandstones are estimated to contain up to 7Tcf of gas. In late Cretaceous times, shelf margin deltas built out. Several slope channels and lowstand fans have been tested but not yielded commercial quantities of hydrocarbons. In the Tertiary, an extensive prograding carbonate sequence is established across the shelf.