

Reservoir Characteristics of Kutei and Baram Basin Giant Fields, Borneo

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A number of giant fields were discovered in the Borneo surrounding basins mainly in the Baram and Kutei basins. There are similarities between the two oil provinces. The giant fields produce oil and gas mainly from Miocene deltaic to shallow marine sand stones, which are part of the progradational sequences. The sandstones minerals in both basins are generally quartz dominated and originally came from the central part of the Borneo Island and the developments of the reservoirs are controlled by similar sea level fluctuations and climate. Tectonics and local structures controlled the coastal morphology and local basin setting, which generated different reservoir facies and architecture.

The structures of the fields in the Kutei basin are generally larger, but the reservoirs are discontinuous. Most sandstones in the Kutei basin were developed in the distributary mouth bars and sealed by delta flat and marine shales. Sandstone bodies are interconnected in parts by channel cuts. Coal beds are common in the proximal depositional environment and limestones are well developed in the distal part of the depositional system.

Coastal and shallow marine sandstones, which dominated the Baram sandstone reservoirs, are more continuous laterally. The sand reservoirs are only associated with thin carbonaceous layers and thin limestones beds. Although the reservoir porosity and permeability of the fields in the Baram basin are generally higher compare to those from the Kutei basin, the field structure sizes are smaller.