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Oil and Gas Exploration Review in Offshore China

There are ten Tertiary sedimentary basins distributed in the offshore China. Oil and gas exploration started in these basins from early 1960th, and intensive exploration activities have been conducted since early 1980th. Up to now, more than 700 exploratory wells have been drilled and a series of oil and gas fields have been found. Annual production grows quickly.

Hydrocarbon occurrences are not evenly distributed in those ten offshore basins. Oil is mainly found in the Zhu I depression of the Pearl River Mouth Basin (PRMB) and Weizhou depression of Beibu Gulf Basin in the South China Sea (SCS), and offshore Bohai in Bohai Bay Basin. Gas discoveries are dominated in Yingehai basin, Qiongdongnan basin, Zhu II depression of PRMB in SCS, and Xihu Trough in the East China Sea Basin (ECS). Data analysis indicates that source rocks are mainly of lacustrine deposits. Eocene shale generates predominantly oil, and the Oligocene shale generates predominantly gas. Reservoir is mostly developed at Miocene in which marine environment was dominated. This combination provided a good petroleum system for the offshore basins.

The author believes that great potential still exist in the offshore basins particularly in Bohai Bay basin, PRMB, Ying-Qiong basins and ECS. Deep-water deposition in the northern margin of SCS and pre-Tertiary play concepts are regarded as important frontier areas.