

Unconventional Petroleum Geology and Resources in China

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The China National Petroleum Assessment (2003-2007) evaluated coalbed methane, oil shale and oil sands resources in Chinese onshore basins. In the geohistory, fourteen-staged coal accumulations (including early Carboniferous, late Carboniferous, and early Permian) formed a large number of coal-bearing basins. In the 42 evaluated basins, coalbed methane resources in place are 37 trillion cubic meters, and recoverable resources are 11 trillion cubic meters. Coalbed methane resources are mainly distributed in the eleven big basins (including the Ordos, Qinshui, and Erlian basin), recoverable resources of which account for 58% of the countrywide resources. Discovered oil shale deposits in China are mainly of lacustrine origins. The oil shale accumulation models were established in deep-water of depressions, shallow-water of rifts, swamps of rifts, and lagoons. Recoverable resources of oil shale are 243.2 billion tons, and recoverable resources of shale oil are 12 billion tons in the 25 evaluated basins. The nine basins (including the Songliao, Ordos, and Lunpola basin) contain more than 100 million tons of recoverable shale oil resources. Several large-scaled tectonic movements formed multiple-phased hydrocarbon generation, accumulation, and reservoir formation, alteration and destruction, which made oil sands distributed in the edges of many basins. In the 24 assessed basins, oil resources in place of oil sand are 6 billion tons, and oil recoverable resources of oil sand are 2.3 billion tons. The seven basins (including the Jungar, Tarim, and Qiangtang Basin), oil in oil sands recoverable resources of which are more than 100 million tons, attain 87.6% of the nationwide resources.