Paper 2

Estimates of offshore hydrocarbon resource potential in Tertiary Sedimentary Basins and areas along the western rim of the Pacific Basin

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Estimates of undiscovered recoverable petroleum resources were made in 1991 for some of the major offshore Tertiary sedimentary basins and areas bordering the western rim of the Pacific Basin. Included are basins within the territorial waters of South Korea, China, Vietnam, Cambodia, Thailand, Malaysia and Brunei.

With the exception of adjoining onshore basins of China and possibly Indo-China, most Tertiary basins in the study area with sufficient size, depth, and sediment volume favorable for the generation and accumulation of hydrocarbons , are located in offshore areas. Several offshore basins also extend partly onshore, including the southern Yellow Sea sub-basin and East China Sea basin of China, the Red River (Song Hong) and Mekong (Vung Tau) basins of Vietnam, the northern Thai Chao–Phraya rift extension of the Gulf of Thailand basins, and the Sarawak and Tarakan basins in Eastern Malaysia and Brunei.

Locally, problems exist with the plurality of basin nomenclature. In addition, many of the major basins are subdivided into distinct geologic sub-basins or provinces on the basis of unique geological features. Numerous exploration prospects are present. The plays consist of individual or combination stratigraphic and structural traps. The structural plays are formed by fault-bounded horsts, grabens, and half-grabens and by gently folded to highly faulted anticlines. Other plays include prospects associated with synsedimentary growth-fault and rollover features, structurally controlled deep-marine turbidites, carbonate platforms, pinnacle reef complexes, and fractured-basement reservoirs.

Estimates of undiscovered resources have been made for all individual, identifiable, geologically unique basins, sub-basins or provinces with significant hydrocarbon exploration potential. The resource estimates were made from published data, using a quasi-quantitative volumetric play analysis method based on area, trap size, degree and success of exploration, play types, effective pay thickness, lithology, recovery factors, reservoir characteristics, seals, source rocks, maturation, migration, and known reserves.

Excluding natural gas liquids, the totals, within each major Tertiary basin, for aggregated estimates of undiscovered recoverable hydrocarbons in all geologically unique sub-basins or provinces, are presented.

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