ALBANIA AND WESTERN GREECE PETROLEUM PROSPECTIVITY

The presence of oil and gas seeps along the eastern and south-eastern edge of the Peri-Adriatic Depression attracted the interest of exploration oil companies immediately after the First World War. The trend of oil seeps is oriented NW-SSE and it extends from Albania to Greece. The previous exploration records have led to a progressive enrichment of the geological knowledge with promising indications of hydrocarbons potentials in these countries. The recent opening of the bid rounds in this sector of the Central Mediterranean has encouraged oil companies to investigate sectors still underexplored. The seismic and well data collected in the last decades have revealed a good geological setting for hydrocarbon generation and trapping.

In Albania the oil and gas fields occur in both Mesozoic to Paleogene carbonate and Tertiary clastic reservoirs of the Dinarides fold belt. The main source rocks for the HC accumulation are located in the Jurassic to Lower Cretaceous basin facies deposited in the Ionian Basin and in the Triassic shallow water facies also present and prolific in Northern Italy and in Sicily oil discoveries.

The Adriatic-Ionian Basin comes ashore in Albania where it is known as the Ionian Zone. Near the coast this is overlain by the post-tectonic ‘Peri-Adriatic Depression’, formed of Miocene to Recent molasse. The Ionian Zone crops out in southern Albania, where seven oil fields were discovered in the carbonates, demonstrating that basinal carbonates can be effectively charged with commercial volumes of oil. Several discoveries have been reported in the exploration history of Albania. Early drilling in the area of the oil seeps resulted in the discovery of three fields at Drashivica (1918), Patos (1927), and Kucova (1928) in the molasse clastic deposits of the Peri-Adriatic Depression. Patos resulted in the development of the Patos-Marinza oilfield in 1957 with the estimation of 5.7 billion barrels of oil in place and possible recoverable reserves in the order of 2 billion barrels. Discoveries were made also in Cretaceous and Eocene carbonates at Gorisht-Koči (1965), Balish-Hekal (1966) and Visoka (1963).

These fields produced at depths ranging from 1000-3000 metres and contained oil with API's of 5-24 degrees. Carbonate discoveries are related to the small Finiq-Krane discovery in 1973 but also the more important Cakran-Mollaj oil and condensate discovery in 1977. In total, 583 exploration wells have been drilled in onshore Albania since 1918 including 7 wells drilled by foreign companies during the period after 1992 (this has only resulted in the small non-commercial discovery of Shpiragu in 2001 of 37 degree API oil).

Offshore exploration began in 1970 and a total of 18680 km were acquired by Alpetrol during the period 1970 to 1993. However no offshore wells were drilled by Alpetrol due to lack of western funds to finance offshore rigs. However in 1992, with the award of PSA's to foreign companies, new seismic (11124 km of 2D and 400 km2 3D) resulted in 7 wells being drilled during the period 1992-2006; this resulted in 5 dry holes but gas and condensate were discovered at the Ad-4 well in Messinian clastics during 1994 (condensate was 54 degrees API). Potential reserves for this undeveloped offshore discovery are 150 Bcf.

In Western Greece the Katakolon oil discovery (1981) located in Upper Cretaceous to Paleocene/Eocene carbonate reservoirs of the Ionian Zone is sealed by Pli-Quaternary shale. North-west Greece offers folded and well-sealed anticlines. Similarities are seen in the Albanian Delvine gas condensate discovery in Cretaceous-Paleogene carbonate reservoirs, which are trapped in Oligocene Flysch sealed fold-belt anticlinal structures.

This report provides a review of the main hydrocarbon potentials in the Albania and Western Greece areas through the analysis of the basin evolution, source rock characteristics and distribution, main plays definitions, petroleum systems characterisation and paleogeography domain extension.

The study has been conducted by GEPlan Consulting s.r.l. based in Ferrara, Italy, who is acknowledged as one of the foremost experts in Petroleum Exploration in the Mediterranean area. The company operates several permits on behalf of clients in both onshore and offshore Italy, has also prepared speculative and proprietary reports on the Bradano Basins, Adriatic Basin, Sicily and Malta Channels basin, Southern Apennines Thrust Belt and is currently preparing other regional reports in the Mediterranean area.
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