

TECTONICS OF OIL AND GAS POTENTIAL OF THE GREATER CASPIAN REGION

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Summary of the platform tectonics theory-based geological and geophysical survey, including the latest in the Kazakh Caspian Sea Sector, allowed to develop a new map of the tectonic zonation, identify major stages and milestones of the earth crust development and determine the hydrocarbon kitchens and oil and gas accumulation zones within the vast territory, stretching from the southern, Iranian Caspian Sea coast to the northern coastal areas of the Precaspian lowlands, called the Greater Caspian by us. Three micro-platforms have been identified so far:

- South Caspian with the ocean type crust and significant subsidence in the Cenozoic;
- Middle Caspian with a portion of the Riphean basement overhanging the Karabogaz Arch and developed in the passive continental margin of the Meso-Tethys mode, from Mesozoic to Cenozoic, starting from Triassic;
- North Caspian (Pre-Caspian) of the Riphean age with the basement subsided 10-12 km and overlapped by the Paleozoic, Mesocenozoic formations of great thickness.

Joining of the South Caspian and Middle Caspian Platforms occurred via the Apsheron-Pre-Balkhash uplifted zone, known in the literature as the Apsheron Sill. Bozashi Late Paleozoic and Mangyshlak Permo-Triassic dislocation system is seen as a narrow band between the Middle Caspian and Pre-Caspian Platforms. They interface with the Pre-Caspian Platform through the overthrust zones.

Paleozoic (pre-salt) is the major petroleum kitchen and petroleum enclosing complex in the North Caspian Basin. Such carbonate massifs as Tengiz, Karachaganak and Astrakhan accumulate more than 90% of the explored oil, condensate and gas reserves. Similar carbonate massifs have been identified in the Caspian Sea area as well, allowing to significantly increase the petroleum business prospects for the next decades.

The major petroleum kitchen and petroleum enclosing sediments of the Middle Caspian oil and gas bearing basin include Middle and Upper Triassic, Middle and Upper Jurassic and Aptian-Albian. The identified kitchens are tied up to the Segendik Depression and Kazakh Bay Depression and their western trends. The major optional petroleum accumulation prospects include Peschannomysky-Rakushechnoye High, Southern Dagestan High and western slope of the Karabogaz Arch.

The petroleum potential of the South Caspian Basin covering the near-shore oil and gas bearing areas of Azerbaijan and Turkmenistan, is widely known.

Rejuvenation of the major petroleum complexes, from Paleozoic in the north to Neogenic in the south, is observed. It is determined by the peculiarities of the tectonic development of the basins resulting in various field development conditions and various reservoirs and accumulations, which is important for the exploration practice.