Resilience to the Energy Crisis by Estimating of Hydrocarbon Prospections in the Southern Region of the Republic of Moldova

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Abstract

This paper provides a brief characterization of the hydrocarbon prospects in the southern part of the Republic of Moldova. As a result of geological mapping at a scale of 1:200,000 and special mapping at a scale of 1:500,000, carried out in the early 1950s of the 20th century, insignificant manifestations of oil and natural gas were recorded in the Silurian, Devonian-Carboniferous, Permian-Triassic, Jurassic and Neogene sedimentary formations. Taking as a premise the numerous manifestations and deposits of hydrocarbons discovered in the Sarmatian formations spread in Romania (Adjud, Matca, Frumușița, etc.), on the territory of the Republic of Moldova, in the immediate vicinity of the gas-oil zone of Northern Dobrogea, in the lower course of the Prut River, in the varieties of organogenic-detrital limestones, an oil deposit was discovered near the locality of Văleni, Cahul County (a. 1957) and two non-industrial natural gas deposits in Victorovca and Enichioi, Cantemir County (a. 1959). Hydrocarbon accumulations in the south of the Republic of Moldova are currently being exploited, with insignificant production. Hydrocarbon deposits have a local distribution and present dome-shaped layers. Methane predominates in the composition of natural gas (the concentration of heavy hydrocarbons does not exceed 1.5%, and nitrogen constitutes approximately 4%; oil is represented by the high-density fraction (0.942 g/cm3) and is distinguished by a relatively high viscosity. The discovery of these deposits and the results of hydrocarbon prospecting allowed the development of hydrocarbon prospecting works in the southern part of the Republic of Moldova using geophysical methods (seismometry, gravimetry) and the drilling of an impressive number of structural-parametric wells, with emphasis on the structures and formations within the Dobragean foreland. Numerous manifestations of natural gas and oil have been discovered in the strata Permian-Triassic spread within the boundaries of the Aluat, Manta, Andruşica and Baimaclia sectors. In the Devonian strata, they were discovered within the Baur5ci and Aluatu sectors. Thus, in the fissured dolomites, limestones and anhydrites at depths of 2200-3000 m, several oil-saturated levels were discovered. In the Silurian formations crossed by the reference drilling "Vișnevca" bituminous limestones were discovered, and in some cores extracted from the well - capillary oil.