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Methane of the Donbas: A Future of Ukraine's Energy Sector

To the date 197 gas and gas condensate fields with proved reserves about 1,5 billion cubic meters of gas have been discovered in Ukraine, however, annual gas production does not meet the national demand, so Ukraine is forced to import it.

In the meantime, the Donets coal basin (Donbas), NE Ukraine, preserves a huge gas potential for commercial production of methane from its coalfields owing to high gas content that varies from 15 up to 30 m³ per 1 ton of the produced coal. As a rule, the gas in coal seams is preserved in an occluded state. At contrary, in the sandstones of the coal-bearing sequence, up to 95 % of methane and other gases are in a free form and can be easily extracted. The structural traps like anticlinal closures of folds, seam bends (flexures), and zones of intense fracturing, etc. are the most promising for methane exploration. The most favorable zones for high methane concentration are those mining districts where coalification has reached ranks of gas, fat and coking coals. For example, the Zasyadko mine releases more than 170 thousand m³ methane a day, but its utilization is only partway realized. The methane resources in the Donbas is estimated as 1,5 trillion m³ of methane in coals, plus about 10 trillion m³ of methane in host rocks (sandstones and others).

Producing 80 million tons annually the Donbas outgases up to 1,5 billion m³ of methane, which is known as an agent that could contribute to the greenhouse effect. Unfortunately, only 10 % of this methane will be utilized according to the recent programs. The further development of the methane resources in Donbas is a top priority task for the Ukraine's energy sector.