

# BULLETIN

No. 29 (362) • March 19, 2012 • © PISM

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## Prospects for Shale Gas Exploration and Production in Ukraine

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*Ukraine is laying the groundwork for the development of unconventional hydrocarbon extraction, most notably shale gas. By doing so, it is attempting to lower the degree of its dependence on natural gas imports from Russia. Recent changes in Ukrainian legislation have solidified the interest of international oil and gas companies in the exploration for shale gas, but they will be insufficient to ensure the profitability of actual production. The further liberalization of the Ukrainian gas market is essential. The possible rise of the shale gas industry in Ukraine would benefit Poland's plans in this sphere and the prospect for greater activity by drilling companies in the region may boost the standing of Central and Eastern Europe as an investment destination.*

On 23 February, the Ukrainian National Service of Geology and Mineral Resources announced a tender for the exploration and exploitation of hydrocarbons (oil, natural gas and their condensates) in two areas—Oleska in western Ukraine (which is part of the so-called “Lublin Basin”) and Yuzivska in the eastern part of the country. The development of shale gas deposits will be a priority. In April 2011, the U.S. Department of Energy estimated that Ukraine could possess between 1.2 trillion and 2.5 trillion cubic metres of shale gas.

**Background.** The situation in the Ukrainian gas market is marked by high domestic demand for gas and a significant degree of dependence on imports from Russia. Ukraine is one of the largest natural gas consumers in Europe (in 2011, ca. 59 bcm there compared to ca. 14 bcm in Poland). Domestic production in 2011 met about one-third of Ukraine's demand, while the rest was covered by gas supplies from Russia. At the same time, Ukraine is the largest consumer of Russian gas (ca. 17% of exports) and a key transit country to the EU market (ca. 80%). These facts mean the country is significant to Russia's foreign energy policy and reflect the actual interdependence of both countries in the gas sector.

The high price of gas imported from Russia and its indexation to oil are the main reasons behind Ukraine's efforts to reduce energy consumption, diversify its gas supplies and look for opportunities to increase domestic production. The government's decision to include shale gas on the list of strategic minerals in July 2011 could be seen as the official beginning of Ukraine's efforts to develop the production of shale gas because it created a legal basis for holding tenders for exploration and production rights.

**Tender Specifications and the Interest of Potential Investors.** The tender specifications require winning bidders on the Oleska area to invest at least \$160 million during the exploration stage and \$3.1 billion if the decision to start production is made (accordingly, \$200 million and \$3.7 billion in the Yuzivska area).

The development of shale deposits will be carried out on the basis of production-sharing agreements (PSA), an innovative mechanism for the Ukrainian mining industry. Using such a legal formula allowed Ukraine to meet the conditions necessary to ensure efficiency in exploration and profitability of production in shale gas, namely in large areas of operation (larger than in the case of conventional gas deposits). In addition, the so-called stability clause, which is aimed at protecting investors' interests in case there are adverse changes in legislation, was reinstated and the winning bidders will be allowed to operate in the area for 50 years. When coupled with a favourable model for compensation of investors' expenses (based on the right to obtain up to 70% of future production),

these decisions indicate that the Ukrainian authorities intend to involve the leading oil and gas companies in developing the country's domestic shale gas sector. The winning bidders will be obligated to enter into a partnership with a Ukrainian mining company, which would have at least partial state ownership.

So far, Shell, ExxonMobil, Chevron, Eni, and TNK-BP have expressed interest in shale gas exploration in Ukraine and have signed memoranda with either the Ukrainian government or Ukrainian mining companies laying out conditions for future investments. These memoranda also stipulate the preparation of plans for the development of future mining areas and assessments of the logistics base and possible needs for investment in local infrastructure. From the Western companies' perspective, this initial phase offers an opportunity to assess the administrative efficiency of the Ukrainian authorities and their impact on general conditions for economic activity (in 2011, Ukraine was Europe's most corrupt country, according to Transparency International).

**Conclusions.** Ukraine is far from developing shale gas production on a commercial scale. The Ukrainian authorities intend to reach an annual production level in the range of 8-10 bcm of gas. When coupled with an increase in production from other types of deposits, shale gas could provide as much as 25% of the annual domestic extraction of natural gas. Before reaching the envisaged level of production, though, Ukrainian shale plays will undergo examinations of their overall potential (the PSA's allow for a 5-year period of exploratory activities), economic viability and the possible rate of return to the drilling companies. Ensuring freedom of access to the transmission network and natural gas storage, as well as doing away with the subsidization of natural gas for individual users and residential services (together amounting for 50% of the annual natural gas consumption) will be crucial in this context. Resolving these issues will depend on the future course of Ukrainian–Russian relations in the gas sector<sup>1</sup> as well as on the implementation of obligations originating from Ukraine's membership in the Energy Community. On the one hand, the liberalization of the Ukrainian natural gas market is an important precondition for the success of the shale gas industry. On the other hand, the prospect for an increase in domestic drilling could create an incentive for reforming the energy sector.

In the short term, shale gas is likely to attract increased public attention. So far, it has been largely absent from the public debate. Even before shale gas exploration begins in earnest, it will be necessary to launch an information campaign aimed at Ukrainian society and meant to present a balance sheet associated with the expansion of the shale gas industry. It should have as a priority a focus on soothing concerns about risks to the environment (protection of water resources and air quality) and on avoiding decisions that could adversely affect the pace of the development of the industry, which would be the outcome of introducing limitations on the application of technology used for the exploration and production of shale gas even before commercial extraction has been launched. Bulgaria is a case in point. In January, the Bulgarian authorities introduced a ban on hydraulic fracturing despite their initial support for shale gas and considerable public support (75%) for tapping unconventional deposits. A limited, but well-organized campaign directed against shale gas proved decisive. It seems that Ukraine is intent on avoiding such a scenario. The newly created Geological Research and Production Center in Poltava will coordinate the studies of Ukrainian shale gas reserves and monitor the safety of local water reservoirs as exploration progresses.

Poland should consider an intensification of cooperation with Ukraine on the geology of deposits, thus creating a comprehensive estimate of the potential of the Lublin Basin and enhancing its attractiveness as an investment destination, as well as exchange information about the practical aspects of shale gas exploration and production, especially the environmental impacts. Sharing data from the initial Polish exploratory wells could serve this purpose. In the longer term, if the shale gas industry were to develop on both sides of the Polish–Ukrainian border and yield considerable volumes of production on a sub-regional level, it would be possible for both countries to exploit economies of scale, lower the marginal costs of drilling activities and increase Poland and Ukraine's competitiveness as natural gas producers.

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<sup>1</sup> I. Lyubashenko, "Ukrainian–Russian Gas Negotiations: Consequences for the European Union", *PISM Bulletin*, no. 23 (356), 5 March 2012.