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## **Extraction of Natural Shale Gas in Ukraine: Opportunity or Utopia**

Ukrainian economy depends on Russian energy resources to 80%. Ukraine imports 37 billion cubic meters of natural gas out of 57 needed, 7 billion tons of oil from 10 billion required etc. The prices have increased since the Yulia Timoshenko and Vladimir Putin's contract in 2009 (from \$80 to \$450 per 1000 m<sup>3</sup> of natural gas). Despite the fact that Russia made a discount on gas in December 2013, prices on this important kind of fuel still remains to be very harmful for a weak economy, as Ukrainian main industries such as chemical, metallurgical, heavy engineering etc require great amount of natural gas. It is clearly seen that Russia plays a reasonable role in Ukrainian economy. To become independent from Russian Federation Ukraine must find alternatives. And our country has already done it.

American energy companies found out that Ukraine is rich in shale gas resources. There are a lot of unexplored areas, but estimated results showed that it has from 1.7 trillion m<sup>3</sup> to 22 trillion m<sup>3</sup> of shale gas. And by establishing its own natural gas production Ukraine may become a really independent country.

Extraction of shale gas from solid rock requires extensive knowledge. The process which allows extracting it could be divided into 3 main parts, these are: drilling vertical wells; drilling shale formations horizontally and extracting natural gas by the process called hydraulic fracturing.

Hydraulic fracturing means an average mixture of 4000 tons of water, 200 tons of sand and approximately 2% of chemicals is pumped into the well under extremely high pressure reaching shale stratum. After pumping the mixture, the rock-breaking process begins with emission of natural gas.

But the desire to produce shale gas was resisted by environmental organizations who said that it is very harmful for our environment, as it contaminates ground waters with chemicals. As Ukraine is densely populated, a lot of damage will be done to wild habitats and people who live nearby the area of extraction.

To sum up, Ukraine faces a rather interesting choice: to become pioneers in exploring, learning and extracting shale gas, to make a significant contribution to the world science and to our economy or continue to stay behind of the rest developed world. Finally, to become a truly independent and powerful state or to remain subservient territory to whether it is Western or Eastern purposes. Shale gas industry will support Ukrainian economy with all outstanding facts, such as: growth of gross domestic product, growth of salaries, pensions etc. This industry requires great amount of scientific work and explorations and as a result will create new jobs. In conclusion, Ukraine will turn from a net importer of natural gas to a net exporter. So, the extraction of shale gas in Ukraine equals its independence.