

## COUNTRY REPORT: UKRAINE

### Shale Gas Development in Ukraine: Risks and Current Regulation

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#### Introduction

Ukraine is widely believed to have Europe's largest reserves of new energy resources. During 2011, Ukraine agreed to cooperate with 21 companies to produce hydrocarbons, particularly shale gas and coal bed methane. The Ukrainian Government is very interested in shale gas exploration, but experts believe that political and legal risks remain the main impediment to gas investments in Ukraine. The main arguments in favour of developing the shale gas industry are:

- the gas industry has a competitive advantage as an alternative energy resource, though its future might be uncertain. Ukraine wants to be an independent player in the gas resources market and not to be dependent on Russia.
- The involvement of foreign companies will enable the exploitation of domestic reserves of gas by the Ukraine, and this is gradually becoming a state strategy.
- Ukraine expects to start production of shale gas in 2017. Government officials refute arguments about environmental threats and expect this resource to meet all the energy needs of the State.

In considering the viability and attractiveness of this energy resource it is useful to take into account the experience of countries that have succeeded in shale gas production: USA, Canada, and neighboring countries in Europe (including Poland). In Western Europe (in the oil and gas fields in Germany, the Netherlands, Great Britain and Norway (North Sea)) various methods (including 'hydraulic fracturing' or 'fracking') have been used to increase the production rate of wells by 3-10 times.

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In the USSR, hydraulic fracturing has been undertaken since 1952 in fields in the Volga-Ural Region, North Caucasus, Azerbaijan, Turkmenistan and Ukraine. However, there are demonstrated risks with the use of such methods to increase gas yields.

Population health and environmental safety should be taken into account as key social values. The region identified for gas production has large recreational areas, national reserves, mountain forests, high population density and insufficient water supply. The critical need is to solve the major global problem of natural resources development: achieving the right balance between economic benefit and social and environmental values.

According to an expert report commissioned by the British Government in June 2012: "hydraulic fracturing - a controversial method of extracting shale gas - is safe, with careful compliance with the safety measures and proper management of the process".<sup>3</sup> However some European countries (including France, Switzerland, Czech Republic and Bulgaria) have banned shale gas development in their territories because of perceived risks. In Romania, a moratorium on exploration work on shale gas has been imposed. Opponents of fracking claim that hydraulic fracturing pollutes groundwater and can lead to earthquakes. The U.S. Geological Survey has, for example, partly linked the increase in the number of earthquakes in the central United States to the fracking and oil industries operating in the area.

Several issues should influence the future of the hydraulic fracturing industry in the Ukraine.

- *The EU Regulatory Framework* - The current EU regulatory framework for hydraulic fracturing has a number of gaps. Importantly, the threshold for Environmental Impact Assessments to be carried out on hydraulic fracturing activities in hydrocarbon extraction is set far above any potential industrial activities of this kind, and thus should be lowered substantially.
- *Life Cycle Analysis* - In the framework of a Life Cycle Analysis (LCA), a thorough cost/benefit analysis could be used to assess the overall benefits for society and its citizens. A harmonized approach to be applied throughout EU27 should be developed, based on which responsible authorities can perform their LCA assessments and discuss them with the public.

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<sup>3</sup> See further: <http://www.guardian.co.uk/environment/2012/jun/29/shale-gas-fracking-expanded-regulated>.

- *Nature of Chemicals Used in the Process* - It should be assessed whether the use of toxic chemicals for injection should be banned in general. At least, all chemicals to be used should be disclosed publicly, the number of allowed chemicals should be restricted and its use should be monitored. Statistics about the injected quantities and number of projects should be collected at the European level.
- *Nature and Capacity of Regulatory Authorities* - Regional authorities should be strengthened to take decisions on the permission of projects which involve hydraulic fracturing. Public participation and LCA should be mandatory in these decision-making processes. Hydraulic fracturing always goes hand in hand with the use of heavy machinery and hazardous chemicals. Citizens have to be protected as well as the workers operating these materials and machinery on a daily basis.<sup>4</sup> The General Manager of Chevron, Derek Mehnes, during a meeting with Ukrainian Prime Minister Mykola Azarov assured that the work will be conducted "quickly, safely and with care for the environment". But, according to the former Minister of Environment Sergei Kurykin, the potential risk of chemical contamination of surrounding areas and damage due to seismic activity in the shale gas is even present when all contemporary technologies have been utilised.

### **Current State of the Hydraulic Fracturing Production Process in the Ukraine**

In May 2012, the Cabinet announced the winners of the tender process to extract shale gas in the Olesky and Yuzovskyi areas. These were Chevron and Shell respectively. The Production Sharing Agreements (PSAs) concluded between the Government and these companies are expected to be finalised within 120 days of this announcement. This time frame has been extended to 160 days. Previously, the Cabinet has approved tenders and concluded PSAs in respect of Yuzovskyi (in the Donetsk and Kharkiv Region) and Olesky (in the Lviv Region) to extract hydrocarbon reserves of shale gas. After signing the PSAs, the extraction companies are granted a special permit to use the subsoil for geological research for 50 years (which can be extended). It is also anticipated that by the end of 2012, tenders will also be granted to undertake fracking in Slobozhansky (Kharkiv region), Scythian and Foros (both of which are situated in the deep shelf of the Black Sea). Public opinion about the environmental risks associated with these activities was not taken into account in this case.

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<sup>4</sup> Directorate for Internal Policy, Economic and Scientific Policy: *Impacts of Shale Gas and Shale Oil Extraction on the Environment and on Human Health* (2011) European Parliament, Brussels (available at [http://www.europarl.europa.eu/meetdocs/2009\\_2014/documents/envi/dv/shale\\_gas\\_pe464\\_425\\_final\\_/shale\\_gas\\_pe464\\_425\\_final\\_en.pdf](http://www.europarl.europa.eu/meetdocs/2009_2014/documents/envi/dv/shale_gas_pe464_425_final_/shale_gas_pe464_425_final_en.pdf)).

The main problems that make the implementation of the *Aarhus Convention* in Ukrainian environmental legislation difficult in the context of these fracking activities are: the lack of accurate, reliable and complete information; the lack of provision of appropriate information by Central Government when dealing with local authorities, citizens and NGOs; the lack of transparency in individual companies' fracking applications; the lack of experience of government officials when dealing with these applications; the prevalence of highly corrupt authorities; and a complex legal, tax and environmental environment.

Before celebrating its illusory energy independence, the Ukrainian Government should consider the following key issues raised during the public consultation process undertaken in in Ivano-Frankivsk in late 2011:

- Do the existing laws adequately address the new technology being used for shale gas development?
- Are the existing laws adequately enforced?
- Are there conflicting provisions that make it difficult for industry to comply with the regulations?
- Is there a clear distinction between national and local regulatory authority?
- What role will international agreements such as the *Aarhus Convention* and the *Kyoto Protocol* play in shale gas development?
- Are the production sharing laws adequate to create enough transparency and predictability to promote investment?
- Where are the proceeds sent? Does a percentage go to local governments in the impacted areas - to help pay for infrastructure like water supplies and roads?
- Is there adequate baseline information of air and water quality and monitoring and enforcement to ensure air and water quality are not compromised?
- How should water used in the hydraulic fracturing process be disposed of?
- Will the government regulatory agency require best management practices such as:
  - Closed loop systems – without need to use open waste pits;
  - Use of non-toxic chemicals in hydraulic fracturing;
  - Green completions to avoid venting or flaring of gas; and
  - Multi-well well pads, to reduce the need for wells on the surface.
- What areas must be off-limits to shale gas development due to ecological or water quality concerns?
- Are there enough trained oil and gas workers and inspectors to ensure that the laws and best management practices are being used?

Perhaps, Ukrainian legislation will give us the answers?

### **Relevant Ukrainian Legislation**

In Ukraine, shale gas development is regulated by the following main laws and policies:

- *Mineral Resource Code of Ukraine* (27/7/1994 № 132/94-BP)
- *Law of Ukraine on Oil and Gas* (12/7/2001 № 2665-III)
- *Law on Production Sharing Agreements* (14/09/1999)
- *General State Program of Mineral Raw Material Development till 2030*.
- *List of Mineral Resources of State Importance* (12/12/1994 (amended on 12/28/2011)), that lists shale gas as a mineral resources of the state importance.

The existing laws and policies do not adequately address the new technology being used for shale gas development. The *Law on Production Sharing Agreements* does not create enough transparency and predictability to promote investment. Generally, development of unconventional gas in Ukraine is very slow in both theory and practice both.

The *Existing General State Program of Mineral Raw Material Development till 2030* and *Law on Production Sharing Agreements* do not give the whole picture. Local governments do not have authority to influence the terms or language contained in the production sharing agreements. The Ukrainian Cabinet should develop a National Program of Shale Gas Development which places areas subject to shale gas development under strict state control and which also provides financial and technical assistance to local authorities in whose territories fracking activities are authorised. Strict measures need to be put in place to monitor the environmental impacts of the fracking activities and the respective powers of national and local authorities over these activities need to be strictly delineated. Any approvals should also be preceded by environmental impact assessment studies clearly evaluating the potential threats hydraulic fracturing activities pose to fresh water supplies, soil and air quality.

### **Conclusion**

The Law Institute of Prekarpaty National University after Vasyl Stefanyk, in collaboration with the Colorado University (USA), have been working on this issue for last six months at

the request of Ukrainian Government and UNEP. Our part of the Report developed under this project focused on basic problems of local self-government participation in the shale gas development and legal regulation. In summary, Ukraine should expand legal opportunities for promoting the participation of local governments in the process of approving fracking activities within their territory and creating specific legal guarantees to protect their constituencies from the possible environmental, economic and social impacts associated with them.