



INFORMATION ABOUT THE AUTHOR

Tsyatkovskaya Albina Nikolayevna –
Postgraduate Student at the Department
of Constitutional and Municipal Law
of Law Institute of Vadym Hetman Kyiv
National Economic University

ИНФОРМАЦИЯ ОБ АВТОРЕ

Цятковская Альбина Николаевна –
аспирантка кафедры конституционного
и муниципального права Юридического
института Государственного высшего
учебного заведения «Киевский националь-
ный экономический университет
имени Вадима Гетьмана»

talbusik@gmail.com

UDC 662.67: 622.2

THEORETICAL AND PRACTICAL PROBLEMS OF SHALE GAS PRODUCTION IN UKRAINE

Viktoriia SHULIKA,

1st year Student Magister Degree of the Law Faculty
of Taras Shevchenko National University of Kyiv

SUMMARY

The article is devoted to research and isolation of problematic aspects of legal regulation of shale gas production in Ukraine. The article provides a comprehensive analysis of national legislation governing the development and operation of shale gas fields, the possibility of attracting foreign investors for gas production activities. The article reveals the problems of shale gas production in the territory of Ukraine, which is located in temporarily uncontrolled territories of Ukraine (Donbass) and prospects of shale gas production in the Western regions. The author outlines ways to improve Ukrainian legislation, which will have a positive impact on the prospects of alternative gas production in Ukraine. The article highlights various approaches to determine the safety of the methods of production of shale gas and their impact on the environment. The article analyzes the US experience in managing the environmental problems of shale gas production as a world leader in shale gas production.

Key words: shale gas, fracking, ecology, environmental protection, Ukrainian legislation, US experience, alternative gas production.

ТЕОРЕТИЧЕСКИЕ И ПРАКТИЧЕСКИЕ ПРОБЛЕМЫ ДОБЫЧИ СЛАНЦЕВОГО ГАЗА В УКРАИНЕ

Виктория ШУЛИКА,

студентка первого курса магистратуры юридического факультета
Киевского национального университета имени Тараса Шевченко

АННОТАЦИЯ

Статья посвящена исследованию и выявлению проблемных аспектов правового регулирования добычи сланцевого газа в Украине. В статье представлен комплексный анализ национального законодательства, регулирующего разработку и эксплуатацию месторождений сланцевого газа, возможность привлечения иностранных инвесторов для добычи газа. В статье раскрываются проблемы добычи сланцевого газа на территории Украины, которая находится на временно неконтролируемых территориях Украины (Донбасс), и перспективы добычи сланцевого газа в западных регионах. В статье автор выделит пути совершенствования украинского законодательства, что окажет положительное влияние на перспективы добычи альтернативного газа в Украине. В статье выделены разные подходы относительно определения безопасности добычи сланцевого газа и его влияния на окружающую среду. Рассмотрено законодательное закрепление добычи нетрадиционных углеводородов в Украине и США – ведущего специалиста в этой сфере.

Ключевые слова сланцевый газ, фрекинг, экология, охрана окружающей среды, украинское законодательство, опыт США, добыча альтернативного газа.

Introductoin. In accordance with the principles of the Stockholm Declaration adopted in 1972, nature conservation must be given the highest priority in economic development planning. Increasing energy independence in Ukraine is now a top priority. Under this slogan, experts contribute to the development of shale gas fields. However, around shale gas extraction technology, which may be related to environmental damage, mainly

due to the imperfection of existing legislation and the lack of legal framework in terms of ensuring environmental safety, preventing and eliminating the negative impact of the production of unconventional hydrocarbons on the environment, the biggest discussions are underway.

Literary Review. Despite the relatively new direction of shale gas production in Ukraine, today there is already a certain range of research, anal-



ysis and conclusions of both domestic and foreign research institutes, as well as experts and scientists, in particular: R. Sachsenhofer, S. Lehtenbomer, M. Altman, S. Kapito, Nick Greely, and others. However, the problems of legal regulation of the investigated issue have not been found by any of the authors to date.

The relevance of the article is confirmed by the issue that has been very pressing for the last few years is the production of unconventional hydrocarbons, in particular, shale gas in Ukraine, which is considered one of the largest in Europe by the owners of such fields. Environmentalists fear that shale gas production in Ukraine will cause significant environmental damage. Because mining uses the environmentally friendly method of horizontal fracturing (fracking), when using large volumes of water with a chemical solution. The fracturing itself, according to experts, is environmentally friendly, but there is a question of the tightness of the wells, where there is a risk of contamination, because according to principle 6 of the Stockholm Declaration on Environmental Issues 1972 the introduction of toxic substances or other substances in such quantities concentrations that exceed the ability of the environment to neutralize them must be stopped so as not to cause serious or irreparable damage to ecosystems [1]. The Ukrainian government is very interested in shale gas exploration, but the imperfection of national legislation in this area poses great legal and political risks for potential investors.

The purpose of the article is to analyze the domestic legislation of Ukraine on the regulation of shale gas production, in order to form the basis to identify the main problems of such legal regulation and to outline the theoretical and practical ways to solve them. We also want to find main directions of elaboration of Ukrainian legislation on alternative gas production to improve the investment climate in the industry.

Code material presentation. Mudstone gas, or as it is commonly called "shale gas", is a type of unconventional natural gas that lies in shale deposits deep underground. It is called "unconventional" because of the peculiarities of mining using fracking technology or horizontal hydraulic fracturing. The well is filled with sand and chemicals that make the shale softer and open the gas

compartment that is extracted. It is about the content of chemicals in the water used for hydraulic fracturing and their subsequent release that is already possible on the surface and the most heated discussions are underway. So far no one can unambiguously assess the effects of shale gas production on the environment [2]. A major concern for environmentalists and governments in countries that have not yet made the final decision to switch to unconventional gas production is pollution by the waste fracking water containing a number of toxic chemicals and high levels of radioactivity. The Assembly of Members of the International Union for the Conservation of Nature approved 186 resolutions on important environmental issues. According to resolution № 118, the International Union for the Conservation of Nature condemned the exploration and production of unconventional gases, including shale gas, and called on states to ban the extraction of unconventional gas by hydraulic fracturing in the vicinity of drinking water and in water scarce areas.

According to the legislation of Ukraine, geological study of oil and gas resources - a complex of works (geological survey, geophysical, geochemical, aerocosmological research, direct exploration, drilling and testing of wells, research and development, research and thematic work, their analysis and generalization) the structure and oil and gas content of subsoil in a certain territory, which can be performed both domestic and foreign licensed companies that have received the relevant permit under the legislation of Ukraine. Shale gas in Ukraine was actively discussed in 2012. Then the State Department of Geology and Subsoil estimated its potential deposits at 7 trillion cubic meters. At the time, experts noted that it is technically possible to extract about 20% of this gas. At that time, these stocks would be sufficient for Ukraine for at least 25 years. At the end of last year, all shale gas production projects were frozen, oil and gas giants from abroad refused to work in Ukraine because of war and unprofitability. However, just a few days ago, new figures and interesting coincidences appeared in the shale history. According to the Government of Ukraine as of 24.10. In 2019, the price per cube of imported gas for the average Ukrainian is UAH 4272.76 (approximately \$ 180), given that

the price already includes a "discount" from the state of 4,9% [3], and production domestic shale gas, should cost \$ 90-120. Yuzovskaya (part of Kharkiv and Donetsk oblasts) and Oles'ka (Ivano-Frankivsk and Ternopil oblasts) areas were identified as the most promising areas of production. In this regard, Ukraine has already explored two land and one offshore gas exploration sites to reduce its dependence on Russian gas. Thus, in 2012, tenders were conducted for the exploration of natural and non-traditional gas fields, which aroused the interest of leading international oil companies whose technologies and experience are necessary for boosting domestic gas production. The winners of the Chevron shale mining tender are: Oleskaya Development - Lviv and Ivano-Frankivsk Oblasts, Shell: Yuzovska Oblast - Kharkiv and Donetsk Oblasts and a consortium of companies led by US ExxonMobil, Shell, Austrian OMV NA Petrol Nadra Ukraine is the development of Scythian Square (deep-sea shelf of the Black Sea).

During 2013, Shell conducted exploration drilling at the Bilyaevskaya-400 and Novo-Mechebylivska-100 wells. Which allows us to state that Shell has completed all stages of the permit procedure for the exploratory and industrial development of shale gas fields in accordance with the provisions of Article 35 of the Law of Ukraine "On Oil and Gas". However, as early as 2014, further intelligence efforts ceased due to hostilities in the Donbass. It is interesting that shale gas was called one of the reasons for the strong interest of fighters in the capture and retention of Sloviansk, as it is one of the key points of Yuzovskaya Square, which is where the large deposits of this fossil are concentrated. In the spring of 2015, Shell and Ukrgasvydobuvannia (state joint-stock company) decided to terminate the joint venture agreement in Yuzovskaya Square, agreeing that "further activity under this project is not economically feasible". Chevron made a similar decision to withdraw from Ukraine in December 2014. Experts point out that this tendency is characteristic not only for Ukraine but for the whole world. Because of falling prices for traditional oil and gas, shale gas production becomes unprofitable. In October 2015, Nadra Yuzovskaya announced a competition to attract a new investor to implement



the project. The director of the company, Viktor Nazarkevich, told the media that “three international oil and gas companies” were eventually admitted to the competition. At the same time, on July 27, 2019, it became known that the Dutch “Yuzgaz B.V.” won the competition because it “offered the most attractive exploration program on the site”. Interestingly, the official site of Yuzgaz, which, by the way, does not look like the website of a reputable oil and gas company, stated that the company was created to participate in the agreement on the distribution of production extracted at Yuzovskaya Square. The company is 100% owned by Emerstone Energy, which in turn is a subsidiary of Luxembourg-based Emerstone Capital Partners (ECP) and manages a \$ 400 million investment fund. Interestingly, ECP was founded this year with a registered capital of € 31 000, its main activity is “growing cereals (except rice), legumes and oilseeds”.

Such an unstable position of foreign companies regarding shale gas production in Ukraine can be explained by the lack of clear legislative regulation of its process, the absence of real state subsidies and the production of alternative gas. Therefore, the regulatory regulation of shale gas production in Ukraine is partially enshrined in the Law of Ukraine “On Oil and Gas”, “On Production Sharing Agreements”, “On Environmental Expertise”, “On Environmental Protection”, “On Waste”, “On atmospheric air protection”, “About the nature reserve fund”, “About the flora”, “About the fauna”, “About plant protection”, “About the environmental audit”; Water, Forest, Land Codes, as well as the Law “On the Alienation of Land Plots, Other Real Estate Objects Placed on It, which Are Private, for Public Purposes or for Public Needs”. As we can see, there is no profile law in Ukraine to regulate cooperation with foreign investors on the direct development of deposits, scientific and production activities of any gas, not to mention unconventional gas such as shale gas. Consequently, the whole process of shale gas development and production in Ukraine is regulated somewhat “broken”, citing a specific special law for specific types of relations, which in turn adversely affects the general process of regulatory regulation of gas production in Ukraine. In addition, researchers have also identi-

fied significant environmental pollutants as a problem of regulating shale gas production in Ukraine. It is worth noting that environmentalists pay special attention to the problem of the percentage of possible release of methane, which is a powerful greenhouse gas. On a current scale, the impact of shale gas-related greenhouse gases is 22-43% greater than the impact of traditional gas production (14 to 19%). Researchers also refer to the problems of field development and shale gas production in Ukraine as high cost of field development, given the relatively large depth of gas deposits in Ukraine compared to the case in the USA. So, the commercial director of the British JKN Oil & Gas, which is the parent company of Poltava Gas and Oil Company, Philip Vorobyov at a press conference in Kiev on March 2, confirmed that the cost of drilling for shale gas in Texas (USA) is 3,5 million dollars, and in Ukraine – 15 million. At the same time, as Sibneft Chief Engineer Iskander Diashev said at the same press conference, the Ukrainian resource base is much better than the American one, but the well productivity is only one tenth of the average in the USA [4].

Analyzing the experience of foreign countries, it should be noted that in the world there is a clear trend towards increasing the weight of shale gas in guaranteeing the energy security of individual countries. The increase in its production in the United States has already been called a “quiet revolution”. The United States has already started to supply itself with gas and has become the largest producer of this mineral in the world. As a result of 2009, the country’s share of shale gas reached 14% of the total combustible gas complex, which led to significant changes in the distribution of the global gas market between countries and the creation of excess supply in the 2010 market. For the first time in decades, the United States has overtaken Russia in terms of gas production. In Europe, shale gas production is just beginning. According to the US Department of Energy, the largest volumes of technically achievable shale gas on the European continent are located in Poland (5,3 trillion cubic meters), France (5,1 trillion cubic meters) and Norway (2,4 trillion cubic meters). Analyzing the experience of the United States, the world’s leading producer of unconventional gas, it is worth pursuing the trend

of detailing every single aspect of environmental protection in shale gas production. Yes, there are a number of federal laws in the United States that regulate the environmental aspects of this activity. For example, the Clean Water Act regulates the use of surface water for the drilling and extraction of unconventional gas, as well as the management of waste water from production sites; Safe Drinking Water Act – regulates the process of underground pumping of substances; Clean Air Act – Limits air emissions from engines, gas preparation equipment and other sources related to drilling; National Environmental Policy Act – requires mining and production on federal lands to be environmentally friendly; Endangered Species Act – Requires that the operator obtain special approval from the Wildlife Service if certain species of flora or fauna are likely to be endangered by the construction and operation of wells; Migratory Bird Treaty Act – Provides that the operator is responsible for any damage caused to migratory birds and must arrange wells so that they do not attract or harm birds [6]. Considering all the possible risks, some European countries (France, Belgium, North Westphalia (Germany)) have imposed a moratorium on the use of fracturing technology in the production of unconventional gas, as they see this as a major environmental hazard. And in England and Alabama it is generally forbidden to produce these unconventional hydrocarbons. However, all countries, without exception, including Ukraine, emphasize the enormous importance of shale gas production as an alternative to the world’s already limited natural gas reserves. In addition, at the United Nations Conference on Sustainable Development held in Rio de Janeiro (RIO + 20), the problems of water quality polluted by shale gas production were important in the discussion. According to experts, shale gas production technologies are not sufficiently adapted to the ecological and geological conditions of Ukraine. The latter may adversely affect the ecological status of the underground hydrosphere and cause pollution of aquifers with drinking groundwater resources. And considering that the State sanitary rules and rules “Hygienic requirements for drinking water intended for human consumption”, approved by the Ministry of Health of Ukraine on May 12, 2010,



will fully start to operate only from 2020, shale gas production is potentially dangerous for residents of the area where it can be mined. In addition, since September 2010 until today in Ukraine there is practically no state standard for drinking water. In October 2011, the Law of Ukraine approved the National Target Program "Drinking Water of Ukraine" for 2011–2020, which aims at ensuring the citizens' rights guaranteed by the Constitution of Ukraine to a sufficient standard of living and environmental safety by providing the population with drinking water in the required volumes in accordance with the institutions water quality standards.

Despite the significant shortcomings of shale gas production in Ukraine, there are a number of advantages that make it possible to outline the positive aspects of such activities, mainly in the economic sphere. These include: 1) increasing the competitiveness of Ukrainian enterprises by reducing energy costs; 2) increasing the number of jobs in the manufacturing and service industries; 3) cheaper energy carriers in the country; 4) shale gas sources are located near end consumers; 5) production of this type of gas is carried out without any loss of greenhouse gases; 6) improvement of the Ukrainian gas transportation system with updated powerful infrastructure; 7) changing geopolitical situation and market management of energy prices; 8) achieving energy independence from gas importers, in particular Russia; 9) general development of the national economy; 10) the use of shale gas is more environmentally friendly than the widespread development of coal basins in Ukraine and others [5].

Conclusions. Shale gas development is economically promising for Ukraine. It will allow the state to achieve energy independence, develop a high level of extractive industries, attract significant investments and generate profits. Accordingly, in view of all of the above, we can summarize that:

1. To ensure the rights of citizens residing in areas where shale gas production is possible, it is essential to provide US experience in providing the public with environmental information. Therefore, in

1986, the United States Congress passed the Emergency Planning and Community Right-to-Know Act. The document requires the federal government, states, local governments, indigenous peoples and industry to report on the use of hazardous and toxic substances. It contributes to raising public awareness and access to information on the use of chemical agents at individual sites, as well as their potential emissions into the environment. Pursuant to sections 311 and 312 of the Act, the production, processing, storage or use of hazardous chemicals requires special records of "Material Safety Data Sheets" that describe the properties of these substances, their health effects. This data, as well as information on the stock of substances at the enterprises, should be made available to the public.

2. To date, shale gas development and production projects in Ukraine must be financially supported by the state, and attracting foreign investors is of little importance, since the legislation of Ukraine in Article 37 of the Law on Oil and Gas obliges potential shale gas producers "In the course of industrial development of oil and gas fields, use advanced technologies and techniques that ensure the rational use of oil and gas wells and the most complete extraction from oil-bearing, subsoil use and oil, gas and associated components that implicitly financially and economically costly".

3. The large accumulation of regulations: laws, decrees, directives, etc. in the regulation of gas production activities in Ukraine has a negative impact on the investment climate and the prospects of attracting foreign specialists for shale gas production in Ukraine, who already have experience in such activities. Attracting foreign investors is a necessary element of the effective functioning of gas production in Ukraine, taking into account also the experience of Germany, France and Belgium. This allows us to conclude the need for a special law to be adopted by the Verkhovna Rada of Ukraine, which would comprehensively regulate all aspects of shale gas production activities.

4. Considering all the environmental risks, prior to the start of shale gas produc-

tion in Ukraine, it is necessary to conduct a state expert examination of the development and implementation of normative standards of environmental safety, as well as experimental studies on previously agreed with the local councils of the territory to assess the level of environmental safety in geological study. and industrial development of shale gas fields using the technologies offered.

References:

1. Stokholmska Deklaraciya scho do pytan navkolyshnioho seredovyscha. OON; Deklaraciya, Mizhnarodnyi document, Vytiah vid 16.06.1972. URL : http://zakon4.rada.gov.ua/laws/show/995_454#Find.
2. Vasyliuk O.R. Vydobutok slancevogo gazu. Pogliad ekologiv. Ukrainska Pravda. URL : <http://life.pravda.com.ua/columns/2012/08/20/110597>.
3. URL : <http://www.naftogaz.com/www/3/nakweb.nsf/0/4AD65826322B2EB-4C2258490003D6A81?OpenDocument&year=2019&month=10&nt=Новини&>.
4. URL : <https://www.dw.com/uk/shale-gas-in-ukraine-production-not-in-the-near-term/a-1910010>.
5. R. M. Tsygan. Shale gas prospects in ukraine: pros and cons / УДК 662.67:622.2 «313» (477)/ 2015.
6. Shale Gas of Ukraine: An Environmental and Regulatory Assessment Report on the Implementation of the Memorandum of Understanding between the Government of Ukraine and the US Government. URL : <http://www.menr.gov.ua>.

INFORMATION ABOUT THE AUTHOR

Shulika Viktoriya Igorevna – 1st year Student Magister Degree of the Law Faculty of Taras Shevchenko National University of Kyiv

ИНФОРМАЦИЯ ОБ АВТОРЕ

Шулика Виктория Игоревна – студентка первого курса магистратуры юридического факультета Киевского национального университета имени Тараса Шевченко

vikabiskub@gmail.com