

**UKRAINE
COUNTRY PROFILE
COAL MINE METHANE**

METHANE TO MARKETS PARTNERSHIP

Section 1

With the national energetic program of Ukraine for the period till 2010 are developed ways of effective maintenance of the country with power resources due to own fuel and energy complex development activization. Thus coal also remains on prospect as the main energy raw of the country. At the same time, only 14% of oil and 30% of gas from the general necessity of Ukraine is supposed to cover with the internal resources. For this reason the important place in «The Program ...» is given to alternative kinds of energy due to which after 2010 about 10% of all energy will be made. The significant place in this area is given to methane of coal deposits.

By some estimations the global resources of methane of coal deposits make from 93,4 up to 285,2 trillions of m³. In this list Ukraine takes an appreciable place. Our resources are estimated in 12 trln. of m³ of methane, that in 3-3,5 times exceeds resources of natural gas.

As is known, there are 2 coal basins in Ukraine which have enough of coal on depths accessible to its extraction and perspective for extraction of methane. It is the Donetsk basin located in a southeast of Ukraine and in the western part of Russia, and the Lvovsko-Volynsky basin which is located in the Western Ukraine and lasts on northwest, entering in Lyubliansky basin of Poland. However it is necessary to note, that parameters of methane-fullness of these pools are rather non-equal. First of all it's linked, for example, with that in Donbass, coals are submitted practically with all existing marks from brown up to highly methamorphed superanthracites, and as is known it is one of the basic attributes of methane presence or it's absence. Is necessary to turn the special attention for difficult and various tectonic of Donetsk coal basin.

In present time for gas extraction in most cases used the usual technology of drilling underground and surface degasation holes with subsequented their connection to vacuum-pump stations. Percentage of methane in a mix is very low in a range from 5 up to 62%, and on 74% of mines the content of methane is lower than 25%. Only at 6% of mines it exceeds 45% and on 9 mines the content of methane exceeds 35%.

Last years the problem of methane has received a new direction - ecological. It is defined, that on the its properties methane in 21 times is more active, than carbonic gas in influence on the processes linked to formation of "greenhouse effect". According to ecologists in 1999 only in Donbass mine methane emission in atmosphere has made more than 2 billions of m³. Reduction

on methane emissions is not only a regional task, but also global that testified with the materials of the Kyoto Protocol.

According to the Protocol Ukraine should stabilize emissions of greenhouse gases at a level of 1990 that makes 854,1 millions of tons in equivalent of CO₂. It is the most probable, that in 2008-2012г.г. emissions of CO₂ will not exceed 565 million of tons. Ukraine can take obligations on stabilization of emissions of CO₂ in an atmosphere and provide reduction of methane emission.

Section 2

The intensification of a coal mining processes and rates of mining works carrying, that was outlined recently, testifies that the increasing quantity of mines is involved in work in conditions, difficult due the gas factor. There are about 20 mines in Ukraine on which realization of CMM projects is attractive and from the point of view of methane significant volumes reception for subsequented recycling and an opportunity of realization of effective actions on reduction of methane emissions in atmosphere (the most interesting are this mines: A.F.Zasjadko, Krasnoarmeyskaya Western, Krasnolimanskaya, Komsomolets of Donbass, Krasnodonskaya and Makeyevskaya group of mines). By company «ECOMETHAN» it is developed three project offers of efficiency increase of mines decontamination of «Komsomolets of Donbass», "Sukhodolskaya-eastern" and "Western-Donbassian" mines. These project offers are based on modern representations of methane streams formation which directly are connected to intensity of mining works carrying. Our company has the modern effective technologies, allowing to carry out degasation of mining works with efficiency of 70% and higher. Our strategy in the problem resolving is defined by the complex, stage-by-stage approach. At the first there are opportunities to increase efficiency of underground degasation in 2-3 times, and it at once results in redistribution of methane streams. If now the basic part of gas is taken out by systems of ventilation and is thrown out in atmosphere, then increase of underground degasation efficiency allows to generate a methane stream which gives in to the control and management, and thus to exclude hitting of methane in ventilating systems of mines. Realization of this stage of degasation allows to catch up to 40% of methane formed as a result of mining works. 20-30% more of methane can be taken away with technogenic holes, drilled from surface. Up to 30 % of methane are taken due to realization of technologies of preliminary degasation with holes drilled from surface. Thus, by executing degasation of massif stage by stage is possible to take and utilize about 85% of available methane and to reduce its hit in atmosphere in equal amount.

Thus, because of difficult geological conditions of conducting mountain works, there are no universal methods of degasation carrying. In each concrete case the original sequence of degasation performance which can give the maximal positive effect is selected.

Section 3

Because of that the basic part of coal mines is in state ownership, use of investments, especially from private companies, encounters set of problems.

One of them is possession of gas. As the Law of Ukraine defines that the owner of entrails is the state, definition who is the owner of gas in case of realization of CMM projects on a mine which belongs to the state is extremely complicated. The decision of this problem becomes considerably simpler, if the mine already is the property of a private company. We have developed legal documents according to which it is possible to make the proprietor of gas that company which carries out degasation project on the mine.

Now in Ukraine processes of mines privatization became more active, especially the mines getting coking coal. This implies that legal problems of possession of gas received from realization of degasation projects practically are not present.

In the Ukrainian legislation rules of licensing on operation of entrails are precisely enough described. It is rather difficult procedure, but it is solved. Besides the Ukrainian legislation provides an opportunity of development of the license area to two or several partners on basis of contract about joint activity.

From problem questions which constrain development of projects on methane extraction, it is necessary to note absence of the special normative documentation for designing and using of objects connected to extraction of methane.

As is known, in 2004 Ukraine ratified the Kyoto Protocol. Now implementation of it is carrying. However for some reasons this work is delayed. It constrains start of CMM projects.

The beginning of work above projects is late as well for technical reasons. In the first, we now have no modern laboratories and techniques of carrying out of monitoring of greenhouse gases emissions, problems of verification of executed monitoring are not solved. Modern drilling equipment for performance of the CBM and CMM projects also is not produced in Ukraine.

Section 4

The existing market of natural gas, electric and thermal energy, in a context of development of the methane program in Ukraine can be appreciated positively.

The Donetsk coal basin for which territory performance of the methane project is planned, has advanced infrastructure (all types of transport), that considerably reduces costs on this section of the project. In this region a plenty of consumers of all kinds of energy, and in connection with growth of economy of Ukraine their consumption grows.

The prices and tariffs for all kinds of energy below than Central European, however much above than in the countries of CIS. It makes economy of methane projects enough attractive.

In connection with that in Ukraine while there is no market of alternative kinds of energy, it's early to speak about a competition.

Access on the Ukrainian power market is not simple. Special licenses are required.

For successful realization of CMM projects in Ukraine is necessary:

- To accept a number of laws which would register methane as an alternative energy source more precisely, that in turn should lead to some tax privileges.
- It is necessary to accept a number of laws and decisions of the government directed on adaptation of positions The Kyoto Protocol in Ukraine.

Section 5

For greater appeal of CMM projects the system of privileges for firms implementing such projects should be developed. For example, such as in Germany.

Section 6

Basic co-owners of CMM industry are and there will be owners of coal mines. Process of privatization of coal mines in Ukraine already began also the most part of the most perspective mines is already privatized. As founders of company «ECOMETHAN» basically also are owners of perspective mines that we hope that our company will be the main operator of CMM projects implementation in Ukraine.

Section 7

The financial problem for successful development of CMM projects in Ukraine is the most difficult. This is connected first of all that these projects have a high degree of risk. We make efforts for attraction in these projects of financial assets from the state budget but while in this direction we have not achieved significant results.

Section 8

We have steady contacts to some companies in the USA and in Europe. It is connected to our intentions to buy some special equipment for performance of the projects.