

PERSPECTIVES OF BIOFUEL MARKET DEVELOPMENT IN UKRAINE

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ABSTRACT

Advantages and disadvantages of subsidies for production and use of biofuel are considered. The perspectives of development of the biofuel market in Ukraine in the context of the world market for biofuel are analyzed. The following directions of strategic development of biofuel production in Ukraine were studied: a) to comply with the free market principles, b) to facilitate export of biofuel from Ukraine, b) to provide incentives for domestic production and consumption of biofuel. Obviously, prices for agricultural products will be greatly affected by biofuel production.

Keywords: biofuel market, competitiveness of biofuel production, subsidies for biofuel production.

1 INTRODUCTION

High energy prices, dependence of many countries on energy supply and awareness of global warming consequences resulted in high importance of biofuel in modern debates.

Ukraine possesses a huge capacity for development of the biofuel market and rich resource base. Large agricultural areas may be used for growing those crops, which are necessary for biofuel production without considerable decrease in production volumes for other agricultural products (CRAMON-TAUBADEL, DEMYANENKO, KUHN 2004). Each year, the area of land under oilseed rape and oilseed crops increases. In order to stimulate development of the resource base in Ukraine in 2006-2007, subsidies were introduced for the farmers, who grow oilseed rape and other oilseed crops. As a result, the area under these crops in 2003-2007 increased fivefold. In 2008, the total area under these crops equals 1,3 million hectares, which is twice as much compared to 2007. Furthermore, most Ukrainian regions started to build biofuel production facilities – as for today, 20 such objects have been planned.

Perspectives of the biofuel market development in Ukraine, possible benefits from price growth in the world markets and the need to decrease the energy dependence require detailed research. Development of the biofuel market generates great opportunities for Ukrainian

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agriculture, agribusiness and the economy in general, decreasing the country's dependence on imported energy resources, facilitating economic growth in the country (STRUBENHOFF, NIVYEV'SKIY, JAROSZEWSKA 2007).

2 RESEARCH GOALS AND TASKS

The goal of the research is to determine the perspectives of biofuel market development in Ukraine, as well as the opportunities for growing of relevant crops and production of biofuel. Implementation of this goal is associated with the solution of the following *tasks*:

- to study advantages and disadvantages of subsidies for production and use of biofuel;
- to analyze the Program of Biofuel Production Development in Ukraine;
- to justify the perspectives of development of the biofuel market in Ukraine in the context of the world market for biofuel;
- to determine the influence of biofuel production on global energy and agricultural markets.

3 RESEARCH OBJECTS AND METHODS

The object of the research is represented by the potential of the biofuel market development in Ukraine. *The following methods were used in the research*: structural and logical, systemic analysis, statistical, normative, formalization, observation etc.

4 MAIN RESEARCH RESULTS

4.1 Advantages and Disadvantages of Subsidies for Production and Use of Biofuel

Transition to biofuel and abandonment of traditional oil products is seen in many countries, which had made relevant problems the most important issues in their energy supply programs. Calculations have shown that production of biofuel in Ukraine is quite competitive. The cost of biodiesel in Ukraine equals EUR 0,42/liter, bioethanol – EUR 0,67/liter. According to *Institut für Weltwirtschaft Kiel* (2006), the costs of biodiesel equaled EUR 0,96/liter, bioethanol – EUR 0,77/liter, with comparatively cheaper resources and labor in Ukraine.

The paradox of Ukrainian situation is that growing and processing of oilseed rape is quite profitable in Ukraine, but the next processing stage – biodiesel production – is not profitable. The country does not have a large company, which is focused on the biofuel production, while small agricultural enterprises produce it for their own consumption only. The only subsidy equals EUR 15 per hectare of oilseed winter crop and EUR 10 per hectare of oilseed spring crop.

According to OECD research, subsidies in biofuel production (only the U.S. spend USD 7 billion per year for these subsidies) resulted in expansion of crop areas at the expense of woods, which served as natural neutralizer for carbon dioxide. Besides, oilseed rape growers use fertilizers and pesticides, which are described by negative influence on the environment (both at their manufacturing and application stages). Besides, pursuing subsidies and tax benefits, farmers expand areas under crops, which are used for biofuel production, at the expense of wheat and other staples. As a result, food prices skyrocket and, according to OECD forecasts, will continue growth for at least 10 years.

At the same time, EU aspirations to turn to biofuels allows Ukrainian farmers to benefit from export of oilseed rape.

4.2 Development of Biofuel Production in Ukraine

The perspective of conversion of industrial enterprises and vehicles in Ukraine (after sharp growth in oil and natural gas prices) to biodiesel has certain advantages and disadvantages. The Ministry of Agricultural Policy of Ukraine has prepared the Program on the Development of Biodiesel for the Period of up to 2010. Financing of this program, according to calculations of the Ministry, amounts to EUR 2 million, and EUR 0,3 million out of this amount should be assigned from the state budget. The remaining amount should be obtained from investments, subsidized loans, equity financing. This Program provides for expansion in oilseed rape production – in 3 years, the percentage of biodiesel in the total amount of diesel fuel should amount to 33%. It will be possible, if 23 biofuel plants will be built each year until 2010, with total capacity at least 623 thousand tons per year. However, construction of a small specialized plant requires EUR 2,2 million. That's why, the possibility of fulfilment of this program till the end of the indicated term is doubtful. At the same time, the need to develop the biofuel market in Ukraine is one of the elements of the economic growth in the country.

4.3 Perspectives of Development of the Biofuel Market in Ukraine

Biodiesel may replace only a small part of global consumption of energy. Even if all vegetable oil is converted into biodiesel, it may replace only 3% of global oil consumption. According to estimates, current market share for biodiesel equals only 0,2-0,3% of the global consumption of oil, or approximately 0,5% of total fuel for vehicles. If all grain in the world is converted into bioethanol, this will allow to replace approximately 11-13% of world consumption of oil, or approximately 25% of oil, which is used for vehicles' fuel, but there will be nothing left for food. At the moment, ethanol, which is produced from the grain and

sugar, replaces approximately 0,8% of global oil consumption (ABDULIN, BLAVDZEVYCH, GELETUKHA, GERSHKOVYCH, GERSHUNI 2004).

According to these data, the global market for oil is very huge, and neither biodiesel, no bioethanol can not satisfy the demand for oil. Therefore, influence of the 1st generation biofuel on the global market for oil is very slight. 2nd generation biofuel should improve this potential. However, today it's quite difficult to forecast their competitiveness.

At the same time, any policy, aimed at stimulation of export from Ukraine, faces serious barriers at the international level, because import can be restricted by importing countries. Today, EU and U.S. are the largest importers of biofuel. However, these markets are very protected, especially regarding the bioethanol market. As can be seen from Table 1, duty for ethanol in the E.U. equals EUR 19.2 per gallon, because production of bioethanol requires, mostly, denatured ethanol. This equals, accordingly, EUR 0.19 per liter, or EUR 192 /per m³. At the moment, this equals approximately 1/3 of the EU market price, and any import of the ethanol from Ukraine can not be competitive given these conditions. Import duty for ethanol in the U.S. equals 2,5% of the value plus USD 0.54 per gallon, which equals USD 0.14 per liter, or USD 140 per m³.

Table 1: Tax rates for import of biofuel, vegetable oil and ethanol in EU for Ukraine

Code	Description	Traditional duty	Duty, which is applied to Ukraine
3824 9098	Biodiesel	6.50%	0.00%
1514 1110	Oilseed rape with low contents of erucic acid, oil for technical or industrial use, other than for food and consumption by people	3.20%	0.00%
1514 1190	Oil seed rape with low contents of erucic acid, oil/other	6.40%	2.90%
1512 1191	Sunflower oil, oil for technical purposes	3.20%	0.00%
1512 199010	Sunflower oil, oil for other purposes	6.40%	2.90%
1507 101000	Soybean oil, oil for technical and industrial purposes	3.20%	0.00%
1507 109000	Soybean oil, oil / other purposes	6.40%	2.90%
2207 1000	Non-denatured ethyl alcohol (80% vol.)	19.2 €/hl	19.2 €/hl
2207 2000	Denatured ethyl alcohol and other beverages	10.2 €/hl	10.2 €/hl

Source: TARIC: http://ec.europa.eu/taxation_customs/dds/cgi-bin/tarchap?Lang=EN

Biodiesel, as oilseed rape, sunflower and soybean oil for technical purposes are not subject to import duty, when they are exported from Ukraine. Therefore, any Ukrainian producer of the biodiesel directly competes with EU biodiesel producers. However, the problem is that the biodiesel production industry in EU is described by overcapacity. In such situation, profitability of biodiesel production is described by descending trend. According to the data, provided by the German Biofuel Association, almost one third of biodiesel producers in Germany can not cover their costs.

Competitiveness of biodiesel and bioethanol depends, first of all, on the prices for their substitutes (regular diesel and gasoline), as well as the oil price.

4.4 Influence of Biofuel Production on Global Agricultural Markets

Global energy markets have a considerable influence on grain and oil crops markets. Though less than 8% of the total volume of oil crops are used for the production of biodiesel, additional demand for them is hard to satisfy. That's why prices for vegetable oil and seeds of oil crops increase during last time. The same situation is with the grain market. In 2006/07 marketing year world consumption of grain exceeds its production almost by 75 million tons, which will result in decrease of its stock by the relevant amount. Such amount of grain, that is 75 million tons, is used for the production of ethanol. When reserves will become very low, grain prices will reach the highest levels for the last 10 years (GELETUKHA, DOLINSKIY 2006).

Politically motivated production of biofuel will increase and, therefore, prices for agricultural products will depend largely on energy prices, as well as the program for subsidizing and support of biofuel production. That's why, it is very likely, that prices for agricultural products will stay at the high levels. Furthermore, since the demand from the biofuel industry is quite inelastic due to low prices, it is expected, that the markets will become much more vulnerable.

It is hard to say whether an additional demand for agricultural products will be met. High prices are the most effective incentive for increase in the production volumes. Nevertheless, we need some time in order to use additional land resources, which are limited. Besides, the water supply issue very often limits additional use of lands. Productivity may be increased due to improved management and intensification of production. However, it is unlikely, that during bad years this will help to production growth. Therefore, world prices for agricultural products (much more than in the past) will depend on the weather conditions.

5 CONCLUSIONS

Ukraine with its extensive agriculture and large agricultural capacity is in a beneficial situation, because it may take advantage of the boom in the global biofuel market without any subsidies. Domestic farmers, due to high prices, will obtain a considerable benefit from those subsidies, which are aimed at production and consumption of biofuel in EU, United States and other countries. This may become the necessary push for the Ukrainian farmers in order to increase productivity and production volumes, allowing to improve the economic situation in the country.

The main source for the biofuel in Ukraine is associated with oilseed rape, though there are other agricultural products, suitable for its production. However, today industrial production of biodiesel has not been set up yet. The government plans to build special plants for the production of biodiesel, and by 2010 more than 520 thousand tons of biodiesel are expected to be produced, which will be good for the biofuel market development.

REFERENCES

- GELETUKHA, G.G, DOLINSKIY, A.A. (2006). Renewable Energy Sources in Agriculture and Forestry of Ukraine, Presentation at the Third International Conference “Energy from the Biomass”, Kyiv, Ukraine, 18-20 September 2006.
- STRUBENHOFF, H.-W., NIVYEV'SKIY, O., JAROSZEWSKA J. (2007). The World Biofuel Boom and Ukraine – How to Reap the Benefits, Advisory paper, 7, Kyiv, Institute for economic research and policy consulting (IER) & German-Ukrainian Policy Dialogue in Agriculture, Ukraine. – 2007. <<http://www.ier.kiev.ua>>.
- CRAMON-TAUBADEL, S, DEMYANENKO, S., KUHN A. (2004). Ukrainian Agriculture – Crisis and Recovery. Kyiv: IER.
- ABDULIN, M.Z., BLAVDZEVYCH, Y.G, GELETUKHA, G.G., GERSHKOVYCH, V.F., GERSHUNI O.N. (2004). Energy Saving Technologies, Equipment, Technical Solutions: Reference book. Kyiv: SPD Zelent O.I.