

Izdebski W.,
Kryś P.,
Skudlarski J.,
Zajac S.,
Maznev G.,
Zaika S.

МОЖЛИВОСТІ І ПЕРЕШКОДИ НА ШЛЯХУ РОЗВИТКУ БІОПАЛИВА ДЛЯ ТРАНСПОРТУ В ПОЛЬЩІ — ДОСВІД ДЛЯ УКРАЇНИ

Розвиток відновлювальних джерел енергії у виробництві транспортного біопалива має важливе значення як для економіки Польщі, так і України. Розвиток сектора біопалива залежить від ряду економічних та екологічних чинників, у тому числі політичних рішень. У статті представлено поточний стан розвитку біопалива в Польщі, а також можливості та перешкоди на шляху розвитку цього сектора.

Ключові слова: транспортне біопаливо, поновлювані джерела енергії, сектор біопалива, Польща, Європейський Союз, Україна.

1. Introduction

Ukraine and Poland are countries that are not energy self-sufficient. As indicated in the forecast, both in Poland and in Ukraine the demand for oil and natural gas is estimated to increase. In the case of Ukraine, its own resources of conventional energy media satisfy the needs of the country, in only around 40 % [1, 2]. Poland has significant resources of coal and lignite, however, these media are a significant source of greenhouse gas emissions. In addition, substantial costs of coal mining are a problem in Poland, which causes the Polish electricity producers to try reducing the cost of electricity production by importing cheaper coal from Ukraine and Russia, where its production costs are lower than in Poland [3]. Significant deficiencies in the Polish economy in the field of energy pertain to crude oil and natural gas. The share of imported oil represents nearly 95 % of its consumption, while for natural gas it is 68 % [2].

In such a situation, a promising prospect of strengthening national energy security is to reduce the share of traditional energy sources in the total energy balance through the introduction and development of renewable energy sources [1, 4–6]. Another reason for obtaining energy from renewable sources is the need to meet the requirements of the Kyoto Protocol, which has been ratified by 141 countries in February 2005. Under these agreements, the countries that signed the protocol are required to reduce greenhouse gases. In the case of European Union legislation on the reduction of greenhouse gas emissions into the atmosphere while have a beneficial impact on energy security and independence of the Union on imports of energy resources have been included in three directives, which are part of the energy and climate package: 2009/28/EC on renewable energy sources (RED), 2009/29/EC on amending the emissions trading scheme, and 2009/30/EC on the specification of petrol and diesel and a mechanism to monitor and reduce greenhouse gas emissions (FQD). These directives primarily emphasize on meeting the criteria for sustainable development and a significant reduction of GHG (greenhouse gases) by fuel, including biofuels. A mandatory 10 per cent share of renewable fuels in

2020 target was set. For this purpose, in Poland in 2007, National Indicative Target (NIT) was adopted, which determines the minimum proportion of biofuels and biocomponents, expressed as a percentage of energy in the total amount of fuel. In accordance with the NIT provisions, entrepreneurs conducting business activities in the production, import or intra-Community acquisition of liquid fuels or biofuels, which they sell or dispose of in any other form on Polish territory or consume for their own needs, starting from January 1, 2008 are required to ensure in the given year, at least the minimum percentage share of biofuels in the total volume of liquid fuels and liquid biofuels, sold or consumed for their own needs. According to the Law on components and liquid biofuels, the Council of Ministers sets the NIT every three years for the next six years. Regulation of Council of Ministers of June 15, 2007 on the National Indicative Targets for 2008–2013 assumed an increase in the NIT from 3,45 % in 2008 to 7,10 % in the year 2013 [6]. The new National Indicative Target (NIT) adopted by the Council of Ministers on 23 July 2013, assumes an increase from 7,1 to 8,5 % [7]. The implementation of NCW is associated with a system of fines charged in the event of failure to achieve the established by law minimum share of biocomponents. It is assumed that the new regulations will affect job creation and mobilization of rural areas in terms of agricultural production for energy purposes. They will also contribute to improving the country's energy security by diversifying fuel supply sources and related to it reduction of dependence on imported oil. The use of biocomponents in transport will also reduce carbon dioxide emissions. The increase in the NIT over the years is to be a real chance for the actual development of the entire production chain of biofuels in Poland and the practical implementation of the EU strategy for our country.

The development of the biofuel sector in Poland has become a strategic objective for the economy of this country. Interest in biofuels also appeared in Ukraine, where at the state level in 2000–2010, a number of bills aimed at supporting the development of biofuels were adopted. Among the first documents there is the bill on «Alternative types of liquid and gaseous fuels» dated 14.01.2000 and

the decree of the President of Ukraine «On the development of fuel from biological resources in Ukraine» from 26.09.2003, which are compatible with European Union Directive 2003/30/EC [8]. Another piece of legislation is the «Law of the alternative types of fuel», which defines the legal, economic, ecological and organizational rules for the biofuels production. It assumes that in the years 2014–2015 obligatory participation of bioethanol in gasoline should be no less than 5 %, while in 2016 no less than 7 % [9]. The next legal step to support the development of biofuels in Ukraine is the adopted by the Supreme Council Law on «Development of production and consumption of biological fuel types» [10].

Biofuels, as part of the renewable energy sources, allow using agricultural overproduction, and can supplement the market of liquid fuels. However, the development of the biofuels market, both in Poland and Ukraine is conditioned by many barriers. The development of the biofuel sector in Ukraine undoubtedly will be influenced by tendencies in European Union countries, including Poland. The Ukrainian publications of authors such as GM Vesicle, D. L. Koljadenko, S. V. Koljadenko, O. A. Lukjanihina, I. A. Vakulenko, O. O. Prutska [11–15] presented the general trends of biofuels in the European Union, the USA and other countries. They lack a detailed analysis, taking into account the political decisions of governments of these countries. In the available Ukrainian literature, there is a lack of publications, presenting Polish achievements in the development of the biofuels sector. Polish experience as a neighboring country of Ukraine may be useful for the development of the Ukrainian biofuel sector.

2. Aim of the study

The aim of this paper is to present the current situation of the biofuels market and the opportunities and barriers to the development of transport biofuels sector in Poland. The utilitarian purpose is to present the knowledge resulting from the experience of both countries that is useful for Ukrainian and Polish manufacturers of transport biofuels.

3. The development of the biofuel sector in Poland

Due to the regulated nature of the business of manufacturing biofuels in Poland, every company interested in this kind of production must be entered in the register maintained by the President of Agricultural Market Agency (ARR). According to the data of Agricultural Market Agency as of 11/19/2013 31 enterprises are registered, including 13 plants producing bioethanol and 8 plants producing methyl esters. The other operators declared business activity involving the storage of biocomponents or their marketing. An annual plant capacity of bioethanol producers for 2013 is 715 million liters, and the esters manufacturers' installation – 994 million liters.

In the I– II quarter of 2013, the number of produced biocomponents was slightly over 600 thousand tons and was about 7 % lower than in the same period of 2012. The least of biocomponents were produced in 2011, posting a decrease of 13 % compared to 2010, including a drop of ethanol produced (about 18 %) for fuel purposes, as well as stagnation in the field of esters manufacturing,

whose domestic supply fell slightly to the volume produced esters in the same period in 2010. By contrast, in 2012 there was a significant increase (50 %) of biocomponents produced, including 27 % ethanol and 62 % esters. A significant increase in esters sales is a result of putting them into sales in February 2012 in Poland diesel with a maximum share of 7 % of the methyl esters (B7). As a result, the period from the third quarter of 2013 saw an increase in the production of esters by 5 % compared to the same period last year. Statement of produced and sold biocomponents in the III bioquarter of 2013 is presented in Tabl. 1.

Table 1

Comparison of produced and sold biocomponents in the I–III quarter of 2013 [16]

Item	Unit	Total	Bioethanol	Ester
Number of biocomponents produced by all manufacturers:	tons	606239	136079	470160
Number of bio sold by manufacturers in the territory of the country:	tons	444153	28797	415356
Number of bio sold by manufacturers to foreign entities:	tons	16006	0	16006

According to the data from the Energy Regulatory Office (ERO) the last three years faced a loss of sales of Polish bioethanol to foreign entities. In 2010, the sales amounted to about 73 thousand tons, and in 2012 only 3 thousand tons (down 95 % over two years). By the end of the third quarter of 2013 there were no sales of bioethanol to foreign entities. This means that the domestic bioethanol went almost entirely to the implementation of the National Indicative Target.

In contrast, the amount of ethanol sold on the territory of Poland increased steadily. In 2011, it was up by 68 % compared to 2010, and by 14 % in 2012 compared to 2011. The bioethanol production amount reached the level of 130–160 thousand tons. In the observed four years, it reached the highest level in 2012 (167 thousand tons). The amount of biocomponents produced in 2010–2012 is shown in Fig. 1.

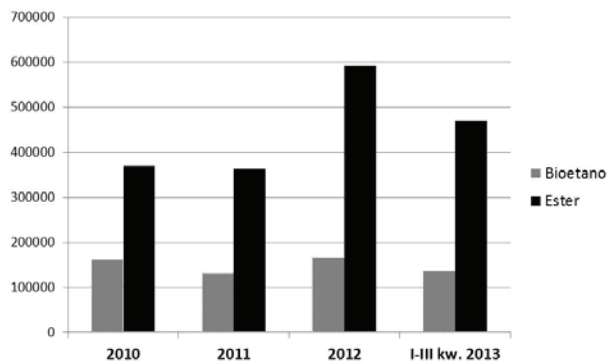


Fig. 1. The volume of biofuels produced by all manufacturers between 2010 and 2012 [Mg] (Source: authors' calculations based on [16])

According to the estimates, made by the National Council of Distillation and the Production of Biofuels, the number of active agricultural distilleries operating in Poland has been falling steadily for several years. According to the data from the Ministry of Agriculture and Rural

Development (MARD) in 2010, 202 distilleries produced alcohol, while in 2011 the number of actively operating distillery was 173 compared to 2004, when alcohol was produced by 342 distilleries, there was a decrease by approximately 50 %. This reflects a difficult situation of the distilleries, resulting from the low profitability of spirit production, which is further aggravated by cheaper imports of raw spirit from abroad, including countries outside the EU (USA, Brazil).

According to the data from the Registry of Manufacturers of Agricultural Market Agency in 2011, capacity utilization in the case of bioethanol producers was only 21,83 %, while for the manufacturers of methyl esters it was amounted to 42,62 %.

In the opinion of many experts, legal and environmental conditions are the main problem of the development of the biofuel market in Poland. For the last 10 years the EU has promoted the development and production of vegetable biofuels, as an excellent way to reduce greenhouse gas emissions. Unfortunately, today some experts claim that they have become part of the problem and, paradoxically, contributed to an increase in CO₂ production due to conversion of forest land into agricultural land. Also, the positive impact of biofuels on the environment (and rather less negative) is not as obvious in the light of the recent research. It turns out that fuel enriched by biocomponents may be harder biodegradable than their conventional counterparts. Reducing carbon dioxide emissions into the atmosphere also is not as strong an argument as before. The production of biofuels does not reduce a significant extent enough to be able to speak of really significant impact on the environment. In addition, recent reports indicate another major cause of the greenhouse effect which is methane. It is not produced by the fuel combustion [17]. So, the European Union imposed a limit on biofuels produced from food crops. In 2013 the European Parliament adopted a 6 percent limit in the share of biofuels of the 1st generation of total transport fuel by 2020. This means that the remaining 4 percent as compared to the current minimum of 10 percent of renewable fuels, will have to come either from the next generation of biofuels (made from non-food raw materials) or from other renewable sources. It is expected that the European Parliament decision could deepen instability of the biofuel sector in Poland.

One of the reasons for the unfavorable market situation of biofuels is the way, in which they were introduced, somehow forced by the provisions of the European Union. Since the outset biofuel market was supported by the EU rules. Furthermore, manufacturers were provided, inter alia, with tax credits, which are now no longer in force. For the sector producing bioethanol, it is unfavorable to withdraw the draft of law introducing the E10 to the market, the 1st.e. gasoline containing biocomponents additive in the amount of 10 % [17]. The bill introducing E10 fuel was withdrawn due to the low acceptance on the German market [18] and due to the lack of EU regulation to appropriate law.

Other important causes of the current poor situation of biocomponent producers in Poland are such factors as the volatility in the commodity market (1 st. e. rape and cereals), uneven competition from foreign producers, and financial problems associated with inadequate support for the sector development and excise regulations. The latter

effectively create a barrier against the entry of biofuels on the market [17].

4. Possibilities and perspectives of biofuel production in Poland

For several years Poland has observed the dynamic growth in using biocomponents in transport, which was caused by entering into force the Act of 25 August 2006 on components and liquid biofuels, monitoring and controlling the fuel quality. The National Index (NIT) introduction in Poland since 2008 resulted in an increase in percentage share of biofuels in the transport fuel market.

The main threats that await Polish agricultural and biofuel distilleries in 2014 are: the need to meet CO₂ emission limits, contained in Directive 2009/28/EC (more on this later in the article), reducing to 6 % (in terms of energy in 2020) by European Union the amount of biofuels, produced from raw edible and preferences of the biofuels, produced from non-edible raw materials, such as biodegradable waste.

Limits on reducing greenhouse gas imposed by the European Union are an important challenge for biofuel producers in Poland. New biofuel installations must reach up to 60 percent reduction in greenhouse gas emissions by July 1, 2014. Biofuel installations completed before July 1, 2014 until December 1, 2017 must achieve a threshold of 35 percent for reducing greenhouse gas emissions, and till January 1, 2018 the threshold of 50 percent. This requires the introduction of new technologies and significant capital expenditures.

In the case of esters producers in Poland, shrinking demand for fuel is a threat to this sector (in 2012 diesel consumption fell by 9 per cent.) and the EU plan to marginalize the role of plant-derived biofuels, aimed at limiting the use of food crops for the production of biocomponents. In Poland, the methyl esters produced from rape are still a fundamental biocomponent used in the production of biofuels. The work is currently underway on the amendment of the law on biofuels in accordance with EU requirements, including the promotion in Poland of using waste materials and producing residues in non-food biofuel production [19]. Therefore, the contribution of waste materials in the implementation of the national indicative target (NCW) will be considered to double the «traditional» biocomponent share, the 1 st. e., such as esters of rape or bioethanol. One cannot rule out that the role of these biocomponents begins to decrease. This is mirrored by the condition of the methyl esters of manufacturers and farms, aimed at the production of rapeseed for the biofuel industry needs [19].

Today, as a result of the law in force in Poland, the National Indicative Target for rapeseed demand is very high. This resulted in an increase in its production, which in 2013 was 37 % higher than the previous year (data from the Central Statistical Office). The demand of large biofuel sector for this raw material caused that almost 1,3 million tons of crude rapeseed oil, about 900 thousand tons was dedicated to the production of biofuels. According to the data from the Polish Association of Oil Producers a current ratio of rapeseed produced for food to be manufactured for industrial purposes in Poland is from 40 to 60, while in the European Union it is from 30 to 70.

5. Conclusions from the analyzes and proposals for Ukraine

Following the trends in Western Europe, Ukraine supports the development of transport biofuels. The adopted legislation assumes gradual increase in the production of bioethanol and esters in the production of transport fuels. According to the 2015 assumption, the share of biofuels in the market of organic origin within conventional fuels is to be at least 20 % [20]. The adopted law requires that biofuel production is conducted in accordance with the standards of the European Union. Global trends show an increase in the demand for biofuels. At the turn of 2000–2007 bioethanol production in the world increased from 17 to 52 billion liters, while biodiesel increased from 1 to 11 billion liters [21]. This can be seen as a good signal for the biofuel sector in Ukraine, which has a considerable potential of raw material for obtaining bioethanol and biodiesel. Currently in the European Union, including Poland, the discussion on the impact of biofuels and generation on food prices continues. The report of the General Directorate of the European Commission (JRC – Joint Research Centre) that brings together scientific and technical institutes is that the production of the 1st generation biofuels results in a significant increase in food prices [21]. The European Parliament decisions on limiting the share of the 1st generation biofuels can make the 1st generation biofuels enter the end-stage phase from 2015 and they will gradually be supplanted by modern biofuels of the second and third generation. This may result in decreasing the demand for raw materials for producing the 1st generation biofuels, including rape. Reports coming from the European Union regarding the future strategy for the biofuels production should be a signal for Ukrainian producers of transport biofuels.

References

1. Fedorova, V. A. Perspektyvy zmitsnennia enerhetychnoi bezpeky Ukrainy [Elektronnyi resurs] / V. A. Fedorova. — Rezhym dostupu: \www/ URL: <http://www.rynekwschodni.pl/news/Perspektywy-wzmocnienia-bezpieczenstwa-energetycznego-Ukrainy,752>. — 12.01.2014.
2. Rozenko, V. Perspektyvy biopalyva v Ukraini [Elektronnyi resurs] / V. Rozenko, V. Marchenko, I. Rozenko. — Rezhym dostupu: \www/ URL: <http://www.agro-business.com.ua/component/content/article/630.html?ed=48>. — 12.01.2014.
3. Bezpieczeństwo energetyczne Polski oparte na węglu. «Wokresie najbliższych 20–30 lat w polskiej energetyce nadal więc będzie dominował węgiel [Electronic resource]. — Available at: \www/ URL: <http://wpolityce.pl/artykuly/59716-bezpieczenstwo-energetyczne-polski-oparte-na-weglu-w-okresie-najblizszych-20-30-lat-w-polskiej-energetyce-nadal-wiec-bedzie-dominowal-wegiel-przeczytaj-analize>. — 14.01.2014.
4. Kozlovs'kyi, S. V. Rozvytok rynku biopalyva iak element prodovol'choi bezpeky Ukrainy [Elektronnyi resurs] / S. V. Kozlovs'kyi, A. V. Kozlovs'kyi, E. A. Kirieieva. — Rezhym dostupu: \www/ URL: http://www.znau.edu.ua/visnik/2012_1_2/355.pdf. — 11.12.2013.
5. Koliadenko, S. V. Problemy ta perspektyvy rozvytku rynku biopalyva v Ukraini ta sviti [Tekst] / S. V. Koliadenko, D. L. Koliadenko // Naukovi pratsi Instytutu bioenerhetychnykh kul'tur i tsukrovykh buriakiv. — 2013. — № 19. — S. 195–198.
6. Wieloński, A. Procesy transformacji wybranych przemysłów w Polsce i na świecie [Text] / A. Wieloński, J. Machowski // Prace Komisji Geografii Przemysłu. — 2008. — nr 10. — P. 86–92.
7. Ile «bio» w paliwach — Narodowe Cele Wskaźnikowe na lata 2013–2018 [Electronic resource]. — Available at: \www/ URL: <http://www.mg.gov.pl/node/18840>. — 12.01.2014.

8. Maviienko, O. L. Ekonomiko-vyrobnychi perspektyvy zastosuvannia biopalyva v Ukraini [Elektronnyi resurs] / O. L. Maviienko, O. H. Hapchak // Zbirnyk naukovykh prats' BNAU. Seriya «Ekonomichni nauky». — 2012. — № 2(64). — S. 87–90.
9. Zakon Ukraini pro al'ternatyvni vydy palyva [Elektronnyi resurs]. — Rezhym dostupu: \www/ URL: <http://altern-energy.com.ua/zakon-ukrainy-ob-alternatyvnykh-vidakh-topliva>. — 12.01.2014
10. Murashkin, V. Biopalyvo: krok vpered, skil'ky nazad? [Elektronnyi resurs] / V. Murashkin. — Rezhym dostupu: \www/ URL: <http://www.epravda.com.ua/columns/2012/07/2/327709>. — 01.01.2014.
11. Kaletnik, H. M. Rozvytok rynku biopalyv v Ukraini [Tekst]: monohr. / H. M. Kaletnyk. — K.: Aharna nauka, 2008. — 464 s.
12. Kaletnik, H. M. Biopalyvo: efektyvnist' ioho vyrobnytstva ta spozhyvannia v APK Ukrainy [Tekst]: navch. posib. / H. M. Kaletnik, V. M. Pryshliak. — K.: «Khai-Tek Pres», 2011. — 310 s.
13. Koliadenko, S. V. Problemy ta perspektyvy rozvytku rynku biopalyva v Ukraini ta sviti [Tekst] / S. V. Koliadenko, D. L. Koliadenko // Naukovi pratsi Instytutu bioenerhetychnykh kul'tur i tsukrovykh buriakiv. — 2013. — № 19. — S. 195–198.
14. Luk'ianishyna, O. A. Suchasni tendentsii rozvytku rynku biopalyva v sviti (ohliad) [Elektronnyi resurs] / O. A. Luk'ianishyna, I. A. Vakulenko. — Rezhym dostupu: \www/ URL: http://zbirnyk.bukuniver.edu.ua/ed_work/n_7/10.pdf. — 01.01.2014.
15. Pruts'ka, O. O. Derzhavne rehuliuвання розвитку rynku biopalyva v Ukraini [Elektronnyi resurs] / O. O. Pruts'ka. — Rezhym dostupu: \www/ URL: http://web.znu.edu.ua/herald/issues/2010/Vest_Ek5-1-2010-PDF/179-182.pdf.
16. Urząd Regulacji Energetyki [Electronic resource]. — Available at: \www/ URL: <http://www.ure.gov.pl>. — 01.03.2014.
17. Domagała, T. Analiza rynku biopaliw w Polsce — czy gra jest warta świeczki? [Electronic resource] / T. Domagała. — 2012. — Available at: \www/ URL: <http://biotechnologia.pl/biotechnologia/aktualnosci/analiza-rynku-biopaliw-w-polsce-czy-gra-jest-warta-swieczki,863>. — 12.01.2014.
18. Niemcy: kierowcy nadal unikają ekologicznej benzyny E10 [Electronic resource]. — Available at: \www/ URL: <http://www.dw.de/niemcy-kierowcy-nadal-unikaj%C4%85-ekologicznej-benzyny-e10/a-15912047>. — 12.01.2014.
19. Olej posmazalnicy wypiera tradycyjne biokomponenty [Electronic resource]. — Available at: \www/ URL: http://nafta.wnp.pl/olej-posmazalnicy-wypiera-tradycyjne-biokomponenty,199323_1_0_0.html. — 06.06.2013.
20. Biopalyvo: shche odne superechlyve pytannia [Elektronnyi resurs]. — Rezhym dostupu: \www/ URL: <http://www.eco-live.com.ua/content/blogs/biopalyvo-sche-odne-superechlyve-pytannia>. — 12.01.2014.
21. Impacts of the EU biofuel target on agricultural markets and land use: a comparative modelling assessment [Electronic resource]. — Available at: \www/ URL: <http://www.biofuelstp.eu/sustainability.html>. — 12.01.2014.

ВОЗМОЖНОСТИ И ПРЕГРАДЫ НА ПУТИ РАЗВИТИЯ БИОТОПЛИВА ДЛЯ ТРАНСПОРТА В ПОЛЬШЕ — ОПЫТ ДЛЯ УКРАИНЫ

Развитие возобновляемых источников энергии в производстве транспортного биотоплива имеет важное значение, как для экономики Польши, так и Украины. Развитие сектора биотоплива зависит от ряда экономических и экологических факторов, в том числе политических решений. В статье представлено текущее состояние развития производства биотоплива в Польше, а также возможности и препятствия на пути развития этого сектора.

Ключевые слова: транспортное биотопливо, возобновляемые источники энергии, сектор биотоплива, Польша, Европейский Союз, Украина.

Izdebski Waldemar, Doctor of Sciences, Professor, Head of the Department of Production Management, Warsaw University of Technology, Poland, e-mail: W.Izdebski@wz.pw.edu.pl.

Kryś Piotr, MSc., Department of Production Management, Warsaw University of Technology, Poland.

Skudlarski Jacek, PhD, Department of Production Management and Engineering, Warsaw University of Life Sciences – SGGW, Poland, e-mail: jacek_skudlarski@sggw.pl.

Zajac Stanisław, PhD, State Higher Vocational School in Krosno, Poland, e-mail: zajacstanislaw@op.pl.

Maznev Gregory, Professor, Department of the Organization of Production, Business and Management, Kharkiv National Technical University of Agriculture named Peter Vasilenko, Ukraine.

Zaika Svetlana, Head of the Department of the Organization of Production, Business and Management, Kharkiv National Technical University of Agriculture named Peter Vasilenko, Ukraine, e-mail: zaika_s75@mail.ru

УДК 330.341.1

Дунська А. Р.

КОНЦЕПТУАЛЬНА СХЕМА ПОБУДОВИ ІННОВАЦІЙНОГО МЕХАНІЗМУ РОЗВИТКУ ПРОМИСЛОВОГО ПІДПРИЄМСТВА

Представлено ключові фактори в інноваційній моделі розвитку економіки. Визначена сутність механізму управління і підходи до структурування механізму управління. Досліджено основні підходи до розвитку підприємств. Запропонована концептуальна схема побудови інноваційного механізму розвитку промислового підприємства. Представлено зміст основних етапів формування інноваційного механізму.

Ключові слова: інновація, інноваційний механізм, інноваційний розвиток, підприємство, схема.

1. Вступ

Визначальними факторами розвитку світової економіки в сучасних умовах є інтенсивне генерування ідей і активне впровадження інновацій, що є результатом інноваційної діяльності, яка здійснюється в різних формах та на різних рівнях суб'єктів господарювання.

На думку багатьох фахівців в сфері управління, інноваційна активність для західних промислових підприємств, їх сприйнятливість до технологічних інновацій – це питання виживання у гострішій конкурентній боротьбі. Інноваційна діяльність забезпечує останнім суттєві конкурентні переваги, більшу стійкість, сприяє укріпленню підприємства на ринку. Зниження технологічного потенціалу, втрата властивості до сприйняття нових наукоємних технологій з безперечною ведуть до погіршення позицій на ринку, до зниження обсягів продажу з очевидним несприятливим результатом [1].

З іншого боку, інноваційна спрямованість економічних процесів довела неефективність організаційних структур та методів традиційного менеджменту, які не враховують зростаючих нетрадиційних якісних факторів економічного росту. Все це обумовлює необхідність пошуку нових способів та підходів до управління інноваційними процесами на підприємствах.

Актуальними засобами інтенсифікації інноваційної діяльності на підприємстві є інноваційний механізм, який має бути спрямований на підвищення ефективності та результативності інноваційних перетворень в середині підприємства, оптимальне регулювання та стимулювання інноваційних змін.

2. Аналіз літературних даних і постановка проблеми

На сьогоднішній день в Україні практично відсутні роботи, в яких використовується термін «інноваційний

механізм», не визначені теоретико-методологічні аспекти даної категорії.

Проте присутня достатньо велика кількість наукових праць, в яких досліджуються питання інноваційного розвитку, як на рівні окремого господарюючого суб'єкта, так і на рівні національної економіки в цілому, які формують потужне науково-теоретичне підґрунтя нашого дослідження. Найбільш ґрунтовні дослідження інноваційної проблематики можна зустріти в роботах таких вітчизняних учених: О. Амоша [2], С. Ілляшенко [3], Г. Калитич [4], Л. Федулова [5] та інших. Серед зарубіжних дослідників, які здійснили значний вклад у розвиток теорії інноватики, варто відзначити П. Друкера [6], П. Завліна [7], Г. Ковальова [8], Б. Санто [9], Й. Шумпетера [10] та інших.

В роботах зарубіжних фахівців досліджені окремі аспекти механізмів управління інноваційним розвитком, зокрема слід відмітити публікації П. Шеко [11] та В. Колоколова [12]. Останній в своїй роботі [12] практично не розмежовує поняття «інноваційний механізм розвитку» та «механізм інноваційного розвитку» і визначає його як організаційно-економічну форму здійснення інноваційної діяльності. Однак, на нашу думку це дещо різні поняття. Детальне обґрунтування сутності даної категорії було наведено автором в роботі [13].

Необхідність розробки конкретних інструментів, які здатні спрямувати розвиток підприємства в напрямку інноваційного оновлення і використання внутрішніх і зовнішніх інноваційних можливостей визначає головну мету даної статті.

Отже, мета статті полягає в розробці концептуальної схеми побудови інноваційного механізму розвитку промислового підприємства.

Для досягнення визначеної мети необхідно вирішити такі задачі дослідження:

1. Оцінити передумови формування інноваційного механізму на підприємствах.