

Global Trends of International Mergers and Acquisitions in the Energy Sector

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ABSTRACT. The article explores conditions, factors and results of mergers and acquisitions in international business with the example of the energy industry. The directions of world energy market transformation in the framework of PESTLE analysis have been determined by the factors influencing the efficiency and future of the companies that have effected mergers and acquisitions. The transformation of the global energy market is associated with changes in the main market parameters that affect the sectoral and regional structure of international mergers and acquisitions. Including: growing demand for energy from the growing population of the planet, including due to an increase in the middle class share; fluctuation of world oil market prices; the growth of supply of shale oil changing the transnational flows of trade in primary petroleum products; rising demand for renewable energy as a result of cheapening technologies and diversification policies; the growth of renewable energy sources supply; increase in demand for atomic energy; improvement of energy infrastructure; introduction of energy efficient and low carbon technologies; introduction of safe technologies by energy companies; reduction of transaction costs in power grids due to optimization of modes at application of Smart Grid at all levels (local, on-site, regional, national, international); the expansion of the world-leading countries in the primary energy markets; demonopolization of national energy markets and liberalization of energy markets of the EU, USA, Japan, South Korea, Australia, etc. The world market of mergers and acquisitions has been characterized with the definition of key features of its development. International mergers and acquisitions in the energy sector are analysed on the basis of regional and industry characteristics. The international mergers and acquisitions in the energy sector has been analysed, taking into account the main scenarios for the development of the global energy market (reform, restoration, competition). The tendencies of mergers and acquisitions in energy in the context of the energy markets transformation have been revealed, including, but not limited to: the increase in the number and value of transactions in renewable energy under any scenario of the global energy market development; the cyclical nature of the mergers and acquisitions development; synchronization of mergers and acquisitions cycles in energy and world market of mergers and acquisitions; increase in the number of transactions; involvement of innovative energy companies that implement energy-efficient production, intelligent technologies, and robotics in the consolidation processes; increase in the share of cross-border mergers and acquisitions; accelerated regional growth in the number and value of mergers and acquisitions transactions in the developed countries of Western Europe, North America (USA, Canada), Asia-Pacific (China, India, Australia); the high growth rates of international mergers and acquisitions

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among developing countries in the countries of Central and South America (Mexico, Brazil), as well as in some African countries where the renewable energy is being rapidly developing (Kenya, South Africa, Nigeria).

KEYWORDS. International mergers and acquisitions, consolidation, integration, transformation, energy, trends, PESTLE analysis.

Introduction

In the globalization context of modern economic system, international companies are trying to enter a new level of business development or, conversely, they resort to mergers and acquisitions (English: mergers and acquisitions, M&A) in order to get rid of non-profitable or non-core assets. That is why, recent international mergers and acquisitions, which are growing every year, play an increasingly important role in the integration of national economies. Due to this mechanism, international companies may use the synergy effect of mergers and thus increase their international competitiveness in the world market. Though such agreements should be a weighted decision, there are also certain risks in the event of an incorrect mergers and acquisitions decision. This is evidenced by the low share of successful deals of their total number. Therefore, managers should consider all pros and cons of companies integration, estimate the consequences of such merger, and manage mergers and acquisitions properly.

International mergers and acquisitions as strategies for increasing the competitiveness of an international company are widely used in the energy sector. For example, the largest deals were made between the following companies: Exxon Corp and Mobil Corp in 1998; Dutch Petroleum Co and Shell Transport & Trading Co. in 2004, as well as Royal Dutch Shell PLC and BG Group PLC in 2015. In addition, General Electric Co. announced a merger with Baker Hughes Inc in October 2016. Growth in mergers and acquisitions in the field of renewable energy, especially solar and wind energy, is also expected. As a result, mergers and acquisitions in the energy sector were and still remain an important topic for research.

The topic of mergers and acquisitions in international business is studied in the works of such foreign scientists as: A. Auerbach², D. DePamphilis³, K. Lux and R. Mak⁴, J. Motis⁵,

² Auerbach, A. J. and D. Reishus. "The effects of taxation on the merger decision", in *Corporate Takeovers: Causes and Consequences* (Chicago: University of Chicago Press, 2008), 157-183.

³ DePamphilis, D. *Mergers, Acquisitions, and Other Restructuring Activities: An Integrated Approach to Process, Tools, Cases, and Solutions*. NY : Academic Press, 2009.

⁴ Lucks, K. and R. Meckl. *International Mergers & Acquisitions: The Process-oriented approach*, 2015. [in German].

⁵ Motis J. *Mergers and Acquisitions Motives*. Toulouse School of Economics – EHESS (GREMAQ) and University of Crete, 2007.

D. Harding⁶ and S. Rowid⁷., as well as D. Harding, S. Shankar and R. Jackson.⁸ The works of E.V. Vaganova and O.A. Kyrychenko⁹, Yu.P. Deineka¹⁰, O.M. Kychan¹¹, V.V. Makedon¹², A.O. Oksak¹³, Yu.L. Rybytska¹⁴, O.I. Rogach¹⁵, S.V. Sidenko and D. I. Kiryakova¹⁶ and others should be noted among national researches. Moreover, mergers and acquisitions were studied by analytical and consulting companies and agencies, such as Bloomberg, Deloitte, EY, PwC, Institute for Mergers, Acquisitions and Alliances (IMAA), McKinsey&Company, Thomson Reuters, etc. However, the mutual influence of the trends of mergers and acquisitions in the energy sector in the context of transformation processes in the world energy markets requires new research.

The aim of the study is to identify trends for mergers and acquisitions of international companies in the global market energy sector in the context of energy market transformation. The following methods have been used for research: analysis and synthesis, methods of induction and deduction, observation, generalization, comparison and statistical methods.

⁶ Harding D. et al. The renaissance in mergers and acquisitions: What to do with all that cash? " *Bain & Company*". <http://www.bain.com/publications/articles/the-renaissance-in-mergers-and-acquisitions-what-to-do-with-all-that-cash.aspx>. Date accessed. 21st ser., no. 03(2013): 12.

⁷ Harding, D. and Rovit S. Building deals on bedrock. " *Harvard Business Review*", 82nd ser., no. 9 (2004): 121-28, 138.

⁸ Harding D. The renaissance in mergers and acquisitions: The surprising lessons of the 2000s / D. Harding, S. Shankar, R. Jackson // *Bain & Company*. – 2013.

⁹ Kyrychenko, O. A. and A. V. Vahanova. "Some aspects of mergers and acquisitions in terms of the construction of the new integration system of the economy." *Aktualni problemy ekonomiky*, 92nd ser., no. 2 (2009): 45-56. [in Ukrainian].

¹⁰ Deineka, Y. P. "The features of display of synergies from mergers and acquisitions." *Visnyk Natsionalnoho Universytetu "Lviv Politehnika"*, no. 683 (2010): 238-43. [in Ukrainian].

¹¹ Kychan, A. M. "The mechanism of signing the agreements of mergers and acquisitions in the environment." 2012. Accessed November 20, 2016. http://www.nbu.gov.ua/old_jrn/Soc_Gum/VSU/2012_7/135-143.pdf [in Ukrainian].

¹² Makedon, V. V. "The improvement of the management system of transformation of international companies in the form of M&A." *Skhid*, 110th ser., no. 3 (2011): 39-43. [in Ukrainian].

¹³ Oksak, A. O. "The state regulation of processes of mergers and acquisitions in Ukraine." *Investytsii: praktyka ta dosvid*, no. 11 (2015): 45-51. [in Ukrainian].

¹⁴ Rybytska, Y. L. "The risks of mergers and acquisitions of companies ." *The collection of scientific papers "Vestnik NTU KhPI": Technological progress and efficiency of manufacturing*, no. 35 (2009): 73-76. [in Ukrainian].

¹⁵ Rohach, O. I. and V. V. Makedon. "Effectiveness and efficiency of mergers and acquisitions for multinationals." *Biuletyn Mizhnarodnoho Nobelivskoho ekonomichnoho foryumu*, 6th ser., no. 1 (2013): 16. [in Ukrainian].

¹⁶ Sidenko, S. "The strategy and tactics of the international mergers and acquisitions." *Mizhnarodna ekonomichna polityka*, no. 1-2 (2014): 55-82. Accessed November 21, 2016. http://nbuv.gov.ua/UJRN/Mep_2012_1-2_5. [in Ukrainian].

Main Characteristics of the World Market of Mergers and Acquisitions

Merger is the process of voluntary association of economic entities in a new economic unit in order to expand the scope of business. Such reorganization results in the establishment of a new legal entity which is a successor of all rights, assets, and liabilities of the united companies. In most cases, the term “merger” is used in case of association of companies of the same size. Acquisition is a process targeting at the owning of a controlling interest in another company and is often of a coercive character. That is why mergers and acquisitions are strategies for company growth by combining two or more firms or control of one company over the other¹⁷.

According to IMAA statistics, the value and number of transactions in the global M&A market is growing each year. The dynamics of the mergers and acquisitions global development indicators had a cyclic-wave character in 1985-2016 (fig. 1).

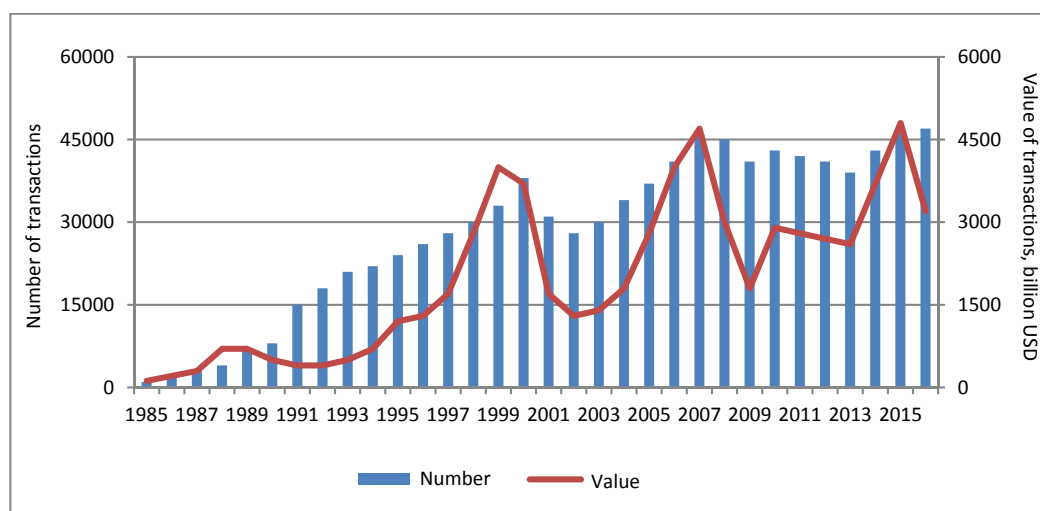


Fig. 1. Number and Value of M&A Transactions in 1985-2016¹⁸

¹⁷ Sabadash, V. V. and D. A. Hontar. "The markets of M&A: state, problems of functioning and trends of development." *Mekhanizm rehliuvannia ekonomiky*, no. 4 (2015): 127-38. Accessed November 17, 2016. http://mer.fem.sumdu.edu.ua/content/articles/issue_27/VIKTOR_V_SABADASH_DARYNA_A_HONTARMerger_s_and_Acquisitions_Markets_State_Problems_of_Functioning_and_Development_Trends.pdf. [in Ukrainian].

¹⁸ Website of Institute for Mergers, Acquisitions and Alliances. – Access: www.imaa-institute.org — офіційний сайт Інституту злиттів, поглинань та альянсів (Institute for Mergers, Acquisitions and Alliances).

As it is noted by S. Sidenko and D. Kiryakov “M&A-waves” or “consolidation waves” are closely linked to abrupt changes in the market, which are observed during periods of technological breakthroughs or violent economic ups and downs¹⁹. Trends of M&A development show that from 1995 to 2000, the number and value of transactions increased, and from 2001 until the late 2003, the M&A market activity significantly decreased. Please note that the financial crisis of 1997-1998, which was of regional significance in Asian countries, did not affect the world market of mergers and acquisitions. The largest declines are observed during global economic and financial-economic crises, when the value of transactions dropped almost twice. Such recessions were observed in 2001-2002, when the value of transactions started to increase again from the late 2003, as well as in 2007-2008, with the beginning of restoration in 2010. The revival of M&A processes during 2004-2015 was connected with the improvement of economic situation in the developed countries (economic growth in the EU), the reorientation of large companies to the expansion strategy, as well as positive trends in the development of financial, and especially stock markets. During the economic growth, the companies have sufficient funds to enter into transactions, as well as better opportunities for obtaining loans. Another factor in the growth of interest to mergers and acquisitions is the increase in trust to the top management of companies²⁰.

Telecommunications, pharmaceuticals, oil and gas, food and financial sectors were the branches where the major M&A transactions were made. The share of mergers and acquisitions in the energy sector was 13.7 % of the total value and 7.2 % of the number of the most expensive transactions that took place from 1985 to 2015.

The most expensive M&A transactions during this period were made in the United States, Great Britain, France, Canada, Spain, etc., respectively, in the developed countries of North America and Western Europe. The tendency of the international M&A market growth is lasting now primarily due to the developed countries of Europe and the USA.

¹⁹ Sidenko, S. "The strategy and tactics of the international mergers and acquisitions." *Mizhnarodna ekonomichna polityka*, no. 1-2 (2014): 55-82. Accessed November 21, 2016. http://nbuv.gov.ua/UJRN/Mep_2012_1-2_5. [in Ukrainian].

²⁰ Davydovych, O. "The world market of mergers and acquisitions: the economic measurement and the specifics of regulation." *Mizhnarodna ekonomichna polityka*, 6th ser., no. 1 (2007): 114-37. Accessed November 15, 2016. http://iepjournals.com/journals/6/2007_05_Davydovych.pdf. [in Ukrainian].

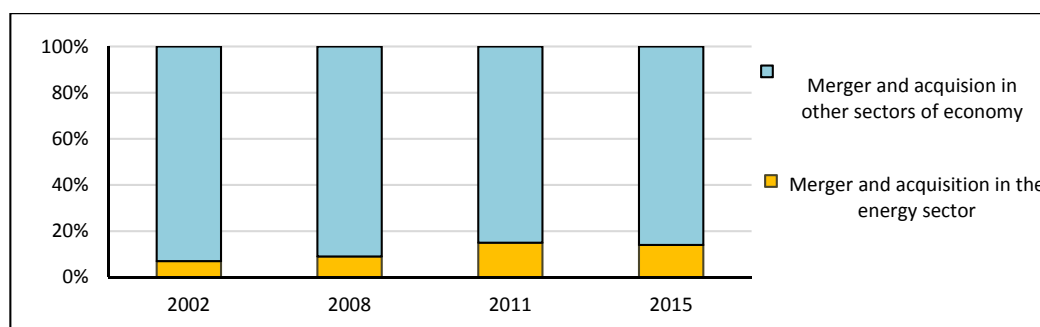


Fig. 2. Mergers and Acquisitions Share in the Energy Sector²¹

The global M&A market is characterized by the following development features:

- increase in transaction quantity and value;
- wave-like tendencies and the cyclical nature of mergers and acquisitions processes development;
- the largest number and value of transactions are characteristic for such industries as: healthcare, energy, high technology, financial sector, industrial and consumer goods, raw material, as well as telecommunications;
- M&A transactions are widely made in the developed countries of Western Europe, North America and the countries of the Asia-Pacific region;
- increase in the share of cross-border mergers and acquisitions.

Areas of the World Energy Markets Transformation

Mergers and acquisitions in the energy sector have certain features, therefore, mergers and acquisitions therein directly depend on the development of the energy itself, as the development of certain areas of the energy sector determines an attractive sub-sector for the investor. Accordingly, the transformation of the global energy markets affects the assessment of the M&A transactions attractiveness.

Due to the stringent environmental requirements and low carbon commitments of most countries, the sectoral supply in the energy market is undergoing transformation. In particular, the state environmental programs of the UN member states take into account recent changes in climate change regulation, namely the Paris Climate Agreement dated April 22, 2016, which was implemented within the framework of the

²¹ "Bloomberg Global M&A Market Review Financial Rankings 2015." Accessed November 25, 2016. <https://data.bloomberglp.com/professional/sites/4/global-ma-financial-2015.pdf>.

United Nations Framework Convention on Climate Change (UNFCCC) for the regulation of measures to reduce carbon dioxide emissions that came into force on November 4, 2016. According to this agreement, the governments of the states that have ratified it should restrain the growth of the global average temperature by no more than 2°C relative to the corresponding pre-industrial index, and therefore reduce the emissions of carbon dioxide into the atmosphere²². Another important factor of the world energy markets transformation is the unanimous adoption in September 2015 in New York of the new global program for ensuring a sustainable future and the goals of sustainable development by 193 United Nations member states. The Goal 7 on sustainable energy, which includes interconnected tasks on access to energy, the use of renewable energy sources and implementation of energy efficiency tools is among them²³. Therefore, investors' interest in "clean" energy and renewable energy sources, heated by the spread of various "green" tariffs and their stimulation by the state, is growing. Increased demand for renewable energy, shale gas and liquefied gas technologies is noted. The interest in both main and distribution networks remains the same²⁴.

A modern factor in the transformation of energy markets is the implementation of the Smart Grid concept in energy power systems. The widespread introduction of Smart Grid technologies in energy power systems at all levels (local, on-site, regional, national, and international) will facilitate the optimization of electricity supply, which will reduce energy companies costs²⁵. The dissemination of smart fundamentals of the economy development, in turn, will promote environmentalization and the effectiveness of the countries in the emerging markets, in particular in Ukraine²⁶.

Such factors as the demand for energy and the development of certain energy sources are crucial for future energy mergers and acquisitions. According to BP plc's "BP Energy Outlook 2017" report, gas is the most growing energy source. This is due to an increase in shale and liquefied natural gas production in the US and new environmental policies. The oil market is influenced by the current low oil prices,

²² "The 21st Conference of the Parties to the United Nations Framework Convention on Climate Change" Accessed: <http://www.un.org/sustainabledevelopment/cop21/>.

²³ "UN Sustainable Development Summit from 25–27 September 2015 in New York." Accessed November 30, 2016. <http://www.un.org/sustainabledevelopment/summit/>.

²⁴ VB Partners. "Mergers and acquisitions in the energy sector." <http://vbpartners.ua/uk/publications/item/937-zlyttia-ta-pohlynannia-v-enerhetytsi>. [in Ukrainian].

²⁵ Denysiuk, S. P. "The technological guidelines of implementing the concept "Smart Grid" in electropower systems." *Energetyka: ekonomika, tekhnolohii, ekolohiia*, no. 1 (2014): 7-21. [in Ukrainian].

²⁶ Galperina, L. P., A. T. Girenko, and V. P. Mazurenko. "The Concept of Smart Economy as the Basis for Sustainable Development of Ukraine." *International Journal of Economics and Financial Issues*, no. 8S (2016): 307-14.

which leads to increased demand and reduced supply, and in a regional context – to -increased demand for oil in Asia, especially in China²⁷.

Implementation of the sustainable development priorities in the world market of petroleum products leads to a change in the volume of supply and demand²⁸. Also, due to global environmental reform, companies are trying to use renewable energy sources more. A comparative analysis of the twenty-year structure of demand for the primary source of energy makes it possible to conclude that there have been significant shifts between the period of 1994-2014 and 2014-2035 (fig. 3).

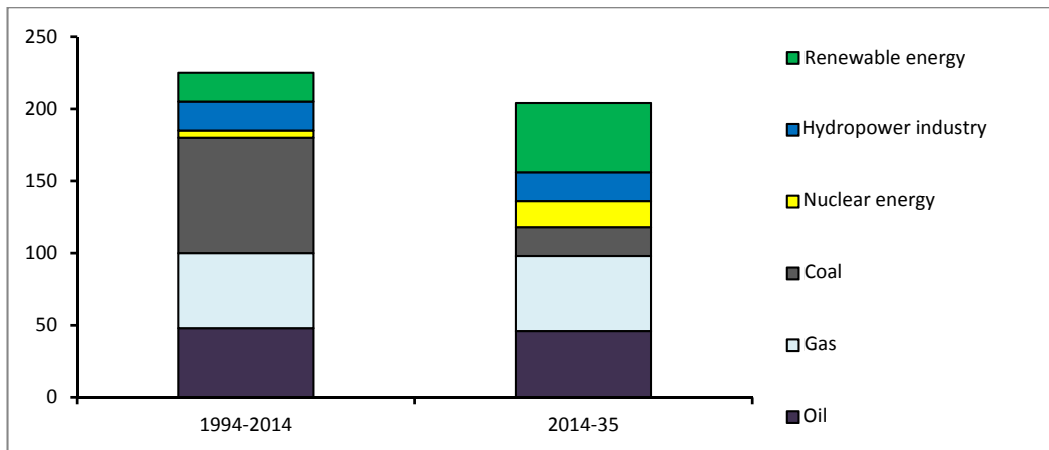


Fig. 3. The Structure of Demand Growth for Energy Sources in 1994-2014 and 2014-2035, MW per year²⁹

Major changes include reduced demand for coal and increased demand for nuclear and renewable energy. At the same time, such primary sources of energy as oil, gas and hydropower remained the basis of the world energy systems.

The transformation of the global energy markets can be characterized by the PESTLE analysis based on the following factors: political, economic, social, technological, legal and environmental that affect the efficiency and future of companies that effected mergers and acquisitions.

²⁷ Mazurenko, V. P. and O. S. Shapran. "The development of the world oil market in terms of globalization." *Stratehiia rozvytku Ukrainy (ekonomika, sotsiologhii, pravo): Naukovii Zhyrнал*, no. 4 (2013): 104-08. [in Ukrainian].

²⁸ Galperina, L. P. and L. I. Lukianenko. "The implementation of sustainable development priorities of the global oil market." *Mizhnarodni vidnosyny. Seriia "Ekonomichni nauky"*, no. 4 (2014). http://journals.iir.kiev.ua/index.php/ec_n/article/view/2638. [in Ukrainian].

²⁹ International Energy Agency. "World Energy Outlook 2016, Executive summary." Accessed November 30, 2016. http://www.iea.org/publications/freepublications/publication/investment2016lowres_0.pdf

Table 1 Pestle Analysis for Solutions on Mergers and Acquisitions in Energy Sector³⁰

Factors	Effect of factors
Political	<ul style="list-style-type: none"> - Political instability and uncertainty about future reforms in developing countries reduce profits of energy companies - Restructuring in the energy sector and stimulating energy development will promote the attraction of new investments and the development of energy companies, which will promote mergers and acquisition in the sphere - Denationalization and privatization contribute to increased investment in energy and the exit of international energy companies into the markets of such states. - State support for the development of renewable energy promotes the development of companies that generate or use it in their activities. - The policy of expansion in the external energy markets will promote cross-border mergers and acquisitions - The policy of diversification of energy supply sources will promote international mergers and acquisitions - Cross border and overseas energy infrastructure control policy will help international mergers and acquisitions - Policies of demonopolization in national energy markets increase competition that changes the conjuncture - Implementation of sustainable development strategies will contribute to economic growth, and hence to an increase in M&A transactions. - Implementation of energy efficiency policy will reduce energy consumption, which will lead to a reduction in the profits of power companies
Economic	<ul style="list-style-type: none"> - The economic growth of countries contributes to the growing demand for energy, and, accordingly, profits of energy companies increase - Low tax rates for energy companies contribute to increased incomes of energy companies, and vice versa, high ones contribute to lower incomes - Low rental payments help increase energy companies' incomes and, on the contrary, high ones contribute to lower incomes - Fluctuations in oil prices increase the risk of loss of profits and investment risks - Instability in exchange markets boosts the value of energy producing from imported primary energy sources - The formula for transit prices affects the profitability of energy companies - The liberalization of the energy markets of developed countries will contribute to the increase of M&A transactions. The economical use of electricity by a certain part of the population due to rising electricity prices, on the one hand, and insufficient amount of income, on the other hand, can lead to lower energy consumption and, consequently, to a decline in profits of energy companies
Social	<ul style="list-style-type: none"> - An increase in the population contributes to increased demand for energy, and therefore for the growth of profits of energy companies - Increased middle class share in developing countries increases the demand for automobile fuel - Ecologization of the consciousness of population contributes to the use of renewable energy sources

³⁰ Created by authors..

Factors	Effect of factors
Technological	<ul style="list-style-type: none"> - The expansion of technologies in the area of online utility charges, as in Sweden, will facilitate the payment of electricity to consumers and some increase of profits of energy companies - Improving of the electricity production technologies from renewable energy sources will help to reduce the cost and increase profitability in this energy sector - The development of deep drilling and offshore oil and gas extraction technologies will reduce the cost of electricity production and increase the profits of vertically integrated oil and gas companies - The development of technologies for the extraction of shale gas, petroleum, bituminous sands will reduce costs and increase the efficiency of energy companies - The development of hydrocarbon processing technologies will increase the efficiency of vertically integrated oil and gas companies - The widespread introduction of Smart Grid technologies at all levels (local, on-site, regional, national, international) will facilitate optimization of electricity supply, which will reduce the expenditures of energy companies - The introduction of intelligent technologies and the robotization of certain energy companies will increase their attractiveness for potential transactions of mergers and acquisitions. - Reducing or eliminating of the digital divide will facilitate agreements in developing countries - The introduction of secure technologies by energy companies increases their attractiveness for M&A transactions.
Legal	<ul style="list-style-type: none"> - The focus on liberalization of electricity markets in the EU will facilitate the activities of international energy companies in Europe - Increasing restrictions can help to monopolize and increase monopoly profits of certain energy companies - Strengthening of antitrust laws can reduce the profits of energy companies - Adjusting of budgeting requirements will increase the efficiency of national energy companies in developing countries, which will lead to an increase in M&A transactions. - Implementation of the standards on energy management at the legislative level will reduce energy consumption, which will reduce the profits of energy companies - Legalization of the energy service will reduce energy consumption, which will reduce the profits of energy companies
Environmental	<ul style="list-style-type: none"> - The Paris Climate Agreement on reduction of carbon dioxide emissions dated 2016 and other environmental programs of the countries will promote the development of renewable energy, gas and reduced use of coal as an energy source, which will increase the share of transactions in the market for the production of electricity from renewable energy sources - Increased environmental safety requirements to energy companies will increase their expenses, which will reduce the number of mergers and acquisitions

M&A decision-making should also take into account the external factors described in the PESTLE analysis in order to manage transactions in a more effective way. Transformation of the world energy markets is associated with changes in the main market parameters that affect the sectoral and regional structure. Including: fluctuations of prices in the world oil market; rising supply of shale oil;

cheapening of renewable energy sources; reduction of transaction costs due to flexibility and work in the optimal mode of electrical grids due to the use of Smart Grid; liberalization of energy markets of the EU, USA, Japan, South Korea, Australia, etc.

International Mergers and Acquisitions in the Energy Sector Based on Regional and Industry Characteristics

According to IMAA, the volume and value of world M&A in the energy sector is gradually increasing, although this industry has the same cyclical development of M&A as the global M&A market in general (Fig. 4). As PwC analysts note in “The Global Survey: Growth, Transformation and Search for Output” the cost, not the volume, quality, and not quantity remain in prospect³¹. At the same time there is a tendency of prevalence of value over the number of transactions.

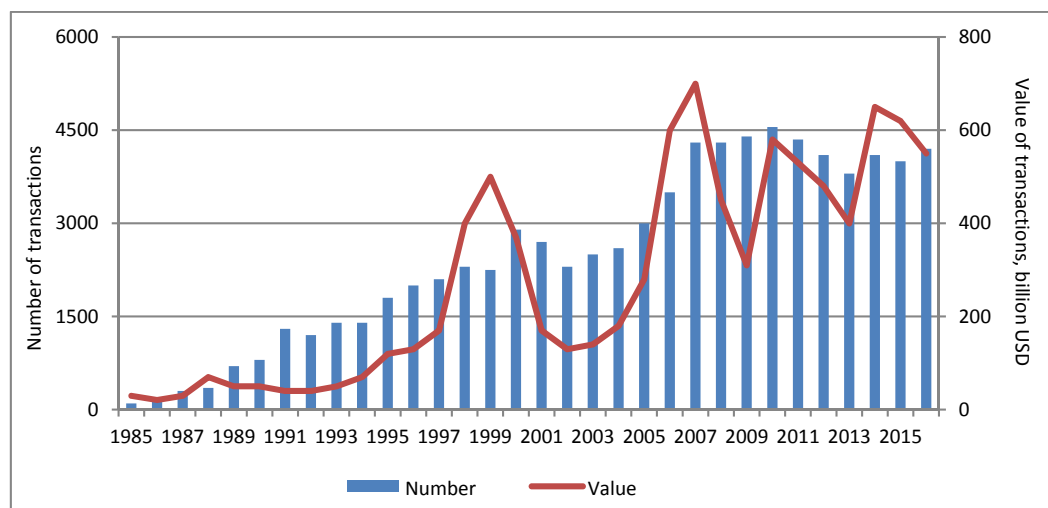


Fig. 4. Number and Value of M&A Transactions in the Energy Sector for 1985-2016³²

As the M&A market in energy sector is subject to the general laws related to all M&A factors, so if the global market is in decline, then the same decline in the volume and value of transactions is also

³¹ PwC. Global overview: Growth, transformation and the search for yield. – Access: <http://www.pwc.com/gx/en/industries/energy-utilities-mining/power-utilities/publications/power-and-renewables-deals.html#global-overview>

³² Website of Institute for Mergers, Acquisitions and Alliances. – Access: www.imaa-institute.org — офіційний сайт Інституту злиттів, поглинань та альянсів (Institute for Mergers, Acquisitions and Alliances).

characteristic to the energy sector. This explains the fact that the volume and value of energy mergers and acquisitions in 2016 increased compared to 2015, when they were lower than in 2014 and in 2014 higher than in 2013.

However, the market of mergers and acquisitions in the energy sector is characterized by certain features. Firstly, it is the state that often carries out transactions in connection with considerations of national energy and environmental safety, as well as taking into account the requirements of sustainable development. Secondly, the need for significant capital investments in certain areas of the energy sector results in a high cost of mergers and acquisitions, which increases the time for their preparation. Thirdly, individual energy sectors are in technological need of vertical integration that brings specificity in the implementation of transactions, in particular in the oil and gas sector.

In 2016, the value of M&A transactions amounted to USD 292.7 billion, 148.7 of which were in the electric power industry, 106 – in the gas sector, and 38 – in the renewable energy sector. In 2015, there were 1,004 M&A transactions, of which 312 transactions (31.1 %) were in the electricity sector, 168 transactions (16.7 %) – in the gas sector, and the largest number of transactions were in renewable energy sources – 524 transactions (52.2 %)³³. The total value of mergers and acquisitions in the energy sector in 2015 was USD 199 billion, including deals in electricity sector amounting to USD 84 billion (42.21 %), deals in the gas sector amounting to USD 59.8 billion (30.05 %) and deals in renewable energy sources amounting to USD 55.3 billion.

Although the value of energy mergers and acquisitions fell by 16 % in 2015 compared to 2014, however, this indicator in the renewable energy sector and in all energy sectors of the Asia-Pacific region has increased. The value of M&A transactions in the renewable energy sector has almost doubled in Europe, more than doubled in the Asia-Pacific region, three times in Central and South America, and about 30 % in North America³⁴. At the same time, according to the Deloitte report, the value of cross-border mergers and acquisitions in the energy sector has increased from USD 148 billion in 2014 to USD 179 billion at the end of the third quarter of 2015³⁵.

³³ PwC. "Global overview: Growth, transformation and the search for yield." – Accessed November 27, 2016. <http://www.pwc.com/gx/en/industries/energy-utilities-mining/power-utilities/publications/power-and-renewables-deals.html#global-overview>.

³⁴ PwC. "Power & Renewables Deals 2016 outlook." Accessed November 27, 2016. <http://www.pwc.com/gx/en/energy-utilities-mining/pdf/power-and-renewables-deals-2016-outlook-and-2015-review.pdf>.

³⁵ "The Deloitte M&A Index 2016: Opportunities amidst divergence." Accessed November 28, 2016. <https://www2.deloitte.com/ua/uk/pages/finance/articles/gx-deloitte-m-and-a-index.html>.

The main regions of M&A in the energy sector are North America, Europe and the Asia-Pacific region. In 2015, the largest number of transactions for a merged company was made in Europe (32 %), the Asia-Pacific region (30 %) and North America (26%), and for the buyer-company – in Europe (31 %), the Asia-Pacific region (32 %) and North America (29 %). In 2015, the largest value of transactions for a merged company was made by North America (40 %), the Asia-Pacific region (33 %) and Europe (19 %), and by the buyer-company – in North America (49 %), the Asia-Pacific region (31 %) and Europe (15%). Therefore, the most expensive transactions were made in North America³⁶.

The American region has the following features: Increase in the volume of M&A transactions; the championship of the USA and Canada; diversification; increase in tax credits for wind and solar energy, which offers great prospects for the growth of this energy sector; asset restructuring through the sale of part of companies shares.

The European region has the following features: the growth of transactions in renewable energy sources sector, especially in Germany, Italy, Spain and the UK; the abolition of subsidies for clean energy producers creates fluctuations in the renewable energy market in the UK, which may lead to the sale of such capacities to the companies in other world regions; growth of mergers and acquisitions between European companies and companies from developing countries of Latin America, India, and Africa.

In Ukraine, the energy sector is the leader in the number of mergers and acquisitions among other types of economic activity. In Ukraine, the share of M&A in the energy sector amounted to 17 % of the total volume in 2012-2013, which was the highest indicator, and in 2014-2015 their number decreased and amounted only to 13 % of the total volume, which is the second sector for volume of mergers and acquisitions after financial services. By value, the energy sector was on the third place with a specific weight of 8 % of the total value of transactions in 2012 – 2013 after the agro-industrial and telecommunication sectors. The situation improved between 2014 and 2015 and their value increased to 29 % of the total value of mergers and acquisitions, which is the second indicator after the financial services sector. For Ukraine, the largest number of transactions are characterised in the field of renewable energy and the oil and gas industry. For example, in November 2015 the solar

³⁶ Website of Institute for Mergers, Acquisitions and Alliances. "Institute for Mergers, Acquisitions and Alliances". Access: www.imaa-institute.org; "Deloitte M&A Trends Report 2016." Accessed November 25, 2016. <https://www2.deloitte.com/us/en/pages/mergers-and-acquisitions/articles/ma-trends-report.html>; PwC. "Power & Renewables Deals 2016 outlook." Accessed November 27, 2016. <http://www.pwc.com/gx/en/energy-utilities-mining/pdf/power-and-renewables-deals-2016-outlook-and-2015-review.pdf>.

power stations “East Solar”, “Neptune Solar”, “Franco-Solar”, “Franco-Pivny”, “Danube SEP-1”, “Danube SEP-2” were sold to Chinese company CNBM by Activ Solar company. In July 2016, Cub Energy Inc. sold 50 % of the shares of “Uzhhorod Gas Area” to 100% affiliate of the Slovak company “Nafta”, i. e, the Dutch “Nafta-Nafta International B.V.” for 1.5 million euros³⁷. Renewable energy sector is a great alternative to investing because of the significant potential of resources and increasing the popularity of renewable energy at the state level, as there are preferential tariffs for renewable energy in Ukraine, which are fixed in euro and correspond to the average level of the corresponding tariffs in the EU³⁸. In future, besides the development of mergers and acquisitions in the sector of renewable energy sources, in connection with reforms on the privatization of energy facilities, one can also expect an increase in the level of mergers and acquisitions in the domestic electricity sector, for example, the takeover of “Tsentralenerho” JSC and state-owned shares of the regional state-owned companies (Mykolaiv, Ternopil, Khmelnytskyi, Zaporizhzhya, Kharkiv, Khmelnytskyi and Cherkasy Regional Energy Supply Companies). Therefore, considering the liberalization of the energy market, it is probable that Ukrainian state-owned companies or state-owned shares of companies will be acquired by foreign investors from Europe or China³⁹. At the same time, the peculiarities of the institutional environment, which is still highly monopolized and favourable for illegal takeovers, encourage potential players of the M&A market in the energy sphere of Ukraine to reduce the value of their assets.

The oil and gas industry is a cyclical, highly risky and capital-intensive segment of the energy sector, which needs flexibility and the ability to make complex decisions⁴⁰. The feature of the oil and gas industry is that it includes three sectors: extraction and primary processing; secondary processing, transportation and storage; final processing, which is preparing for sale, and direct sale of oil and gas to end users, as well as the service sector of the oil and gas complex⁴¹, therefore, each sector is tracing its tendencies. In particular, in 2015,

³⁷ "Mergers and acquisitions in Ukraine ." Investytsiyni portal. Accessed November 21, 2016. <https://inventure.com.ua/analytics/investments/osnovnye-trendy-v-sfere-sliyanij-i-pogloshenij-manda-v-ukraine>. [in Russian].

³⁸ "Why the Netherlands should invest into Ukraine." *Yevropeiska Pravda*. Accessed November 17, 2016. <http://www.eurointegration.com.ua/articles/2016/04/4/7047232/>. [in Ukrainian]

³⁹ Hrygorenko , Y. "Mergers and acquisitions in Ukraine: shortage of buyers and low prices." http://kreston-gcg.com/upload/sliyaniya_i_pogloscheniya_v_ukraine.pdf. [in Russian].

⁴⁰ "Deloitte Oil & Gas Mergers and Acquisitions Report Mid-year 2016: Looking for a restart." Accessed November 27, 2016. <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-energy-and-resources-oil-and-gas-m-n-a-report-2016.pdf>.

⁴¹ Investopedia. "What is the difference between upstream and downstream oil and gas operations?" Accessed November 30, 2016. <http://www.investopedia.com/ask/answers/060215/what-difference-between-upstream-and-downstream-oil-and-gas-operations.asp>.

mixed transaction in the sphere of oil and gas dominated in the oil and gas industry in the overall value of M&A transactions while other oil-related transactions took the second place. In 2011, contracts were predominantly separate in the field of oil and separately in the gas sector. There is a tendency to reduce the value of transactions in certain subsectors of oil and gas industry and to increase the cost of mergers and acquisitions in the mixed oil and gas sub-sector (fig. 5).

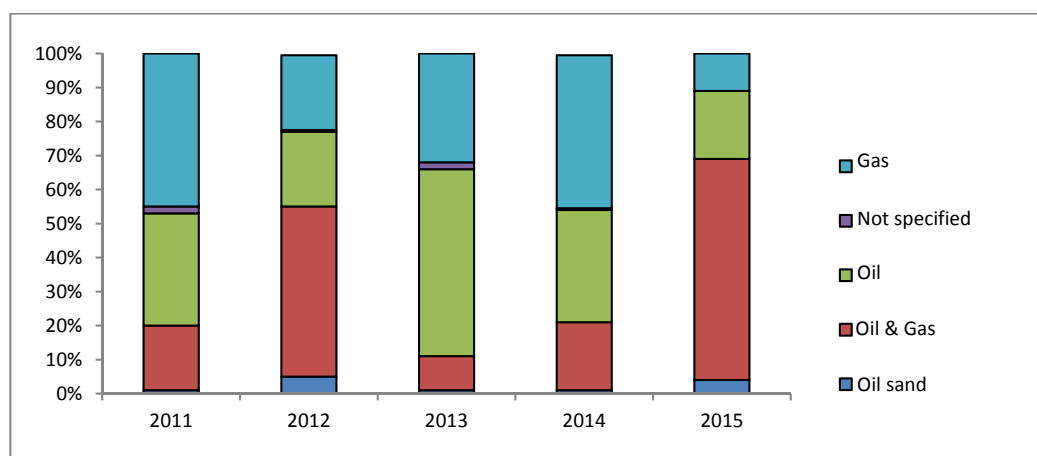


Fig. 5. Sub-Sectors Shares in the Total Value of Oil and Gas Industry Transactions (2011-2015), %⁴²

The most valuable transactions are made in the oil and gas industry. So, in 2015, one of the five largest merger and acquisition transactions and the largest over the past 5 years between the Dutch-British oil and gas company Royal Dutch Shell Plc and the British gas company BG Group Plc with the value of USD 81 billion took place, that constitute 54% of the total value of transactions in this subsector, and the entire value in the region of Europe was represented by the agreement between Royal Dutch Shell Plc and BG Group Plc, which has become the largest deal during the last five years.

However, according to the EY study in 2015, the value and number of transactions decreased compared to 2014. Mergers and acquisitions in the oil and gas industry are cyclical, the same as in the entire energy sector. In 2012 and 2014, M&A quantity increased compared to previous years, while in 2013 and 2015 it decreased compared with previous years.

⁴² "EY Global Oil and Gas Transactions Review 2015." Accessed November 27, 2016. [http://www.ey.com/Publication/vwLUAssets/EY-global-oil-and-gas-transactions-review-2015/\\$FILE/EY-global-oil-and-gas-transactions-review-2015.pdf](http://www.ey.com/Publication/vwLUAssets/EY-global-oil-and-gas-transactions-review-2015/$FILE/EY-global-oil-and-gas-transactions-review-2015.pdf).

The coal industry is gradually losing its popularity for M&A transactions, as evidenced by a fall in the value and number of mergers and acquisitions. For example, in 2014, there were 60 M&A transactions priced at USD 4,867 million, which is almost twice as little as in 2013. It is also important that 40 % of mergers and acquisitions in the coal industry in 2014 were transboundary. According to the company's acquisition target in 2014, countries such as Australia lead with the amount of M&A deals of USD 1,178 million, Canada with the amount of USD 894 million and USA with the amount of USD 571 million. Australia is one of the leaders in mergers and acquisitions in the coal industry. This trend may be explained due to the largest coalition agreement of 2014, namely the sale of 50.1 % of the stake in Clermont Mine by Rio Tinto company for USD 1 billion to the Joint Venture Glencore and Sumitomo Corp. According to the buyer-company, the leaders in 2014 were the following countries: USA with the amount of transactions of USD 947 million, Canada with the amount of USD 512 million, as well as USA and Switzerland with the M&A amount of USD 508 million.

In the nuclear power industry, most of the companies that own nuclear power plants are usually state-owned ones because of the strategic role of this sector in terms of national security and energy independence of the country. Mergers and acquisitions in the nuclear energy industry, therefore, take place within a single state between national companies. For example, in France, the negotiations are in progress on the future sale of a share in the assets of the French company specializing in atomic energy, Areva, at USD 10 billion to another French company, EDF. Over 80 % share in both companies is owned by the French government⁴³.

Despite the fact that the cost of producing electricity at nuclear power plants is lower than that of others, the final cost should include the costs of construction, operation and decommissioning of nuclear power plants; extraction, processing or import of nuclear fuel and disposal of radioactive effluent. The main problem with nuclear power is the complexity of financing new construction, since the return on such investment takes decades.

The United States and France are leaders in the field of nuclear energy among the developed countries. However, even in these countries, the number of new power plants has been falling in recent years due to significant costs, delays in the construction of new power plants, and public protests. Therefore, this energy sector loses its significance in Western Europe and the United States. However, countries with low environmental defence and safety requirements,

⁴³ PwC. "Power & Renewables Deals 2016 outlook." Accessed November 27, 2016. <http://www.pwc.com/gx/en/energy-utilities-mining/pdf/power-and-renewables-deals-2016-outlook-and-2015-review.pdf>.

characterised by high demand for electricity, such as China and India, are planning to increase the share of nuclear power. Therefore, mergers and acquisitions in the Asia-Pacific region are likely in the future, while in the US and Western Europe the number of consolidation processes will depend on government priorities.

Power Industry Renewable Energy Sources. Mergers and acquisitions in the renewable energy sector in 2016 remained at the level of the previous year, but the value of transactions decreased from USD 55 to 38 billion partly due to the completion of a series of major hydroelectric contracts in the prior year. While in 2015 the value of transactions increased by 7% compared to 2014 and reached USD 93.9 billion, corporate mergers and acquisitions in 2015 amounted to USD 19.2 billion, which is 63% more than in 2014, and is the largest total cost compared to the record of 2011. Wind power is the largest sector for renewable energy mergers and acquisitions. In 2015, the assets of wind energy companies worth USD 57.6 billion were the subject of sales, what was 9% more than in 2014⁴⁴. As the dynamics of M&A transactions in renewable energy sources according to the type of source in 2004-2015 (fig. 6) shows the significant changes have taken place in the structure during decades: the main share belongs to wind and solar power.

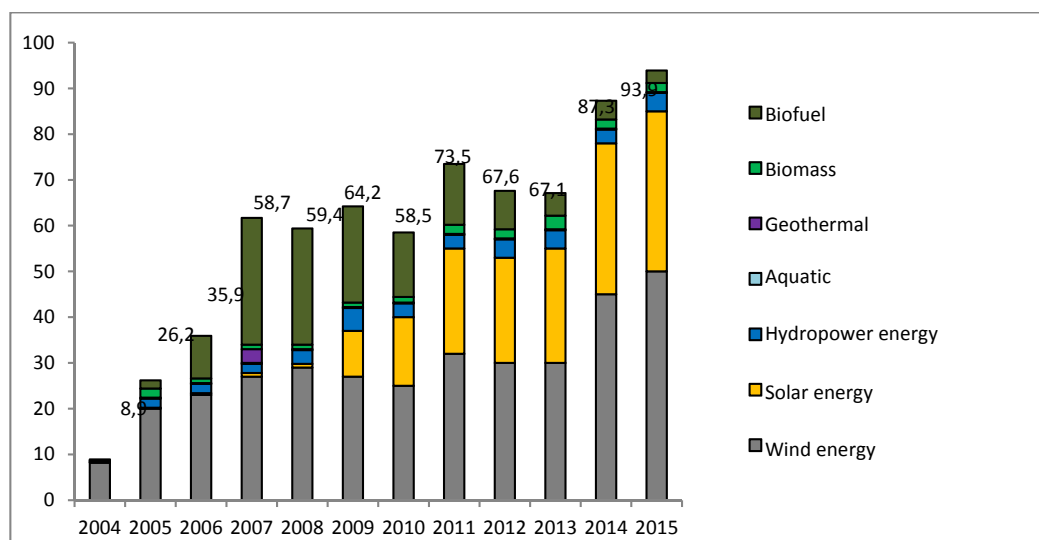


Fig. 6. The Dynamics of Mergers and Acquisitions in Renewable Energy by Type of Source in 2004-2015⁴⁵

⁴⁴ "Global trends in renewable energy investment 2016." Accessed November 27, 2016. <http://fs-unepecentre.org/sites/default/files/publications/globaltrendsinrenewableenergy>

⁴⁵ "Global trends in renewable energy investment 2016." Accessed November 27, 2016. <http://fs-unepecentre.org/sites/default/files/publications/globaltrendsinrenewableenergy>

Solar power was the second largest sector of merger and acquisitions of the renewable energy after the wind. So, in 2015, the value of the transactions amounted to USD 29.4 billion, which is 9 % more than in the previous year. The main share of M&A transactions in solar power was the purchase of assets of solar power plants. Mergers and acquisitions in geothermal energy amounted to USD 2.2 billion, which is 5 times more than in 2014. Agreements in the field of biomass and waste recycling amounted to USD 2.1 billion, which is 10 % compared to 2014. At that time, biofuel agreements amounted to USD 1.7 billion in 2015, which is 24 % less than in 2014, and is the lowest value since 2005. The largest share of M&A transactions in the renewable energy sector were made in the developed countries of Europe and the United States.

Prospects for the Development of International Mergers and Acquisitions in the Energy Sector

Future mergers and acquisitions are influenced by the general global economy conditions (access to international loans, the state of the foreign exchange markets), the economic situation of countries where the companies associated with a specific agreement reside (GDP growth, social tension, political stability, policies regarding the development of the energy), development of technologies (development of offshore gas and oil, reduction of the cost of shale carbohydrate extraction) and environmental defence and safety requirements (rapid transition to low carbon energy). Also, in connection with global environmental policy reforms, the companies increasingly deviate from traditional energy and are trying to make more use of renewable energy sources. Although the oil and gas industry will continue to form the basis of the global energy system. Despite the fact that emissions in the atmosphere should be reduced, the population of the Earth is growing, and therefore the demand for energy is increasing, which indicates that it is necessary to find a certain balance between these two conditions for the further energy sector development.

According to the BP Energy Outlook 2016 report, the GDP growth is expected in OECD countries, China and India. Energy consumption will increase by 34 % from 2014 to 2035. In addition, the share of oil and coal is expected to fall, as well as an increase will take place in the share of gas and renewable energy in total energy consumption. Demand is increasing for the energy received by gas, oil and renewable energy sources, and oil and gas production will mainly include offshore gas and oil⁴⁶.

⁴⁶ "BP Energy Outlook 2016, Outlook to 2035." Accessed November 25, 2016. <http://agpu.org.ua/upload/files/10147161644352.pdf>.

According to PwC, M&A forecasts in the energy sector are positive, although, on the one hand, there is a simultaneous deceleration in the growth of the four largest emerging markets (Brazil, Russia, China and South Africa) due to geopolitical risks in some of these markets, and on the other hand, there are a number of strong factors that activate the agreements in the electricity and renewable energy sectors, including ongoing corporate restructuring, expected sales in Europe, consolidation of the medium China's investment plans, big prospects for growing deals in the renewable energy sector and the attractiveness for buyers of sustainable returns on regulated assets in the sector. The report of the World Energy Outlook 2016 of the International Energy Agency predicts an increase in energy demand by 30 % by 2040, and therefore an additional amount of USD 23 trillion of investment to improve energy efficiency is expected. According to the forecast scenario under the Paris Climate Agreement as of April 22, 2016, it is planned that by 2040 60 % of the electricity will be produced by renewable energy sources and half of this volume – by wind and solar energy⁴⁷. Annual gas demand is expected to grow by 1.5 % and the EU and USA demand for coal will decrease by 60 % and 40 % respectively by 2040⁴⁸. Therefore, according to the Paris Agreement, it would be more appropriate to increase the use of renewable energy sources, to invest in more efficient production of energy from oil and gas with low carbon dioxide emissions into the atmosphere, and therefore it would be worthwhile to conduct mergers and acquisitions precisely in the field of renewable energy, oil and gas, where there are prospects for development. Therefore, according to EY forecasts in 2016, such features as diversification, a stable number of M&A transactions and growth in the renewable energy sector due to favourable reforms and innovation will be specific to the American energy sector. The key factors for M&A in the Asia-Pacific region in the future are the following: increased electrification and increased energy demand; energy reforms, especially in China, India, Japan and Vietnam, China's national consolidation, reduced gas prices, and an agreement on the renewable energy sector in India and Australia thanks to a favourable policy to support clean energy sources. According to the EY study, the factors contributing to the growth of M&A in Europe will be the integration of utilities and other sectors, the focus on growth of deals with companies in developing countries, Asia, South America, Africa and energy reforms in Eastern Europe and the growth of agreements in

⁴⁷ "The 21st Conference of the Parties to the United Nations Framework Convention on Climate Change" Accessed: <http://www.un.org/sustainabledevelopment/cop21/>.

⁴⁸ International Energy Agency. "World Energy Outlook 2016, Executive summary." Accessed November 30, 2016. http://www.iea.org/publications/freepublications/publication/investment2016lowres_0.pdf

the field of renewable energy sources⁴⁹. That is, the countries of Western Europe, North America (USA, Canada), Australia, as well as the developing countries of the Asia-Pacific region (China, India), Central and South America (Mexico, Brazil) will be the main regions of M&A in the energy sector, as well as in the alternative energy sector there will be some African countries (Kenya, South Africa, Nigeria).

Annual gas demand is expected to grow by 1.5% and the EU and USA demand for coal will decrease by 60% and 40% respectively by 2040⁵⁰. We conducted a prospective analysis of mergers and acquisitions in this area on the basis of the energy development scenarios (reform, restoration, rivalry) proposed by the Statoil specialists (table. 2).

Table 2 Scenarios in Development of Energy and Mergers and Acquisitions in the Industry⁵¹

Scenario	Energy sector	Mergers and acquisitions
Reforms	Energy restructuring as a result of environmental and security policies that will limit the emission of greenhouse gases into the atmosphere (the introduction of taxes on the production of electricity from coal and the granting of subsidies for the production of electricity from renewable energy sources)	The number and value of mergers and acquisitions in the field of renewable energy sources will increase, and they will decrease in coal power engineering
Restoration	Solar and wind energy will account for 40% of global electricity production in 2040, compared with 5% in 2016. As a result, the demand for oil and gas will decrease compared to the current one. However, investments in technological development and increasing the efficiency of the energy sector will be realized in order to meet the growing demand for energy. The main focus is on increasing energy efficiency and attracting investment in renewable energy sources	The volume and value of M&A in solar and wind energy will increase. The increase in the volume and cost of mergers and acquisitions in the oil and gas sector will be very insignificant in order to ensure growing demand for energy. Consolidation processes will include innovative companies that implement energy-efficient electricity generation from oil and gas
Competition	Geopolitical conflicts and significant differences in economic development, needs and levels of energy supply will affect the transformation of energy sectors of different countries. Competition for energy resources will intensify, energy consumption intensity will increase. The technological gap in the use of energy and energy efficiency of production will grow. By 2040, investments in the oil and gas sector, renewable energy, energy infrastructure and energy storage, and Smart Grid will increase	There will be an increase in the value and number of transactions in the oil and gas sector as well as renewable energy.

⁴⁹ EY. Power transactions and trends 2015 review and 2016 outlook – Access: [http://www.ey.com/Publication/vwLUAssets/EY-power-transactions-and-trends-q4-2015/\\$FILE/EY-power-transactions-and-trends-q4-2015.pdf](http://www.ey.com/Publication/vwLUAssets/EY-power-transactions-and-trends-q4-2015/$FILE/EY-power-transactions-and-trends-q4-2015.pdf).

⁵⁰ International Energy Agency. "World Energy Outlook 2016, Executive summary." Accessed November 30, 2016. http://www.iea.org/publications/freepublications/publication/investment2016lowres_0.pdf

⁵¹ Statoil. "Energy Perspectives 2016: Long-term macro and market outlook." Accessed November 27, 2016. <https://www.statoil.com/content/dam/statoil/documents/energy-perspectives/energy-perspectives-2016.pdf>. and Table 1

According to the Paris Agreement, it would be more appropriate to increase the use of renewable energy sources, to invest in more efficient production of energy from oil and gas with little carbon dioxide emissions into the atmosphere, and therefore it would be worthwhile to conduct mergers and acquisitions in the area of renewable energy, oil and gas, where there are prospects for development. Such a scenario is very optimistic and unrealistic, taking into account the peculiarities and different possibilities of different countries of the world. However, not only the reduction of the cost of electricity from renewable energy sources, but also structural transformations in the production of all electricity from different sources should be implemented. So the energy sector and, therefore, M&A in this sector can develop in three scenarios: reforms, restoration and competition, which are determined on the basis of recent trends in the energy sector. Therefore, we will distinguish the basic laws of development analysing all scenarios of the M&A development:

- a significant increase in the value and number of M&A transactions in the field of renewable energy sources;
- a small increase in the number and value of mergers and acquisitions in the oil and gas sector;
- the decline in the volume and cost of mergers and acquisitions in the coal industry.

Therefore, the development of international mergers and acquisitions in the energy sector is determined by two factors: the common factors of the development of the world market of mergers and acquisitions, as well as the transformation of the global energy markets in general.

Conclusions

Transformation in the world energy markets causes the tendencies in the world market of mergers and acquisitions in the energy sector. The application of international mergers and acquisitions as a strategy to increase the competitiveness of an international company in the energy sector increases by the number and value of transactions. The main regions of M&A in the energy sector are North America, Europe and the Asia-Pacific region.

For developed North American countries, predominance is in the volume of renewable energy transactions, and the cost of electricity and gas (primarily in the USA and Canada). In Europe, the share of mergers and acquisitions in the field of renewable energy sources prevails over volume and value.

Developing countries, as well as Southern and Central Europe are characterized by a predominance in terms of renewable energy and

electricity contracts, and in the cost of renewable energy sources. In the Asia-Pacific region developing countries, mergers and acquisitions in the field of renewable energy sources prevail by the quantity and in the electric power industry – by the cost.

Mergers and acquisitions in the energy sector by sectors are characterized by such features. The largest transactions are made in the oil and gas industry, for example, in 2015, one of the five largest merger transactions between the Netherlands-British oil and gas company Royal Dutch Shell Plc and the British gas company BG Group Plc with the amount of USD 81 billion. Mergers and acquisitions in the oil and gas industry are cyclical, the same as in the entire energy sector. The main regions of M&A in the oil and gas industry are North America, namely the USA and Canada, and Europe.

The coal industry is gradually losing its popularity for mergers and acquisitions transactions, as evidenced by a fall in the value and volume of mergers and acquisitions. Canada and the USA are leading in the object of companies purchase and companies-buyers.

Most of the companies that own nuclear power plants usually belong to the state in nuclear power engineering. This energy sector loses its significance in Western Europe and the USA. However, China and India are planning to increase their share of nuclear power, so an increase in Asia-Pacific mergers and acquisitions in the future is likely to occur and as well as a decrease in the USA and Western Europe.

In the area of renewable energy, there is a tendency to increase the share of mergers and acquisitions. Wind power is the largest M&A sector in the renewable energy sphere, which is characterized by an increase in the cost of mergers and acquisitions. Solar power is the second largest sector after the wind, where mergers and acquisitions were conducted and their value increased. The largest share of M&A transactions in the renewable energy sector are made in the developed countries of Europe and the United States.

According to the revealed trends, the share of cross-border mergers and acquisitions will increase in the future, and the developed countries of Western Europe, North America (USA, Canada), the countries of the Asia-Pacific region (China, India, Australia), as well the developing countries of Central and South America (Mexico, Brazil) will be the main regions of M&A growth, as well as some African countries (Kenya, South Africa, Nigeria) at the expense of alternative energy.

According to the energy sector development, M&A will generally be characterized by a significant increase in the value and number of M&A transactions in the field of renewable energy sources; small increase in the number and value of mergers and acquisitions in the oil and gas

sector; decrease in the volume and cost of mergers and acquisitions in the coal industry.

Ukraine can expect growth in transactions in the field of renewable sources and electricity, which is explained by preferential tariffs for renewable energy and investor-friendly policy of simplifying the privatization in energy sector. In addition, the cross-border transactions of European and Chinese investors are characteristic. Such tendencies are favourable for Ukraine, because it is also more expedient to attract foreign investments into the energy sector through mergers and acquisitions with foreign companies in order to improve the technologies of the industry for further development of domestic energy sphere. Political stability and privatization of energy facilities should be a prerequisite for the development of mergers and acquisitions in Ukraine, as both the development of the energy sector as a whole and the separate sub-sectors of renewable energy sources for which Ukraine has high potential will improve due to foreign investment.

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