СТАЛИЙ РОЗВИТОК, ЕКОЛОГІЧНИЙ МЕНЕДЖМЕНТ ТА АЛЬТЕРНАТИВНА ЕНЕРГЕТИКА

UDC: 330.322.014

GREEN INVESTMENTS AS A DRIVING FORCE TO THE SPREADING OF ENERGY EFFICIENT PROJECTS: EU EXPERIENCE FOR UKRAINE

DOI 10.30838/ P.ES.2224.271018.229.286

Pimonenko T., PhD in Economics
Sumy State University

The paper deals with the analysis of the main features of green investments like as an incentive instrument to enlarging the energy efficient projects. The author analysed the main approaches to define green investment. The results of analyses showed that no existence of the universal approach to defining the term of the green investment. Under this paper, the green investment is defined as a capital in the green economy (involving low carbon economy), climate resilient initiatives, clean technologies, renewable energy, or natural capital that can be considered environmentally friendly with the purpose to develop the ecosystems and green growth. The results of the analysis of the EU experience proved that green investment is a main financial recourse to boost the energy efficient projects. Thus, the implementing and spreading of energy efficient project is one of the Sustainable Development Goals 2030. Noticed, that most EU countries have already achieved that goas on energy efficient projects. In this case, Ukraine should try to attract the additional financial recourses for that purpose. Thus, in the paper, the author proposed to attract additional financing through the developing of the green investment market. The results of the analysis showed that the most restriction factor which limits the developing of green investment market is lack of understanding among the investors of the main advantages of green investment. In this case, the author allocated the main social, economic and ecological advantages of green investment for investors.

Keywords: stakeholders; investor; green; sustainable development; market; green project; renewable energy

УДК: 330.322.014

ЗЕЛЕНІ ІНВЕСТИЦІЇ ЯК РУШІЙНА СИЛА ПОШИРЕННЯ ЕНЕРГОЕФЕКТИВНИХ ПРОЕКТІВ: ДОСВІД ЄС ДЛЯ УКРАЇНИ

DOI 10.30838/ P.ES.2224.271018.229.286

Пимоненко Т. В., к.е.н.
Сумський державний університет

У статті проаналізовано основні передумови розвитку ринку зелених інвестицій як інструменту стимулювання поширення та впровадження енергоефективних

проектів у вітчизняній практиці. У статті проаналізовано основні підходи до визначення сутності поняття зелені інвестиції. Результати аналізу дали підстави зробити висновок, про відсутність універсального підходу до визначення терміну зелені інвестиції. У рамках даного дослідження, зелені інвестиції розглядаються як інвестування капіталу у зелену економіку (включаючи економіку з низьким рівнем викидів вуглецю), ініціативи, що мінімізують та попереджають негативні наслідки зміни клімату, чисті технології, відновлювані джерела енергії з метою розвитку екосистем та забезпечення зеленого зростання країни. Результати аналізу досвіду країн ЄС щодо джерел фінансування енергоефективних проектів показали, що зелені інвестиції є основним ресурсом фінансування їх впровадження. Слід відмітити, що впровадження та поширення енергоефективних проектів є однією з цілей Сталого розвитку 2030 року. У цьому контексті, також актуальним є залучення додаткових фінансових ресурсів для реалізації індикативних цілей. Таким чином, у роботі запропоновано залучати додаткові фінансові ресурси шляхом розвитку вітчизняного ринку зелених інвестицій. Результати аналізу показали, що найбільш стримуючим фактором формування вітчизняного ринку зелених інвестицій, є не розуміння інвесторів основних переваг зелених інвестицій. У зв'язку з цим на основі проведеного аналізу автором будо систематизовано та узагальнено основні соціальні, економічні, політичні та екологічні переваги розвитку вітчизняного ринку зелених інвестицій для головних його стейкходерів.

Ключові слова: зацікавлені сторони; інвестор; сталий розвиток; ринок; зелений проект; відновлювані джерела енергії

Introduction. The limitation of financial recourses, increasing of anthropogenic negative impact on the environment, energy dependence from the other countries require to develop, implement and enlarge the energy efficient projects. Besides, the negative consequences of global warming, the overcoming of planetary, boundaries the huge level of CO2 emission require the enlarging of energy efficient projects. Thus, according to Carey Lohn investigation [3] four from nine planet's boundaries has already overcome: the atmospheric CO2 concentration; increasing of the radiative forcing since the start of the industrial revolution; extinction rate; anthropogenic nitrogen removed from the atmosphere. The results of the analysis of greenhouse emissions (GHG) showed the declining trend of GHG emissions among EU countries (figure 1).

For Ukraine, target on decreasing of GHG emissions in 2020 – declining by 20%, 2030 – declining by 40%, 2050 – by 50% compared with the 1990 year. In 2016 the Ukrainian GHG emission was 339 $MtCO_2$ e/a [7, 23]. Thus, the EU policy on decreasing the negative impact on the environment is

effective. It should be noticed, that mostly this declining was a result of the spreading of energy efficient projects and renewable energy.

In 2016 the half of EU countries have already achieved the target 2020 on the share of renewable energy in gross final energy consumption. At the same time, some EU countries (Luxemburg, Cyprus, Germany, Ireland, Greece, Spain, France, Malta, the Netherlands, Austria, Poland, Portugal, Slovenia, Slovakia, United Kingdom, Macedonia, Albania and Serbia) haven't achieved, but most of them are close to the target 2020.

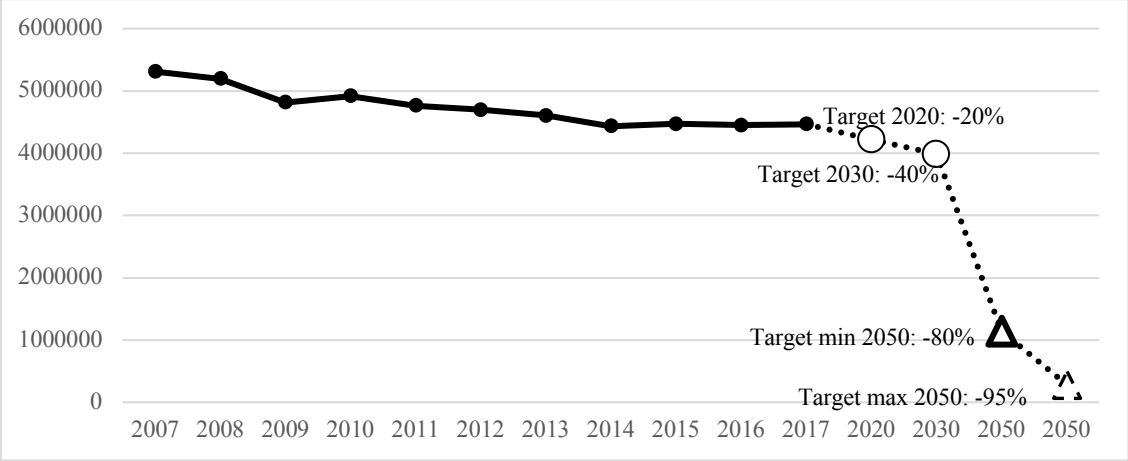

***Figure 1**. The trend of GHG emissions and goals for 2020–2050 years for EU countries*
Sources: developed by the author on the basis of [7, 23]

The share of renewable energy in gross final energy consumption among EU countries 2004–2016 and target 2020 was presented in figure 2.

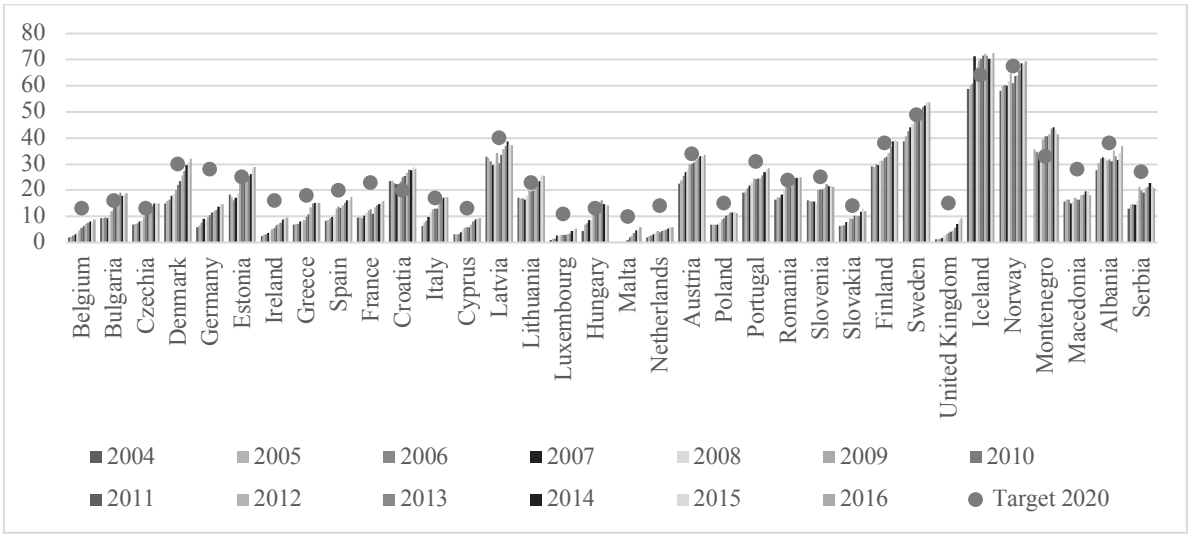

***Figure 2.** The share of renewable energy in gross final energy consumption among EU countries 2004–2016 and target 2020*
Sources: developed by the author on the basis of [8]

The leader on the share of renewable energy in gross final energy consumption among EU countries was Island, Norway, Sweden, Montenegro, Latvia and Finland. Therefore, it should be highlighted, that the achieving of the ambitious plans on Sustainable Development Goals 2030 (SDGs 2030) [22], including decreasing of GHG emissions through the spreading of energy efficient projects contribute the attracting of new financial resources.

Literature review. The results of the analysis showed that the perspective way to attract additional finance recourses to the spreading of green efficient projects is developing of the green investment market. Thus, as for Ukraine as for EU countries, the main barriers for developing the green investment market is a misunderstanding among experts, scientists and stakeholders the meaning of green investment. Mostly the huge range of synonyms are used, such as green money, environmental investment, investment in renewable energy or in energy efficient projects, responsible investing, sustainable investment, climate finance and etc. Thus, Krasnova I. in the paper [13] defined that developing of sustainable investment market was an alternative source to attract additional financing for implementing the SDGs 2030, which could generate not only profit but also boost the positive social changes and decline the negative anthropogenic impact on the environment.

According to EU regulation [8, 9, 11, 12; 13], environmental expenditures are the money spent on all purposeful activities directly aimed at the prevention, reduction and elimination of pollution or any other degradation of the environment. According to the official definition environmental expenditures includes;

- environmental investments – all outlays in a given year for machinery, equipment and land used for environmental protection purposes;
- environmental current expenditure – includes daily operating activities aiming at the prevention or reduction of pollution;
- environmental subsidies/transfers [8, 9, 11, 12; 13].

Most of the scientists [9, 15] associated green investment with money which directed for declining CO2 emission. The Ukrainian scientist Andreeva in the paper [2] defined green investment as capital (involving intellectual) for preventing, mitigating and overcoming the environmental pollution. The experts and scientists Krasnyak V., Chygryn, O, Martin P. R., Moser D. V., Martinez-Oviedo R., Medda, F. in the papers [14, 16–18, 21] suggested that green investment was a concept which focused on reducing of investment risk

and promoting green growth through the socially and environmentally responsible corporate governance. Thus, the above-mentioned analysis proved that the scientists and experts haven't developed the universal approach to define green investment and classify it. On the basis of the findings, under this research green investment is defined as a capital in the green economy (involving low carbon economy), climate resilient initiatives, clean technologies, renewable energy, or natural capital that can be considered environmentally friendly with the purpose to develop the ecosystems and green growth. The results of the analysis the Ukrainian scientific papers showed [2, 3-6, 13, 14, 17-20] that mostly investigation has the fragmentary character on the developing of the green investment market without summarizing and consolidation of the main features of green investment market developing. At the same time, the obtained results from the analysis of the foreign papers [1, 9, 11, 12, 15, 16] proved that EU countries have already developed the trial version of the government supporting program to develop green investment market which will be boosted in the action in 2019. Therefore, the finding of analysis proved the necessity of further investigation of the unsolved issues as follows: developing the general concept of green investment market according to Ukraine conditions considering the best EU practice; allocating the main parameters of green investment as an alternative recourse to finance the spreading of green projects; identifying the advantages of green investment for investors according to the Ukrainian conditions.

The aim of the paper is identifying of the main functions and features of green investments market (as an incentive instrument to popularise the energy efficient projects) with the purpose to indicate the main social, economic and ecological advantages of green investment for the stakeholders.

Results. The findings showed, that the current Ukrainian investment market should be transformed into the direction of green investment market with the developing of the corresponding infrastructure. In this case, the main players of green investment market are national and foreign green investors (banks and funds), government and institutions, participants of the green stock exchange (figure 3).

Noticed, that in the world a lot of green institutions, initiatives, funds and banks have already launched, such as: California CLEEN Center (California, United States); Clean Energy Finance Corporation (Australia); Connecticut Green Bank (Connecticut, United States); Green Energy Market; Securitization

(Hawaii Green Infrastructure Authority) (Hawaii, United States); The Green Finance Organisation (Japan); Malaysian Green Technology Corporation (GreenTech Malaysia) (Malaysia); Masdar (United Arab Emirates); New Jersey Energy Resilience Bank (New Jersey, United States); NY Green Bank (New York, United States); Technology Fund (Switzerland); UK Green Investment Bank (United Kingdom). Thus, the main priorities areas of UK Green Investment Bank as follows:

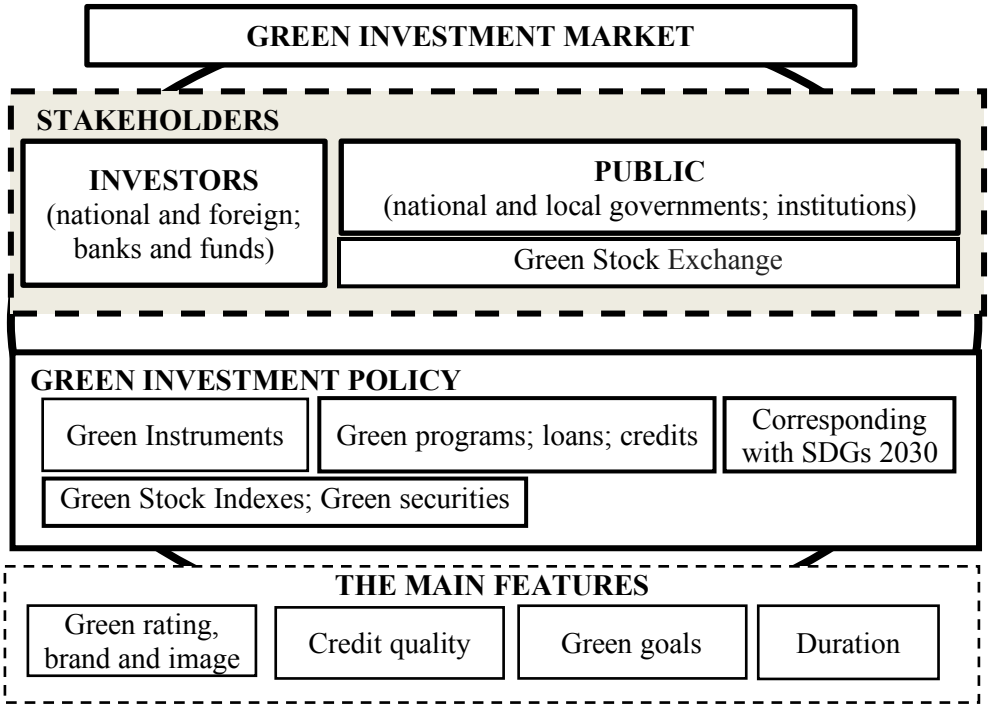

Figure 3. The conceptual framework of green investment market
Sources: developed by the author on the basis [17-20]

- offshore wind;
- waste recycling & bioenergy;
- energy efficiency;
- small-scale renewables;
- biofuels for transport, biomass power, carbon capture and storage, marine energy, renewable heat [11].

According to the official report of the EU commission, the green investment market is developing from year to year. Thus, in 2016 (table 1) the leaders on investment in circular economy (investment into the recycling sector, repair and reuse sector and rental and leasing sector) were Germany (31246,3 Mio EUR), United Kingdom (29030,8 Mio EUR) and France (19466,3 Mio EUR).

Table 1. *– Private investments, jobs and gross value added related to circular economy sectors among EU countries 2008-2016*

Countries/ Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU 28	:	:	:	:	132442,7	133497,6	140586,1	145816,2	146748,9
Belgium	:	2292,6	2569,2	:	2771,7	2705,6	2684,7	2843,5	2926,4
Bulgaria	501,6	352,4	441,4	452,8	459,2	440,7	486,7	520,9	539,1
Denmark	2158,1	1903,5	1991,6	2120,8	2146,9	2015,8	2204,3	2301,3	2319,6
Germany	:	:	:	27234,9	26676,1	26333,6	28362,8	28711,2	31246,3
Estonia	188,2	:	:	175	:	:	:	:	240,4
Greece	:	:	:	963,1	:	713,4	721,2	638,1	616,8
Spain	10811,6	9451,9	10255	9612	9318,3	10794,9	10653,4	11038,1	11464,3
France	:	18939,9	20474,1	21220	20736,8	21227,5	21589,5	21315,5	19466,3
Croatia	:	:	601,4	529,3	502,5	517,9	523,9	551,9	568,4
Italy	17438	14521,6	17031,9	17328	17435,5	16986,8	17530,6	17756,6	18019,7
Cyprus	145,8	148,8	155,3	146,9	142,8	:	:	143,6	162,1
Latvia	291,5	226,9	215,9	198,6	251,8	231	241,4	240	251,4
Lithuania	316,9	204,6	223,1	289,4	315,7	324,9	345,6	354,1	406,5
Hungary	802,6	745	825,2	855,9	782,4	762,8	873,9	856	1040,2
Netherlands	:	5173,9	5375,1	6002,9	5691,3	5229,1	5347,8	5207,1	5614,4
Austria	2741,8	2680,3	2840	2905	2985,7	3175,2	3453	3535,1	3705,5
Poland	4768,5	3493,2	4053,4	4306,8	4231,7	4232,4	4661,7	4743,1	4830
Portugal	1373,5	1363,2	1394	1284,5	1201,9	1184,3	1255,2	1355,6	1413,2
Romania	1427,1	1012,8	1013,2	1070,7	978,7	974,1	1027,9	1134,2	1280,9
Slovenia	413,5	357,3	445,2	457,9	476,4	458,8	493,9	506,2	529,5
Slovakia	473	359,5	697,9	789,2	833,7	586,7	504,7	586,9	623,5
Finland	1643,6	1540,9	1773,1	:	:	:	1942,9	2034,2	2025,6
Sweden	3582,5	2936,8	3468,2	3945,4	4079,2	4909,4	4074,9	4102,9	4110,3
United Kingdom	21266,3	17777,6	19265,7	21424,4	23832,6	23895,1	27268,4	30992,6	29030,8
Iceland	:	:	:	:	:	:	:	193	241,1
Norway	3459,7	3029,8	3497,7	3656	4042,5	4008,1	3925,2	3800,1	3720,4

Sources: compiled by the author on the basis of [8]

The results of the analysis of EU experience and Ukrainian reality allow identifying the main spheres for green investment in Ukraine (table 2). According to the official report "Global Trends in Renewable Energy Investment" in 2018 the most attractive direction in the world for green investment is energy efficient projects and renewable energy.

Table 2. *– The most attractive direction for green investment in Ukraine*

AREAS: *Agriculture and Forestry*			
land and natural resource management			
AREAS: *Waste Control*			
recycling			
AREAS: *Energy Sector*			
solar	bioenergy	wind	smart grids
AREAS: *Industry and Energy Intensive Business*			
manufacturing	commerce	energy efficient processes and products	energy efficient appliances
AREAS: *Water*			
water and sewerage infrastructure	water treatment		
AREAS: *Transport*			
low carbon transport	green vehicles	alternative fuel infrastructure	public transport.

Source: Compiled by the authors on the basis of [17-20]

Thus, in 2017 the group of developing countries (which involved Ukraine) made a sharp increase in the volume of investment into renewable energy – 177 bln USD. At the same time, from the 2011 year, the volume of investments in renewable energy is continuously declining. Thus, in 2017 the developed countries spent on 94 bln USD less than in 2011 (figure 4).

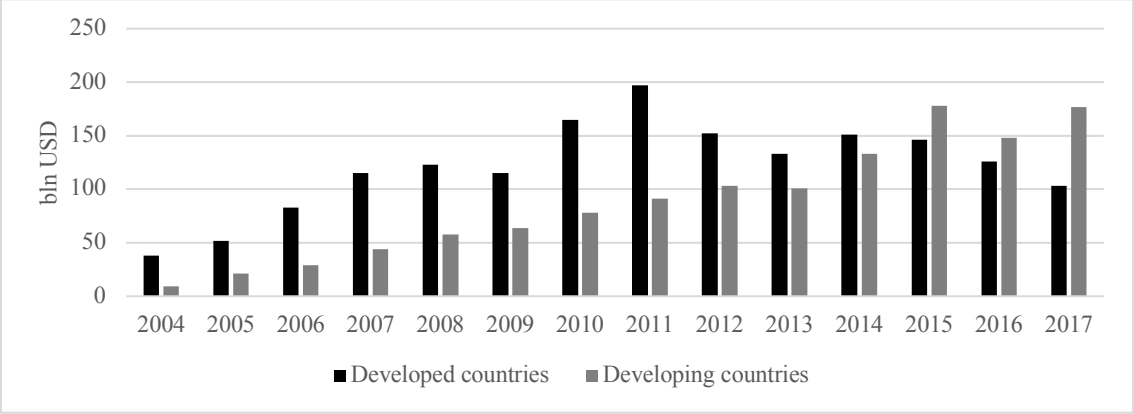

Figure 4. *The dynamic of investment in renewable energy among developed and developing countries 2004–2017*

Sources: compiled by the author on the basis of [10]

It should be noticed, that Ukraine has already started to transform from the traditional investment market to the greening of it. Thus, the effective mechanism of green investment market functioning allows to overcome the huge range of issues as follows:

- enlarging funding for energy efficiency projects;
- declining of the country's dependence from the fuel recourses;
- integrating into the global economic environment;
- improving the country's investment climate;
- strengthen position in the world on SDG Index;
- increasing the green brand of countries.

The results of the analysis of EU experience on green investment market functioning [6] showed that the main limitation which could strive it developing is non-understanding the main advantages of green investment among stakeholders. Therefore, the findings proved that well-developed green investment market could guarantee to achieve not only ecological effect but also social, political and economic which also correspond to the above-proposed definition of green investment. Thus, the consolidated information of possible benefits for stakeholders of green investment market was presented in table 5.

According to table 5, the main economic advantages could be as follows:

- the growth of industry capacity through the implementation of innovative and green technologies, projects and equipment;
- declining costs and product's cost through the reduction of energy recourses consumption;
- increase the competitiveness of the business entity and the possibility of entering new markets through the formation of the green image and brand.

Table 5. *– The compilation of main social, economic, political and ecological benefits of green investment for the main stakeholders*

SPHERES	BENEFITS
Economic	– the growth of industry capacity through the implementation of innovative and green technologies, projects and equipment; – declining costs and product's cost through the reduction of energy recourses consumption; – increase the competitiveness of the business entity and the possibility of entering new markets through the formation of the green image and brand.
Social	– improving the quality of living; – improving human development; – reduce the level of morbidity; – improve working conditions; – increasing the living standards.
Political	– reducing the level of political dependence from the foreign suppliers' resources; – widening the opportunities for the use of international agreements for activation quota trading, green stock exchange; – improving the country's image through the formation of the country's green image and brand.
Environmental	– reduce the negative impact on the environment; – reduce production and, consequently, conservation of natural resources; – gradual restoration of ecological balance and reduction of the anthropogenic load; – preservation of natural landscapes; – improve the quality resource consumption.

Source: Created by the authors on the basis of [3, 5, 14, 17-20]

At the same time, developing of green investment market has a positive consequence from the political point of view, such as:

- reducing the level of political dependence from the foreign suppliers' resources;
- widening the opportunities for the use of international agreements for activation quota trading, green stock exchange;
- improving the country's image through the formation of the country's green image and brand.

The above-mentioned benefits proved, that the modern market environment could accept the green investment not only as a bottom-up the obligatory element of green policy so as a voluntary instrument to attract additional financing involving for implementing green efficient projects.

Conclusion. The obtained results proved that Ukrainian investment market requires the cardinal adaptation to the modern reality with the purpose

to spread the energy efficient projects. In this case, it is necessary to transform exist investment market to the greening way. Therefore, at the first step, the fundamental principals of green investment market should be developed and accepted at the government level. Moreover, as Ukraine has already started the EU integration process these principals should correspond to the EU standards. Besides, with the purpose to increase the level of trust to the Ukrainian green investment market form the foreign investors, the clear mechanism of regulation of green investment market functioning should be developed on the transparency concept.

Funding: This research was funded by the grant from the Ministry of Education and Science of Ukraine (№ g/r 0117U003932)

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ:

1. Abraham L. Clean Energy Investment Trends, 2017 (Bloomberg New Energy Finance: 2018) [Електронний ресурс] / L. Abraham // 2017. – Режим доступу: https://data.bloomberglp.com/bnef/ sites/14/2018/01/BNEF-Clean-Energy-Investment-Investment-Trends-2017.pd
2. Андрєєва Н. М. Теоретичні основи екологізації інвестиційної діяльності в Україні / Н. М. Андрєєва // Науковий вісник національного лісотехнічного університету України. – 2005. – Вип.15. – С. 314-320.
3. Carey J. The 9 limits of our planet … and how we've raced past 4 of them [Електронний ресурс]. – Режим доступу: https://ideas.ted.com/the-9-limits-of-our-planet-and-how-weve-raced-past-4-of-them/
4. Chygryn O. The mechanism of the resource-saving activity at joint stock companies: The theory and implementation features / O. Chygryn // International Journal of Ecology and Development. – 2016. – 31(3). – P. 42-59.
5. Chygryn O. (2018). Green Bonds like the Incentive Instrument for Cleaner Production at the Government and Corporate Levels: Experience from EU to Ukraine / O. Chygryn, T. Pimonenko, O. Lyulyov, A. Goncharova // Journal of Environmental Management and Tourism. – 2018. – Volume IX. – 7(31). P. 1443 - 1457. DOI:10.14505/jemt.v9.7(31).09
6. Chygryn O. Green entrepreneurship: EU experience and Ukraine perspectives / O. Chygryn // Waste management. – 2017. – Issue 6. P. 6–13.
7. European Environment Agency (EEA) [Електронний ресурс]. Greenhouse gas emission trends, projections and targets in the EU. – Режим доступу: https://www.eea.europa.eu/data-and-maps/daviz/greenhouse-gas-ghg-emission-trends-4#tab-dashboard-03
8. Eurostat. [Електронний ресурс] The share of renewable energy in gross final energy consumption by sector. – Режим доступу: https://ec.europa.eu/eurostat/tgm /table.do?tab=table&init=1&plugin=1&language=en&pcode=sdg_07_40

9. Eyraud L. Green investment: Trends and determinants / L. Eyraud, B. Clements, A. Wane // Energy Policy. – 2013. – Issue 60. – P. 852–865. doi:10.1016/j.enpol.2013.04.039
10. Global Trends in Renewable Energy Investment. [Електронний ресурс]. – Режим доступу: http://www.fs-unep-centre.org
11. Green Investment Banks. Policy perspectives. OECD. [Електронний ресурс]. – Режим доступу: http://www.oecd.org/environment/cc/Green-Investment-Banks-POLICY-PERSPECTIVES-web.pdf
12. Inderst G. Defining and Measuring Green Investments: Implications for Institutional Investors' Asset Allocations / G. Inderst, C. Kaminker, F. Stewart // OECD Working Papers on Finance, Insurance and Private Pensions. – 2013. – No. 24. – OECD Publishing. http://dx.doi.org/10.1787/5k9312twnn44-en
13. Краснова І. Концепція сталого розвитку та вихід на ринки сталих інвестицій / І. Краснова // Ринок цінних паперів України. – 2012. – №10. С. 17-24.
14. Красняк В. С. Теоретико-прикладні аспекти розвитку екологічного інвестування в Україні / В. С. Красняк, О. Ю. Чигрин // Маркетинг і менеджмент інновацій. – 2015. – №3. С. 226-234.
15. Martin P. R. Managers' green investment disclosures and investors' reaction / P. R. Martin, D. V. Moser // Journal of Accounting and Economics. – 2016. –№ 61(1). – С. 239–254. doi:10.1016/j.jacceco.2015.08.004
16. Martinez-Oviedo R. Natural capital accounting and finance / R. Martinez-Oviedo, F. Medda // Textbook. – 2018.
17. Pimonenko T. Ukrainian Perspectives for Developing Green Investment Market: EU Experience / T. Pimonenko // Economics and Region. – 2018. – № 4(71). – P. 35-45.
18. Пімоненко Т. В. Зелене інвестування: досвід ЄС для України / Т. В. Пімоненко, К. В. Лущик // Вісник Сумського державного університету. Серія Економіка. – 2017. – № 4. – С. 121-127. - DOI: 10.21272/1817-9215.2017.4-15.
19. Пімоненко Т. В. Екологічні фондові індекси: зарубіжний досвід та уроки для України / Т.В. Пімоненко, Ю.О. Мирошниченко, О.М. Коробець, О.І. Литвиненко // Вісник Сумського державного університету. Серія Економіка. – 2017. – №3. – С. 61-67. – DOI: 10.21272/1817-9215.2017.3-08.
20. Пімоненко Т. В. Сучасні еколого-економічні інструменти забезпечення сталого розвитку / Т. В. Пімоненко, Я. Ус, Д. В. Леус, С. М. Федина // Вісник Сумського державного університету. Серія Економіка. – 2017. – №2. – С. 57-67. – DOI: 10.21272/1817-9215.2017.2-08.
21. Summary of Stream 5: Our green future: green investment and growing our natural assets. [Електронний ресурс]. – Режим доступу: http://www.fao.org/fileadmin/user_upload /rap/AsiaPacific_Forestry_Week/doc/Stream_5/Stream_5_Summary.pdf

22. The 2030 Agenda for Sustainable Development. [Електронний ресурс]. – Режим доступу:https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for% 20Sustainable%20Development%20web.pdf
23. Total greenhouse gas emission trends and projections. [Електронний ресурс]. – Режим доступу: https://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-6/assessment-2

REFERENCES:

1. Abraham Louw, Clean Energy Investment Trends, 2017 (Bloomberg New Energy Finance: 2018), https://data.bloomberglp.com/bnef/ sites/14/2018/01/BNEF-Clean-Energy-Investment-Investment-Trends-2017.pd
2. Andreeva N. M. (2005). Teoretychni osnovy ekolohizatsiyi investitsiynoyi diyal′nosti v Ukrayini [The theoretical basics of ecologization of investment activity]. Naukovyy visnyk natsional′noho lisotekhnichnoho universytetu Ukrayiny. – Research Bulletin of the National Forestry University, 15, P. 314-320.
3. Carey John. (2015). The 9 limits of our planet … and how we've raced past 4 of them. Available from: https://ideas.ted.com/the-9-limits-of-our-planet-and-how-weve-raced-past-4-of-them/
4. Chygryn, O. (2016). The mechanism of the resource-saving activity at joint stock companies: The theory and implementation features. International Journal of Ecology and Development, 31(3), 42-59.
5. Chygryn, O., Pimonenko, T., Lyulyov, O., and Goncharova, A. (2018). Green Bonds like the Incentive Instrument for Cleaner Production at the Government and Corporate Levels: Experience from EU to Ukraine. Journal Of Environmental Management and Tourism, (Volume IX, Winter), 7(31): 1443 - 1457. DOI:10.14505/jemt.v9.7(31).09
6. Chygryn, Olena. (2017). Green entrepreneurship: EU experience and Ukraine perspectives. Waste management 243.5: 146.
7. European Environment Agency (EEA). (2018). Greenhouse gas emission trends, projections and targets in the EU. Available from: https://www.eea.europa.eu/data-and-maps/daviz/greenhouse-gas-ghg-emission-trends-4#tab-dashboard-03
8. Eurostat. (2018). The share of renewable energy in gross final energy consumption by sector. Available from: https://ec.europa.eu/eurostat/tgm/table.do? tab=table&init=1& plugin=1&language=en&pcode=sdg_07_40
9. Eyraud, L., Clements, B., & Wane, A. (2013). Green investment: Trends and determinants. Energy Policy, 60, 852–865. doi:10.1016/j.enpol.2013.04.039
10. Global Trends in Renewable Energy Investment. 2018. Available from: http://www.fs-unep-centre.org
11. Green Investment Banks. Policy perspectives (2015). OECD. Retrieved from: http://www.oecd.org/environment/cc/Green-Investment-Banks-POLICY-PERSPECTIVES-web.pdf

12. Inderst, G., C. Kaminker and F. Stewart. (2012). Defining and Measuring Green Investments: Implications for Institutional Investors' Asset Allocations, OECD Working Papers on Finance, Insurance and Private Pensions, No. 24, OECD Publishing. http://dx.doi.org/10.1787/5k9312twnn44-en
13. Krasnova, I. (2012). Kontseptsiya staloho rozvytku ta vykhid na rynki stalykh investytsiy [Concept of sustainable development and access to markets of sustainable investments]. Rynok tsinnykh paperiv Ukrayiny. – Securities Market of Ukraine, (10), 17-24.
14. Krasnyak V., Chygryn, O. (2015). Teoretyko-prykladni aspekty rozvytku ekolohichnoho investuvannya v Ukrayini [Theoretical and applied aspects of the development of environmental investment in Ukraine]. Marketynh i menedzhment innovatsii. – Marketing and Management of Innovations, 3, P. 226-234.
15. Martin, P. R., & Moser, D. V. (2016). Managers' green investment disclosures and investors' reaction. Journal of Accounting and Economics, 61(1), 239–254. doi:10.1016/j.jacceco.2015.08.004
16. Martinez-Oviedo, R., & Medda, F. (2018). Natural capital accounting and finance.
17. Pimonenko T. Ukrainian Perspectives for Developing Green Investment Market: Eu Experience. Economics and Region No 4 (71) – 2018.
18. Pimonenko T., Lushyk K. (2017). Zelene investuvannya: dosvid EU dlya Ukrayiny [Green investing: EU experience for Ukraine]. Visnyk Sums′koho derzhavnoho universytetu. seriya Ekonomika. – Bulletin of Sumy State University. Economy Ser., 3, 61–67. 10.21272/ 1817-9215.2017.2-08
19. Pimonenko T., Myroshnychenko Yu., Korobets O., Lytvynenko O. (2017). Ekolohichni fondovi Indeksy: zarubizhniy dosvid ta uroky dlya Ukrayiny [Ecological stock indexes: foreign experience and lessons for Ukraine]. Visnyk Sums′koho derzhavnoho universytetu. seriya Ekonomika. – Bulletin of Sumy State University. Economy Ser., 4, 121-127.
20. Pimonenko T., Us J., Leus D., Fedyna S. (2017). Suchasni ekoloho-ekonomichni instrumenty zabezpechennya staloho rozvytku [The modern ecological and economic instruments for sustainable development]. Visnyk Sums′koho derzhavnoho universytetu. seriya Ekonomika. – Bulletin of Sumy State University. Economy Ser., 2, 57–67.
21. Summary of Stream 5: Our green future: green investment and growing our natural assets. Retrieved from: http://www.fao.org/fileadmin/user_upload/rap/Asia-Pacific_Forestry_Week/doc/Stream_5/Stream_5_Summary.pdf
22. The 2030 Agenda for Sustainable Development. Retrieved from: https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf
23. Total greenhouse gas emission trends and projections. (2018). Retrieved from: https://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-6/assessment-2