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Roadmap for a Green Financial Policy in Ukraine under the EU Association Agreement

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Abstract

This paper examines the prospects and feasibility of using the Association Agreement between Ukraine and the EU as a roadmap for reorienting the Ukrainian brown economy toward a green economy, making use of green financial instruments in the process. The first chapter is dedicated to the concept of green financial policy as well as its main fiscal and market instruments. The second chapter explores in detail the state of climate-related affairs in Ukraine, the country's commitments to numerous international environmental agreements as well as the role of the EU Association Agreement and its place in the Ukrainian economic context. The third chapter considers the political, economic and social measures required to establish a green financial policy. Our central findings are as follows:

(1) Although Ukraine has been making progress towards a green financial policy in recent years, there is no doubt that the country needs technical and financial assistance from its European partners. The Association Agreement between Ukraine and the countries of the European Union provides an essential basis for building a green economy in Ukraine.

(2) Despite efforts to mobilise internal green financial resources, the Ukrainian Government is struggling with what has already been achieved and is at a crossroads in moving in a different direction. For this reason, local and even non-governmental organisations in Ukraine today have often a greater direct influence on the process of building a green economy than the government itself.

Two promising examples of Ukrainian companies seeking a green reputation are the Ukrainian Green Bank (Ukrgasbank) and the large energy company DTEK.

Keywords: green economy, sustainable development, low-carbon technology, green finance, environmental taxation, green investment, Ukraine, European Union, Association Agreement, National Action Plan.

List of Abbreviations

B4P UN	United Nations Business for Peace Platform
CO ₂	Carbon dioxide
CRCEES	Carbon Reduction Commitment Energy Efficiency Scheme
E5P	Eastern Europe Energy Efficiency and Environmental Partnership Programme
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EFET	European Federation of Energy Traders
EIB	European Investment Bank
EU ETS	European Emissions Trading System
EURACOAL	European Association for Coal and Lignite
EURELECTRIC	Union of the Electricity Industry
FIT	Feed-in tariff
GCPF	Global Climate Partnership Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFP	Green financial policy
GFS	Green Funds Scheme
GHG	Greenhouse gases
GIB	Green Investment Bank
GIZ	“Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH”, Corporation for International Cooperation
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFDC	International Development Finance Club
IPCC	International Panel on Climate Change
JSC	Joint Stock Company
KfW	“Kreditanstalt für Wiederaufbau”, German Bank for Reconstruction
MCCF	Multilateral Carbon Credit Fund
MPSF	Municipal Project Support Facility
MRV	Monitoring, reporting and verification system
MWh	Megawatt hour

NEFCO	Nordic Environment Finance Corporation
NIB	Nordic Investment Bank
OECD	Organisation for Economic Co-operation and Development
PBOC	People’s Bank of China
REC	Regional Environmental Center
SAEEC	State Agency for Energy Efficiency and Energy Conservation
SECO, SDC	Swiss Cooperation Office
SIDA	“Styrelsen för Internationellt Utvecklingssamarbete”, Swedish International Development Cooperation Agency
SUDEP	Sustainable Urban Demonstration Projects
UAH	Ukrainian hryvnia
UKEEP	Ukraine Energy Efficiency Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USD	United States Dollar

Introduction

Ukraine has been an independent state since 1991 and is now undergoing a complex stage in the transformation of its economy. It is one of the most polluted and environmentally problematic countries in Eastern Europe: its level of environmental pollution is several times higher than in other Eastern European nations. As such, Ukraine has one of the worst ecological records of all the post-Soviet territories. The Ukrainian government, however, wishes to increase the quality of life of its citizens. On its way toward finding the right solution, Ukrainian politicians and economic experts pay great attention to the positive assessment of its efforts by the country's Western neighbours.

Negotiations on a new framework agreement between Ukraine and the EU, which would replace the previously signed Partnership and Cooperation Agreement, were launched in March 2007. In December 2011, the leaders of Ukraine and the EU officially announced the completion of negotiations on the Association Agreement. After some delays due to political reasons, one part of the Agreement between Kyiv and Brussels was signed on March 21, 2014. The economic part of the Association Agreement was signed on June 27, 2014. It has enabled Ukraine to move from being a good neighbour of the EU to achieving political association and economic integration. The document provides for the implementation of numerous important reforms in Ukraine while at the same time demanding the implementation of European standards and norms that will improve the general welfare of Ukrainian citizens.

The Association Agreement between Ukraine and the European Union is a thousand-page document consisting of seven sections and more than 40 applications and protocols. In terms of scope, the agreement is the largest international legal document that Ukraine has entered into in its history. It entered into force in full on September 1, 2017.

The Association Agreement between Ukraine and EU includes an article about the green economy and directives related to a plan for setting up a financial system and policy that is resistant to non-financial risks. It is a crucial step on the way towards reorienting Ukraine's economic system as well as the entire national development strategy. Ukrainian society should recognise the necessity of building a green economy as an important precondition for the successful integration of Ukraine into the European Union, as well as to determine the extent of the cooperation between Ukraine and the EU in the field of environmental protection. Establishing a green financial policy is a key step towards strengthening the national economy in a way that is beneficial for society and the environment. In order to choose the right direction for future actions it is extremely important to become acquainted with the main aspects of this concept.

A variety of factors serve to facilitate the long-term success and sustainable development of an economy. At the present time, one of the biggest challenges facing people is how to combat climate change: unpredictable climate-induced events have a direct influence on the development of economies and their adaptation to new ecological conditions. For instance, total economic losses from natural catastrophes and man-made disasters reached in 2018 worldwide a threshold of 165 USD billion¹.

Furthermore, current globalization trends are leading to higher levels of natural resource depletion. Demand for natural resources significantly exceeds the volume and speed of their actual replenishment, leading to inevitable shortages as well as the pollution of water and air. Given the seriousness of these issues, the new concept of sustainable growth has begun to be actively promoted in the world's political circles.

The policy of sustainable development as a response to the global problems of our time involves the transition of states to a green, in other words, low-carbon economy. Not only are governments now more concerned about the conditions in which future generations will live, they are also seeking more opportunities for investment and job creation for the present generation. These are the reasons why maintaining a long-term growth mechanism is considered a prerequisite for countries' energy independence, the development of a modern infrastructure, and the reduction of ecosystem degradation.

Thus, the leaders of all states must respond to these challenges and initiate reforms to their countries' financial systems in order to remain resilient and to avoid potential financial crisis. It is crucial to make the right decisions on how to reallocate national funds and investments and to channel them into sensible projects, namely green initiatives. Long-term (rather than one-off) investments in livelihoods and sustainable development are certain to be more profitable in the long run, and it is important that such investments in sustainability are publicly acknowledged as more beneficial. If this public recognition occurs, the transition to the so-called green economy will be more efficient and less time-consuming.

The issue of creating an economic system resilient to financial risks forms a major part of our scientific interest. In our opinion, this extremely important topic has not yet been fully aired. While developed countries have already made certain achievements in the green economy, transition economies are only making their first steps towards stability. In order to succeed, these countries need the wide-ranging assistance and support of foreign partners. Ukraine is one of the countries currently building close ties with the European Union and seeking to achieve a corresponding level of economic, legal and social development.

¹ Swiss Re Institute. 2019. Natural catastrophes and man-made disasters in 2018: "secondary" perils on the frontline. *Sigma No 2/2019*.

I. Building up a green economy that is resilient to non-financial risks

The world economic crisis of 2008/9 revealed the fragility of the prevailing models of economic development in numerous developed as well as developing economies. Most state governments still believe that measurable economic growth is required to support an expanding population, to encourage progress in society and to reduce poverty². Developing an economic system with steady growth which is resilient in the face of non-financial risks has however become a matter of urgency in times of ‘climate crisis’.

At the United Nations Millennium Summit held in Rio de Janeiro in 1992, sustainable development was declared a global priority for humanity with the purpose of creating a universally applicable model of continuous growth³. A comprehensive concept of sustainable development requires maintaining a balance between satisfying the needs of humankind today and protecting the interests of future generations, including their need for a safe and healthy environment. The implementation of a sustainable development strategy involves a combination of economic efficiency, social stability, and environmental safety⁴. Previously, such “green” initiatives have been considered the privilege of the industrial countries. However, they are now becoming a mechanism for sustainable development in many countries around the world.

A rapid economic growth has been mainly achieved due to an accelerated consumption of natural resources that goes well beyond the planet’s ecological limits. If humankind’s requirements for natural resources continue to grow at the current rate, in 2030 the equivalent of two Earths will be needed to meet the demand – and in 2050 almost three⁵. One obvious solution to the problem of resource depletion relates to the shift from exploitive one-time usage to a circular repeated usage of environmental resources and the financing of low carbon strategies that form the basis of a green economy.

The United Nations Environment Programme (UNEP) defines the green economy as enhancing the welfare of people and providing social justice while significantly reducing the risks to the environment and poverty among the population⁶. The core elements of the green economy

² PAGE Green Economy Introductory Learning Materials 2012: 4. Online at: <http://www.unitar.org/sites/default/files/uploads/egp/Section1/PDFs/1.3%20Definitions%20for%20Green%20Economy.pdf> (last accessed on 20.09.2018).

³ United Nations Regional Information Centre for Western Europe 2017. Online at: <https://www.unric.org/en/rio20/27615-back-in-time-what-was-rio-1992#maincontent> (last accessed on 20.09.2018).

⁴ The National Institute for Strategic Studies 2014. Online at: <http://www.niss.gov.ua/articles/1237/> (last accessed on 20.09.2018).

⁵ “Green” economy 2012. Online at: <http://www.zhiva-planeta.org.ua/diyalnist/zelena-economika.html> (last accessed on 20.09.2018).

⁶ PAGE Green Economy Introductory Learning Materials 2012. Online at: <http://www.unitar.org/sites/default/files/uploads/egp/Section1/PDFs/1.3%20Definitions%20for%20Green%20Economy.pdf> (last accessed on 20.09.2018).

are illustrated in Figure 1⁷. The figure shows that the concept of green economy concentrates mainly on the economic and environmental aspects of sustainable development. Nevertheless, a social element should be mentioned in this context. There is a direct relationship between the eradication of poverty and sound environmental management, since those who are struggling financially can benefit directly from an increase in natural capital. The green economy creates jobs and stimulates economic progress while at the same time reducing such significant risks as the effects of climate change and ever more frequent water shortages. European countries use a range of green economy tools in their national policies and development strategies. The Danish capital, Copenhagen, plans to become the world’s first capital with zero greenhouse gas emissions while Germany expects to achieve a fourfold increase in investments in environmental technologies by 2030⁸. The Association Agreement between Ukraine and the EU emphasizes the great significance of building the green economy in Ukraine.

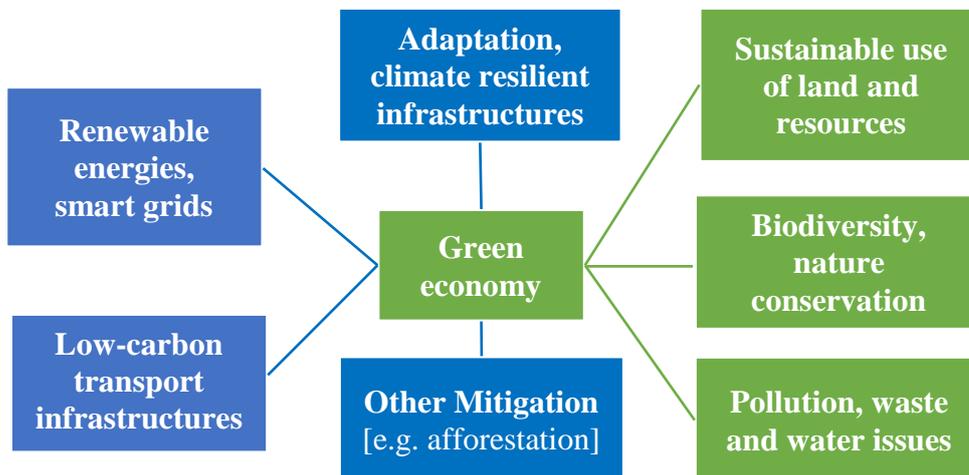


Figure 1. Core elements of a green economy

Note: Green investments include climate related investments (blue boxes), but are not limited to them (green boxes)

According to United Nations experts, the environmental and social foundations of sustainable development should be compared to those of economic rights. Many researchers argue that an annual investment of 2% of world GDP – approximately 1,3 billion USD – in the ten most important sectors of the economy by 2050 can stimulate economic activity at least as effectively

⁷ Lindenberg (2014). Definition of Green Finance. <https://www.cbd.int/financial/gcf/definition-greenfinance.pdf> (accessed 07.09.2019).

⁸ “Green” economy 2012. Online at: <http://www.zhiva-planeta.org.ua/diyalnist/zelena-economika.html> (last accessed on 20.09.2018).

as ordinary investment strategies, only with a reduced risk of crises and shocks⁹. The investments need to be supported by targeted government spending, policy reforms and regulatory change.

The transition to a green economy requires the creation of new conditions and urgent action by governments in all countries. The policy needed to implement this transition requires reducing or eliminating environmentally harmful subsidies, applying market incentives, improving regulation, switching to green public procurement, and stimulating investment¹⁰. The path of development must preserve, increase and, where necessary, restore natural capital as the most important economic asset and source of public goods. An important step towards establishing an economic system that is resilient in the face of non-financial risks is green finance.

1.1 Concept and goals of a green finance policy (GFP)

It seems difficult for green economy researchers to agree on a single definition of green finance. However, certain aspects are mentioned in several studies which offer various explanations of this term (see Table 1¹¹).

In 2016 UNEP agreed the key defining terms of a green economy: finance for sustainable development, finance for environmental purposes and finance for climate change mitigation and adaptation¹² (Figure 2¹³). These terms relate to certain environmental, social, economic and governmental issues. Environmental issues are associated with the natural environment and natural systems; they deal specifically with finance of ‘ecosystem services’ and ‘nature based solutions’ (e.g. Kabisch et al., 2016). The social issues referred to include the problems of human rights, gender and work regulations of a society. Economic issues include the impacts of financial investments at all levels. Finally, governance or governmental issues deal with the transparency and oversight of financial flows and investments and corruption control in the society.

As indicated thus, sustainable finance is a broadly defined concept which includes environmental, social, economic and governmental facets simultaneously in an integrated approach (ESG).

⁹ The National Institute for Strategic Studies 2014. Online at: <http://www.niss.gov.ua/articles/1237/> (last accessed on 20.09.2018).

¹⁰ Chmyr O.S., Khomenko Y.V. (2013). Concept of the green Growth Economy: the New Roadmap for Ukraine, The 11th International conference Information Technologies and Management 2013, April 18-19, 2013, ISMA University of Applied Sciences, Riga, Latvia.

¹¹ Inquiry: Design of a sustainable financial system 2016: 5-6. Online at: http://unepinquiry.org/wp-content/uploads/2016/09/1_Definitions_and_Concepts.pdf (last accessed on 20.09.2018).

¹² Ibid.: 11.

¹³ Ibid.

Table 1. Definitions of “green finance”

Institution	Definition of green finance
Organisation for Economic Cooperation and Development (OECD)	Green finance is defined as investments whose goal is to reduce levels of natural resource depletion while providing beneficial conditions for economic development.
German government	Green finance is a carefully planned method of transition towards a green economy by means of reducing carbon emissions, establishing a resource-saving economy and adjusting to climatic trends.
European Commission	Sustainable finance is about two imperatives: 1) improve contribution of finance to sustainable and inclusive growth by funding society’s long-term needs 2) strengthen financial stability by incorporating environmental, social and governance(ESG) into investment decision-making (Action Plan: Financing Sustainable Growth, 2018)
World Bank	Green finance combines three main criteria: growth, cleanness, and resilience: these help to determine its functions and purposes, such as environmental resource management, reducing the level of emissions and preventing natural disasters.
International Development Finance Club	Green finance is a broad term that can refer to financial investments flowing into sustainable development projects and initiatives, environmental products, and policies that encourage the development of a more sustainable economy. Green finance includes climate finance but is not limited to it. It also refers to a wider range of „other environmental objectives, for example industrial pollution control, water sanitation, or biodiversity protection. Mitigation and adaptation finance is specifically related to climate change related activities: mitigation financial flows refer to investments in projects and programs that contribute to reducing or avoiding greenhouse gas emissions (GHGs) whereas adaptation financial flows refer to investments that contribute to reducing the vulnerability of goods and persons to the effects of climate change.
Central Committee of the Committee of the State Council And State Council of China	Green finance refers to the economic activities that support the improvement of the environment, which can cope with climate change and efficiently use resources. In other words, it is the investment, financing, project operation and risk management of projects directed at environmental protection, energy saving, clean energy, green transportation and green building financial services. The official definition of green finance given this time contributes to the definition of green financial products and provides a basis for stimulating green investment through reputation effects. This is also the most authoritative definition of green finance in China so far. (Huan P., Xiaoqing L., Chaobo Z., 2018: 95).
China Council for International Cooperation on Environment and Development (CCICED)	Green finance is related to financial flows which deliver economic action to achieve a better usage of resources. ... The green financial system [is defined through the sum of its instruments. It] manages financial instruments such as green credit, green bonds, green stocks, green banks, green funds, green insurance, green investor network (Huan P., Xiaoqing L., Chaobo Z., 2018).
People’s Bank of China	Green finance policy refers to a series of policy and institutional arrangements to attract private capital investments into green industries such as environmental protection, energy conservation and clean energy through financial services including lending, private equity funds, bonds, shares and insurance.
Price Waterhouse Coopers Consultants (PWC)	For the banking sector, green finance is defined as financial products and services, under the consideration of environmental factors throughout the lending decision making, ex-post monitoring and risk management processes, provided to promote environmentally responsible investments and stimulate low-carbon technologies, projects, industries and businesses.

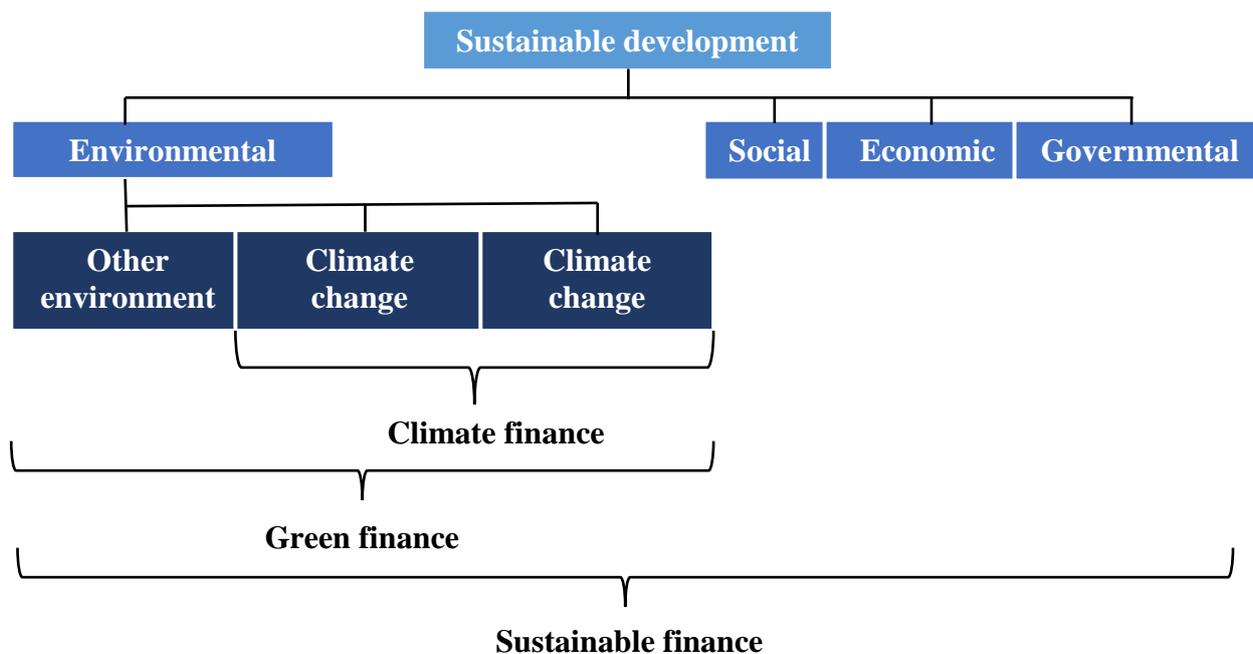


Figure 2. Difference between climate, green and sustainable finance

According to UNEP, green finance includes environmental finance while excluding social and economic interests. In this framing, green finance focuses mainly on climate change and other forms of environmental degradation, and their prevention. By contrast, climate finance concentrates mostly on climate aspects while neglecting social, economic and some more specific environmental interests (e.g. nature conservation finance).¹⁴

In contrast to this strict distinction between ‘Green Finance’ and ‘Sustainable Finance’, this paper focuses on finance with a green impact that combines with the broader concept of sustainable finance. “Greening Finance” (Lindenberg, 2014: 2) aims to shift the flow of finance in our world from a growth reaching its – planetary and human – boundaries to a sustainable development, not just to finance of a green niche market.

‘Climate Finance’ includes all investments at all levels that come from different funding sources to aim at the reduction of the greenhouse gas emissions and its impact to supporting countries in establishing a green economy. Although only a subset of green finance, it stands out in terms of its global needs as well as its current market size and its importance in preserving the ecological foundations of our civilization.

¹⁴ Inquiry: Design of a sustainable financial system 2017: 20. Online at: https://www.dbs.com/iwov-resources/images/sustainability/img/Green_Finance_Opportunities_in_ASEAN.pdf (last accessed on 20.09.2018).

The main components of greening finance are (1) a framework of policies and institutional arrangements and (2) a well-defined set of financial market instrument that attracts green investments from private sources¹⁵.

In 2017 the European Union introduced its Strategy and Action Plan for establishing a financial system which would be resistant to non-financial risks. This plan is to be implemented by 2030. The main task is to enable the proper functioning of green financial policy (GFP). GFP can be defined as the organizational and regulatory activities shared by society and the state that are aimed at protecting and improving the environment, ensuring the rational use and the reproduction of natural resources, and effectively combining the functions of nature management and nature conservation to guarantee environmental safety standards¹⁶. It is devised with the aim of constructing an apparatus that will add modernizing elements to the financial system by establishing advanced financial mechanisms for the successful funding of green economy tasks.

In the following, GFP will be examined from both the international and national perspective. According to the People's Bank of China (PBOC), green financial policy consists of a range of interconnected policies and international agreements, the main aim of which is to draw private investors into green production and business development¹⁷. The purpose of GFP on the national level is to stabilize and improve the state of the environment by integrating the ecological policy of a certain state into socio-economic development and thus to guarantee a safe natural environment for the life and health of the population, the introduction of an ecologically balanced natural resource system and the conservation of natural ecosystems¹⁸.

Creating a GFP will certainly also aid in developing new drivers for prosperity and in broadening the prospects for economic growth. It is necessary to incorporate external ecological factors through material incentives and restrictive guidelines laid down in policies, laws and regulations in the areas which deal with finances. A comprehensive approach to green financial policy implementation can lead to the creation of a green financial system that uses significant material incentives to support the transition to the green economy. The green financial system is often defined as an established societal agreement of consumers, producers and governments to

¹⁵ Inquiry: Design of a sustainable financial system 2016: 10. Online at: http://unepinquiry.org/wp-content/uploads/2016/09/1_Definitions_and_Concepts.pdf (last accessed on 20.09.2018).

¹⁶ Course "The basics of sustainable development. Online at: <http://ecoacademy.org.ua/tema/tema10-zelena-ekonomika-ekologichna-polityka-nacionalnyy-ta-mizhnarodnyy-kontekst> (last accessed on 20.09.2018).

¹⁷ UNEP Inquiry 2015: Establishing China's Green Financial System. Theoretical Framework of Green Finance. Online at: http://unepinquiry.org/wp-content/uploads/2015/04/ECGFS_Background_Paper_A_Theoretical_Framework.pdf (last accessed on 20.09.2018).

¹⁸ Course "The basics of sustainable development. Online at: <http://ecoacademy.org.ua/tema/tema10-zelena-ekonomika-ekologichna-polityka-nacionalnyy-ta-mizhnarodnyy-kontekst> (last accessed on 20.09.2018).

put to use green financial instruments¹⁹. The governmental and market instruments of green financial policy will be set out in the next two sections.

1.2 Fiscal instruments for a green economy

It is well-known that policy makers have always preferred to use legal rather than economic tools to realize environmental policies. The reason often given for this is that “price-based” tools are too unreliable and vague²⁰. It is difficult for policy makers to implement new policies that involve raising taxes or imposing additional financial charges because there is a danger of causing inflationary pressures, which will affect citizens on low incomes. Governments are wary of going down this path because it may lead to undesirable results, such as misunderstanding among the general public and demonstrations. An almost identical situation exists in relation to private businesses and corporations. They prefer legal tools because they believe these will not affect their profits and they will have a chance of exerting some control over legislation.

Financial policy tools use a variety of inducements to encourage renewable energy usage and also devise sanctioning systems for those industries which harm the environment by burning fossil fuels. Financial tools such as environmental taxes, pollution charges, subsidies for green technologies, and tax incentives can positively influence the transition to a green economy by compensating for the level of pollution produced by the environmentally unfriendly industries²¹.

Green taxes are steering levies that are used to reduce the amount of pollution in the environment by taxing businesses and/or private individuals²². There is a wide range of different types of such taxes, some of which can be used as an economic incentive for those who act in an environmentally friendly way (tax subsidies), while others are aimed at imposing penalties on those who pollute the environment (pollution taxes). The main types of green taxes are illustrated in Table 2²³.

¹⁹ China Daily USA 2016. Online at: http://usa.chinadaily.com.cn/business/2016-09/04/content_26692956.htm (last accessed on 20.09.2018).

²⁰ International Institute for Sustainable Development 2013. Online at: <https://www.iisd.org/sites/default/files/publications/policy-tools-transition-green-economy-fiscal-instruments.pdf> (last accessed on 20.09.2018).

²¹ Ibid.

²² Environmental Technology 2015. Online at: <https://www.envirotech-online.com/news/air-monitoring/6/breaking-news/what-are-environmental-taxes/34066> (last accessed on 20.09.2018).

²³ Ibid.

Table 2. Typology of green taxes

Type of green taxes	Main characteristics
Industrial pollution taxes	Are applied to industries that produce external harmful emissions (e.g. pollution in the neighbourhood, transport of pollutants over long-distances through high stacks); pollution taxes are used in most European countries as well as in Australia, Singapore and India
Individual revenue-based taxes	Seek to reduce the amount of harmful substances emitted into the environment, but their targets are private individuals and not big industrial companies (e.g. London congestion charge); very effective in the long run
Incentivized taxation	Can be employed while working with big businesses as well as private individuals; they are aimed at rewarding companies and groups of people for engaging in activities which help the environment; the implementation of such taxes should be supervised very carefully so as not to create even more polluters

An alternative classification of environmental taxes is suggested by the Statistical Office of the European Union, which identifies four different types of environmental taxes, associated with energy, transport, pollution, and resources²⁴. According to Eurostat, environmental taxes have been employed to stimulate and control the work of economic actors: producers and consumers. The revenues from these taxes can be successfully used ('ear-marked') by the government to subsidise the protection of the environment and on the sustainable use of natural resources in a flexible and cost-effective way. The total amount of environmental tax revenue in 2016 amounted to almost 365 billion euros²⁵ (see Table 3²⁶).

Table 3. Total environmental tax revenue by type of tax, EU-28, 2016

	Million EUR	% of total environmental taxes	% of GDP	% of total revenues from taxes and social contributions
Total environmental taxes	364 398	100	2,4	6,3
Energy taxes	280 354	76,9	1,9	4,8
Transport taxes	71 747	19,7	0,5	1,2
Taxes on pollution and resources	12 297	3,4	0,1	0,2

²⁴ Eurostat: Statistics Explained 2016. Online at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_tax_statistics (last accessed on 20.09.2018).

²⁵ Ibid.

²⁶ Ibid.

There is no doubt that the tax on carbon dioxide emissions plays a crucial role in the transition to the green economy. It is one of the numerous financial tools used to reduce the influence of the greenhouse effect. It is beneficial for both the country concerned and its people. Big industrial companies, as well as private individuals, use domestic charges on carbon emissions to assess the situation on the market and to organize their business affairs accordingly. Moreover, green economy investors benefit from the information about charges on harmful gas emissions in that they can evaluate their activities and, where prudent, engage in more profitable ones by changing to low-carbon production.

It is of importance to consider the differences in environmental taxation between the different European countries. For instance, low revenues from green taxes could be a result of the positive effect of the taxes and of changes in behaviour on the one hand or they may be a consequence of low taxes in this country on the other. By contrast, high levels of environmental tax revenue could be an outcome of low taxes which encourage foreigners to buy products across the border. Compared to GDP, the largest revenue levels of environmental taxes were filed in Denmark (4,0%), Slovenia (3,9%), Greece (3,8%), Latvia (3,7%), Croatia and Italy (both 3,5%)²⁷. The lowest revenue level was recorded in six European countries: Lithuania, Germany, Spain, Ireland, Slovakia and Luxembourg²⁸ (see Annex 1).

Germany is one of the countries that has successfully applied fiscal policy tools. This country uses different types of climate-related taxes, such as an “air passenger tax, vehicle tax, nuclear fuel tax, tax on electricity, energy tax”²⁹. Due to the fact that Germany has one of the biggest and most developed automobile industries in the world, the government decided to apply emission taxes for vehicles. Their goal was to reduce vehicles’ carbon dioxide (CO₂) emissions by taxing each additional 10 grams of CO₂ at 20 euros. This led to the production of new vehicles which emit less CO₂ per kilometre³⁰. Other European countries decided to take a similar approach after the success of the German approach.

Another prominent taxation tool of the green economy is the additional charge on the price of emitted carbon dioxide. Carbon pricing targets the price of emissions that are harmful in any way to the residents of any country of the world suffering from it. This tax balances out the economic burden between those who suffer from harmful carbon emissions and those who are cause and, thus, have to avoid them. Furthermore, it gives the emitters a choice: either they reduce the amount of emissions or they pay the full price for them. The main purpose of this

²⁷ Eurostat: Statistics Explained 2016. Online at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_tax_statistics (last accessed on 20.09.2018).

²⁸ Ibid.

²⁹ Gonta 2015: 16. Online at: http://www.kas.de/wf/doc/kas_42407-1522-1-30.pdf (last accessed on 14.06.2017).

³⁰ United Nations Environment Programme 2018. Online at: <https://www.unenvironment.org/explore-topics/green-economy/what-we-do/economic-and-fiscal-policy/fiscal-policy> (last accessed on 20.09.2018).

financial instrument – to protect the environment – is achieved without any further difficulties or burdens for society. Taxing greenhouse gas emissions means reducing the amount of harmful emissions emitted into the environment and setting a course of economic development toward a green economy. It is also a first step to encourage further research into new environmentally friendly technologies, to attract more investors onto the green economy market and to reduce the amount of carbon dioxide produced³¹.

The use of subsidies as one of the tools of a green economic policy is an attempt to solve the problem of fossil fuels being used with no consideration for the environmental costs by influencing the market for renewable energy. Subsidies for renewable energy technologies are believed to be successful on account of the additional motivation they provide for innovations and cost reductions. Subsidies made it possible to expand the development of renewables and to lower dependence on fossil fuels, which is crucial for greenhouse gas emissions reduction³². Nevertheless, for the implementation of subsidies to succeed it is essential to develop new technologies and create new business models.

Nowadays subsidies are not used as often as they once were, because renewable sources of electricity can compete on price with fossil fuels. Various studies conducted within the European Union have shown that it is more beneficial for the environment to concentrate on carbon pricing rather than on subsidies for low-carbon electricity³³. This theory is supported by other assessments which state that for climate policies to succeed it is preferable to use strict carbon pricing in order to motivate renewable energy practices. However, subsidies can be useful nonetheless in encouraging the expansion and advancement of new clean technologies.

It has been proven by many assessments that additional charges are not effective in lowering levels of pollution and that they provide no motivation at all to develop new clean technologies. If the purpose of legislative tools is to restrict the levels of pollution generated by industries and private households, the goal of economic tools is to make these actors pay even more for the higher levels of environmental pollution they produce. In this framework polluters are given a clear choice: they either continue their practices and pay more while experiencing reduced profit margins, or they change their practices to environmentally friendly ones³⁴.

Internal carbon pricing is used by many companies and corporations to drive their growth and profits. The main functions of this financial tool when applied within companies are to transition to low-carbon production and to change their investment decisions. In addition, this

³¹ The World Bank 2018. Online at: <https://carbonpricingdashboard.worldbank.org/what-carbon-pricing> (last accessed on 20.09.2018).

³² The London School of Economics and Political Science 2018. Online at: <http://www.lse.ac.uk/GranthamInstitute/faqs/do-renewable-energy-technologies-need-government-subsidies/> (last accessed on 20.09.2018).

³³ Ibid.

³⁴ Ibid.

financial instrument is used by governments to direct and manage their policies and project investments so as to reduce the amount of harmful materials and substances emitted. Internal carbon pricing is also attractive to financial institutions. With its help, they evaluate their frames of reference and business decisions. Five countries that are members of the Organization for Economic Co-operation and Development (OECD) have declared their use of internal carbon pricing. These countries have the highest levels of greenhouse gas emissions, and their carbon prices range between 5 USD and over 400 USD per ton CO₂ emissions³⁵.

The same tool is used by governments to evaluate public investment projects and estimate levels of harmful emissions. A growing number of financial institutions also use internal carbon pricing for various purposes, including to assess their investments and to evaluate new projects. In this way they seek to predict more precisely what the impacts of these projects may be and to implement low-carbon production successfully. The outcome, they believe, will be higher profits and a cleaner environment³⁶.

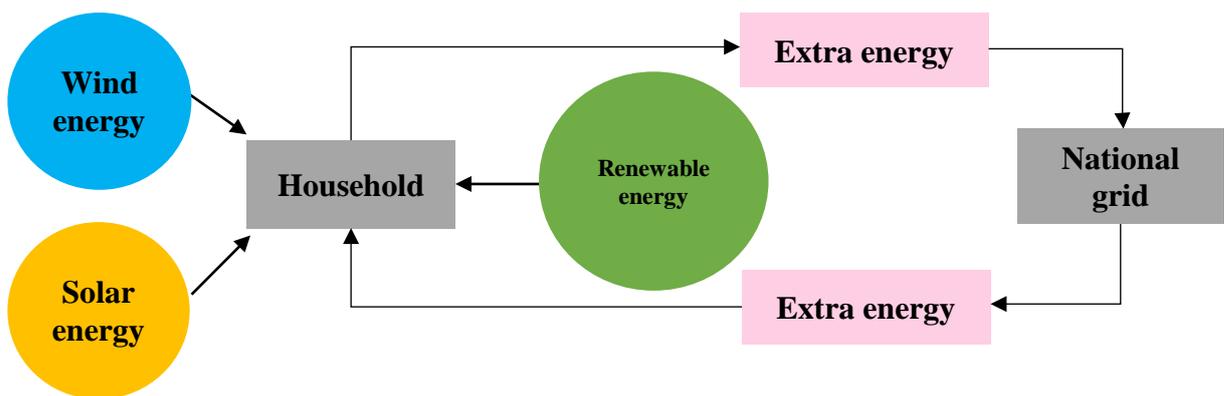


Figure 3. The FIT functioning scheme.

A further important fiscal instrument of green financial policy is the feed-in tariff (FIT), a tool created to stimulate investment in energy from non-depletable sources³⁷. FITs are used to encourage companies and businesses to produce and develop renewable energy technologies and to finance the costs incurred during this process. FITs are fixed prices that are paid to renewable energy producers “for each unit of energy produced and injected into the electricity grid”³⁸. Households can employ various sources of renewable energy, such as wind and solar energy, to

³⁵ The World Bank 2018. Online at: <https://carbonpricingdashboard.worldbank.org/what-carbon-pricing> (last accessed on 20.09.2018).

³⁶ Ibid.

³⁷ Couture, T. D., Williams, E. 2010. Online at: <https://www.nrel.gov/docs/fy10osti/44849.pdf> (last accessed on 20.09.2018).

³⁸ Energypedia 2018. Online at: [https://energypedia.info/wiki/Feed-in_Tariffs_\(FIT\)](https://energypedia.info/wiki/Feed-in_Tariffs_(FIT)) (last accessed on 20.09.2018).

generate electricity for private use, and are paid for each unit of energy produced. The excess energy produced is fed into the national grid. At the same time, if households require more energy than they can produce, they can import it from the national grid (see Figure 3³⁹).

In the field of renewable electricity, feed-in-tariffs are the most reliable financial tool because they are flexible in terms of their design while also taking into consideration the objectives of national energy policies and electricity market conditions. Feed-in-tariffs can be structured to address the needs of developing countries and emerging economies. Furthermore, FITs have supported the creation of national markets for the manufacturing industry, which has led in turn to more job opportunities. Ultimately, they have also achieved an even more important goal, namely, that of enabling numerous actors to participate in the power generation business, including all kinds of companies and private individuals⁴⁰.

The complexity of the situation with FITs lies in the fact that the finances “are neither too low to be attractive for investments, nor too high in order to avoid overcompensation”⁴¹. The positive effects for the investors are guarantees and long-term contracts provided by the government which lower the level of financial risks. Analysts have stated that feed-in tariffs are slow to respond to changes in the costs of renewable energy⁴². Its digression mechanism (in subsidy rates) does not follow the digression of cost. As a result, FITs do not efficiently stimulate the market distribution of green energy.

Nevertheless, FITs are one of the most widely implemented and effective financial policy tools supported in many countries. They provide financial security and offer a long-term guarantee, which is why they are so attractive to European countries. The rates of feed-in tariffs depend on the size and kind of the installation concerned. They are also linked to the currency of the state in question. Germany, Denmark and Spain have made feed-in tariffs work by providing an incentive for the rapid development of renewable energy systems. However, if FITs are not adapted accordingly, they may lead to negative consequences, as in the case of Spain, the Czech Republic or Greece⁴³.

In addition to FITs, there are many other financial tools available. For example, the Renewable Energy Certificate System (RECS) is a platform for trading renewable energy certificates. Certificates are issued that confirmed the amount of renewable energy a country or business has produced and thus provide the opportunity to trade renewable energy with other

³⁹ Frankcom 2012. Feed-in-tariffs: the what, the how and the why. Online at: <https://www.uswitch.com/gas-electricity/news/2012/02/20/feed-in-tariffs-the-what-the-how-the-why/> (last accessed on 20.09.2018).

⁴⁰ Jacobs 2010. Online at: <http://www.renewableenergyfocus.com/view/13313/introduction-to-feed-in-tariffs/> (last accessed on 30.09.2018).

⁴¹ Energypedia 2018. Online at: [https://energypedia.info/wiki/Feed-in_Tariffs_\(FIT\)](https://energypedia.info/wiki/Feed-in_Tariffs_(FIT)) (last accessed on 20.09.2018).

⁴² Ibid.

⁴³ Ibid.

producers. This leads to the establishment of a renewable energy market and makes people aware of the development of new renewable energy capacity in Europe. A RECS energy certificate is granted for every 1 megawatt-hour (MWh) of renewable energy produced that is recorded by the official RECS issuing authority. The certificates are transferred between market participants in different countries and serve as confirmation of the amount of renewable energy consumed. At one point, RECS energy certificates could not be traded any longer to guarantee that they were not double-sold⁴⁴.

To sum up, financial policy tools are one of the generally accepted means to lower carbon emission and support the development and realization of low carbon technology. Strengthening a country's domestic resources is the basic precondition for effectively establishing a green economy. As was discussed above, fiscal policy tools are the most influential tools for attracting private investment in the green economy and supporting it financially. These tools also take external factors into consideration. A wide variety of financial tools can be applied successfully for managing the level of the carbon dioxide emissions and off-setting the impacts of environmentally unfriendly industries by means of financial pressure. Implementing financial tools in a disorganized or wasteful manner will lead to negative results and a failure to achieve the desired objectives.

1.3 Market instruments as an important element of a green financial policy

One of the market instruments of green financial policy is an emissions trading system (ETS). This is a platform which gives emitters the option to trade emissions units. Depending on the value and the final goal, participants of this system can either invest in GHG reduction measures or purchase emissions allowances on the carbon market. This system determines the price for greenhouse gas emissions through the mechanism of supply and demand for emissions units. In stark contrast to this, one of the fiscal tools – carbon tax – estimates the price of carbon by applying a fixed tax rate to greenhouse gas emissions. The difference between the two approaches lies in the fact that an emissions trading system predefines the decreasing level of emissions but not the carbon price itself⁴⁵.

⁴⁴ Renewable Energy Certificate System 2017. Online at: https://en.wikipedia.org/wiki/Renewable_Energy_Certificate_System (last accessed on 30.09.2018).

⁴⁵ The World Bank 2018. Online at: <https://carbonpricingdashboard.worldbank.org/what-carbon-pricing> (last accessed on 20.09.2018).

At the 2015 UN climate conference in Paris, the International Panel on Climate Change (IPCC) established a procedure which gives countries the opportunity to reduce the level of harmful emissions by market means, as set out in the Paris Agreement⁴⁶. Countries that signed this protocol are committed to reducing the level of harmful emissions by setting certain standards and limits. The crucial paragraph of the Protocol in this regard is that each industrialized country that has not reached its carbon dioxide emissions limit can sell carbon credits to other countries that have exceeded their limits⁴⁷.

The cap-and-trade programme allows a company or a country that has emitted fewer harmful gases than its limit to trade carbon permits as a means of balancing the overall level of emissions⁴⁸ (see Figure 4⁴⁹). To give an example, if Ukraine has a limit of 17 tons of carbon emissions and emits only 15 tons while Germany has a limit of 13 tons and emits 15, then Ukraine can sell two carbon credits to Germany in order for the countries to balance out their levels of emitted greenhouse gases. If this did not occur, Germany would have to pay a financial penalty. Nonetheless, due to the considerable differences in price, in some cases it is financially profitable to simply pay the penalties rather than to buy carbon credits. The consequence of this, of course, is that the atmosphere is more polluted but the fines are paid.

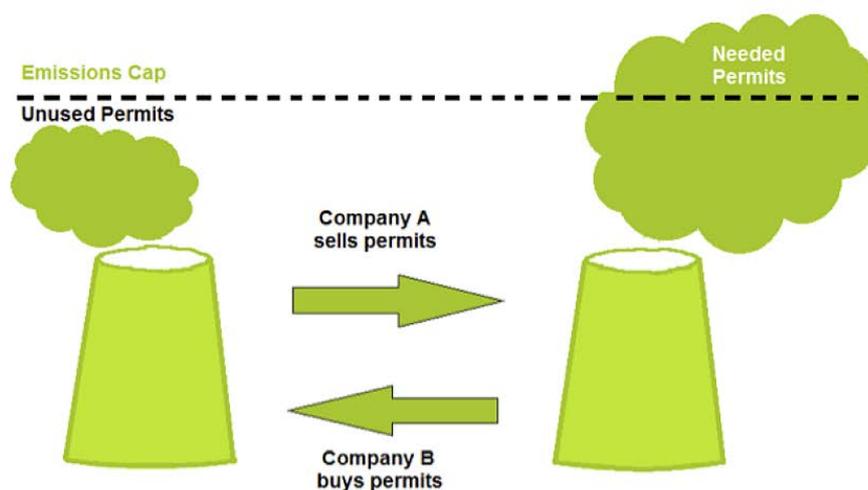


Figure 4. The cap-and-trade system

⁴⁶ Investopedia 2018. Online at: https://www.investopedia.com/terms/c/carbon_credit.asp (last accessed on 20.09.2018).

⁴⁷ Ibid.

⁴⁸ The World Bank 2018. Online at: <https://carbonpricingdashboard.worldbank.org/what-carbon-pricing> (last accessed on 20.09.2018).

⁴⁹ Climate Police Info Hub 2018. Online at: <https://climatepolicyinfohub.eu/eu-emissions-trading-system-introduction> (last accessed on 20.09.2018).

A further important market instrument of green financial policy is green credit. A carbon credit is an official document which grants its possessor permission to discharge harmful materials and substances into the environment⁵⁰. Although this sounds unlikely and unusual, such credits are able to reduce the level of carbon dioxide and greenhouse gases emitted by the industries that are the main producers of harmful emissions into the atmosphere.

Policy makers and other governmental institutions are the biggest supporters and issuers of carbon credits. They use them to reduce the level of substances emitted into the environment. By placing a price on every additional ton of carbon dioxide emitted, governments can use carbon credits to manage the amount of the emissions in the atmosphere. Indeed, the carbon credit scheme can also grant permission to emit an additional amount of carbon dioxide within a specific time frame. Usually, carbon credits are issued to the companies and factories that calculate and check their emissions. International corporations and countries can exchange these credits in order to equalize the amount of carbon dioxide emitted all over the world⁵¹.

Another important market instrument of green financial policy is a green bond. Four types of bonds may be mentioned in this context: social, environmental, sustainable and green. Social bonds are employed exclusively in financing authorized social projects⁵². Environmental bonds are “performance and payment surety bonds”⁵³. For instance, if a property is being rebuilt, proceeds can be applied for the reconstruction projects that could improve environmental performance of the property/buildings.

Sustainability bonds are used in connection with green and social projects. It is presumed that specific social projects may have environmental benefits and that, vice versa, green projects can have a positive effect on society. Consequently, the type of bonds used is defined by the issuer according to the purposes it is intended to serve⁵⁴. Sustainability bonds give the issuer the opportunity to apply them to both environmental and social projects. This results in a mix of green and social bond, which is an important step towards blended finance⁵⁵.

⁵⁰ Investopedia 2018. Online at: https://www.investopedia.com/terms/c/carbon_credit.asp (last accessed on 20.09.2018).

⁵¹ Investopedia 2018. Online at: https://www.investopedia.com/terms/c/carbon_credit.asp (last accessed on 20.09.2018).

⁵² The Social Bond Principles 2017. Online at: <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/SocialBondsBrochure-JUNE2017.pdf> (last accessed on 20.09.2018).

⁵³ Bond Brokers Inc. 2018. Online at: <http://bondbrokersinc.com/environmental-bonds/> (last accessed on 20.09.2018).

⁵⁴ The Green Bonds Principles 2017. Online at: <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/SustainabilityBondGuidelines-JUNE2017.pdf> (last accessed on 20.09.2018).

⁵⁵ Euromoney 2016. Online at: <https://www.euromoney.com/article/b12kq32709kvlz/csr-bonds-are-sustainability-bonds-better-than-green> (last accessed on 20.09.2018).

Sustainability bonds are interpreted, according to international standards, as borrowings which finance projects that are profitable for the environment, society and the economy⁵⁶. Green bonds are defined as loans which finance projects that are exclusively beneficial to the environment. Social bonds are borrowings that finance projects which are beneficial to society and the economy and can positively influence the environment⁵⁷.

The most important international document for establishing a green economy is the Paris Climate Agreement, which foresees the expansion of new green technologies and a reduction in the level of harmful emissions⁵⁸. In this framework, green bonds are of great importance. Green bonds are defined as financial instruments which are used by corporations, governments and financial institutions to penalize polluters and to increase the overall environmental situation. Companies and institutions that issue green bonds are required to submit regular reports about the volumes of investments and their sources. The main argument in favour of issuing green bonds is to attract more contributors, that is, those who have a legal right to invest only in green capital (like pension funds in the EU). Furthermore, it includes also the environmentally friendly benefits of underlying operations and could lead to the improvement of the reputation for all the participants of this green lending scheme⁵⁹.

It should be stressed that green bonds are new financial tools, the revenue from which is to be invested only in those projects that further a transition to the green economy. All the other specifications of green bonds (such as structure, returns and risks) are the same as with other types of bonds. Nevertheless, there are two groups of green bonds, namely, labelled and unlabelled green bonds. The former are designated specifically as green bonds while the latter are used for projects which generate environmental benefits⁶⁰. One further sub-category of green bonds, namely, climate bonds, are intended specifically for climate change projects⁶¹.

Among the many beneficial aspects of green bonds is the fact that they may attract domestic and foreign investors to contribute toward the development of new renewable technologies and new projects; this is a key factor in the success of green economy policies. It is important for the issuer to raise the required amount of revenue in order to return back financial resources and additional non-financial benefits (social or governance improvements)⁶².

⁵⁶ Nasdaq 2017. Online at: <https://business.nasdaq.com/list/listing-options/European-Markets/nordic-fixed-income/sustainable-bonds> (last accessed on 20.09.2018).

⁵⁷ Ibid.

⁵⁸ Inquiry: Design of a sustainable financial system 2017: 75. Online at: https://www.dbs.com/iwov-resources/images/sustainability/img/Green_Finance_Opportunities_in_ASEAN.pdf (last accessed on 20.09.2018).

⁵⁹ Inquiry: Design of a sustainable financial system 2017: 75. Online at: https://www.dbs.com/iwov-resources/images/sustainability/img/Green_Finance_Opportunities_in_ASEAN.pdf (last accessed on 20.09.2018).

⁶⁰ United Nations Development Programme 2018. Online at: <https://www.undp.org/content/sdfinance/en/home/solutions/green-bonds.html> (last accessed on 20.09.2018).

⁶¹ Ibid.

⁶² Ibid.

The amount of green bonds on the global green bonds market has doubled in only one year from 2015 to 2016, and more investors and politicians continue to come onto the market.⁶³ (see Figure 5⁶⁴).

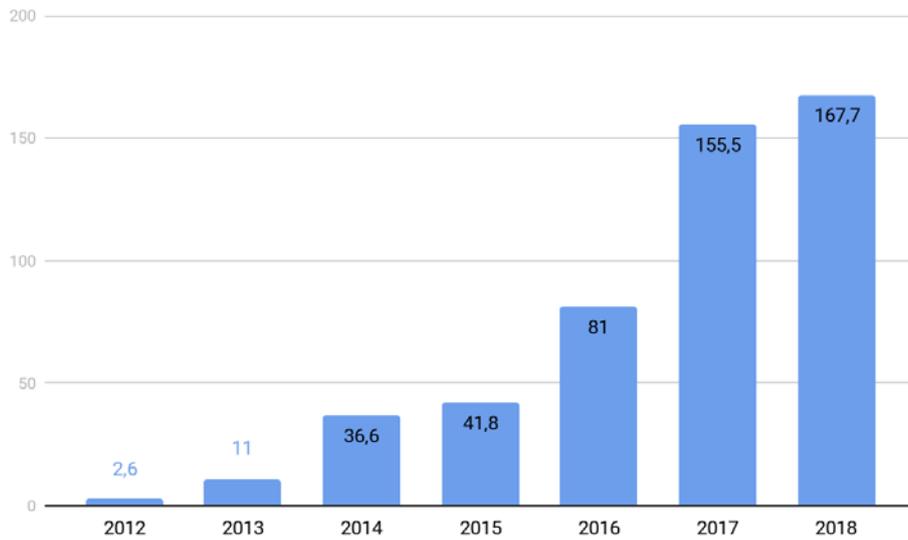


Figure 5. The growing interest in green bonds, annual issuance, billion USD.

Source: built by the authors, based on the data of Climate Bonds Initiative

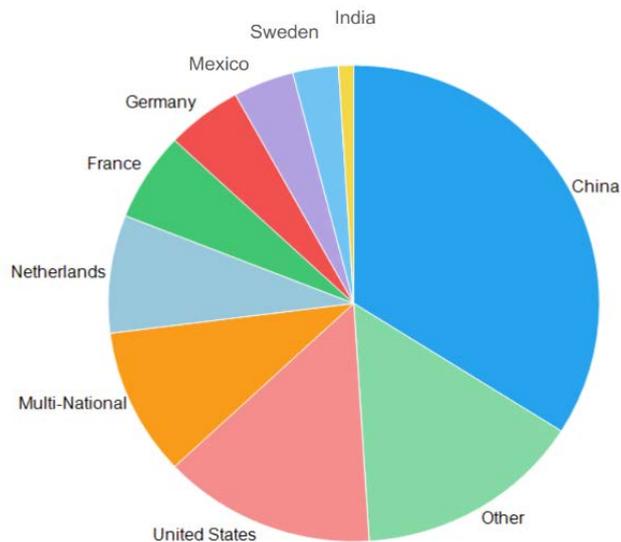


Figure 6. Bond issuance by country of risk as of 2017

⁶³ United Nations Development Programme 2018. Online at: <https://www.undp.org/content/sdfinance/en/home/solutions/green-bonds.html> (last accessed on 20.09.2018).

⁶⁴ International Banker 2017. Online at: <https://internationalbanker.com/brokerage/green-bonds-rise/> (last accessed on 20.09.2018).

European countries are one of the most successful issuers of green bonds in the global arena. As of 2017, the Netherlands is the leader among the EU states (see Figure 6⁶⁵), followed by France, which announced the biggest green bond issue ever registered – 7,6 billion USD⁶⁶. According to the results of various analyses, a range of disincentives are to be expected on the green bonds market. These include a “lack of binding standards for project selection, impact measurement and reporting on green bonds, as well as high transaction costs for green bond emissions”⁶⁷. The main problem is a discrepancy between the “quality and quantity of green bonds”⁶⁸; where this is the case, these financial tools will only complicate the problem and reduce effectiveness of the measures (“green washing”).

The reason why economic tools are so broadly used nowadays lies in the success of economists who have proven that they are capable of contributing greatly toward a cleaner environment and toward reducing the level of harmful emissions. However, the question that arises is this: the problem in the failed implication of economic tools and in deficiency of additional charges for polluters or is it because of political powers who concern themselves only with profits, rather than environmental welfare and social prosperity. In the first case, successful application of economic tools will lead to reducing the levels of harmful emissions and provide for encouragement in developing new clean technologies. In the second case, the problem will only be aggravated and transition to the green economy will not be successful⁶⁹.

⁶⁵ Ibid.

⁶⁶ Badlyans 2017. Online at: <https://seekingalpha.com/article/4060266-evolution-green-bond-market> (last accessed on 20.09.2018).

⁶⁷ Agster 2018. Online at: <https://www.adelphi.de/en/project/opportunities-and-challenges-green-bonds-germany> (last accessed on 20.09.2018).

⁶⁸ Ibid.

⁶⁹ Beder 1996. Online at: <https://www.uow.edu.au/~sharonb/economics.html> (last accessed on 20.09.2018).

II. Green economy in Ukraine as central to the European integration process

Before Ukraine signed the Association Agreement with the states of the European Union, building an economy resilient to financial risks was beyond the *ordre du jour* in this emerging country. Ukrainian politicians were able not only to exert their influence in the political arena but also to promote their own interests in every sphere of the economy, be it in the public or the private sector. Until the recently, Ukraine has paid insufficient attention to the development of small and medium enterprises. In its policy of economic growth, the government has focused on large companies in the industrial sector, in particular on those in the steel and chemical industry. It has since become clear that if the Ukrainian economy is to be competitive, it needs to be transformed and diversified in a way that takes account of environmental issues. Given the rising level of interest in establishing a green economy in Ukraine, the government there faces the challenge of addressing a number of problems:

“...lack of administrative and financial instruments, which give an opportunity to internalize costs associated with negative financial and environmental externalities, flawed environment quality monitoring system, inaccurate statistical information concerning the level of overall greenhouse gas emissions in Ukraine and in different industries in particular”⁷⁰.

In order to improve its environmental situation, Ukraine has responded to the recommendations delivered by various institutions engaged in combating climate change. The first relevant document which might be mentioned in this context is the Kyoto Protocol, adopted in December 1997 as an addition to the United Nations Framework Convention on Climate Change. It obliges developed countries and countries with economies in transition to reduce or stabilize greenhouse gas emissions compared to 1990 rates⁷¹. The countries that have ratified the Kyoto Protocol have developed a system for limiting industrial emissions through quotas. The countries that joined the agreement are required to correlate their emissions with the emissions of the year 1990. If their level exceeds the figures recorded for 1990, the country must compensate for the increase in emissions by purchasing the appropriate volume of quotas for those participants in the Kyoto Protocol that have unused reserves of greenhouse gases. Ukraine is one of the few countries in the world which drastically reduced greenhouse gas emissions due to low utilization of industry.

⁷⁰ Sushchenko 2015: 29. Online at: http://www.kas.de/wf/doc/kas_42407-1522-1-30.pdf (last accessed on 14.06.2017).

⁷¹ Unian News Agency 2014. Online at: <https://www.unian.net/society/898821-yaponiya-mojet-potrebovat-ot-ukrainyi-vernut-kiotskie-millionyi.html> (last accessed on 20.09.2018).

By ratifying the Kyoto Protocol in April 2004, Ukraine was able to realize its unused quotas for carbon dioxide emissions. According to the Protocol, Ukraine receives funds for social and environmental projects from the sale of unused quotas for carbon dioxide emissions of domestic industrial enterprises to other states that have exceeded their emissions by means of cap-and-trade system⁷². By the year 2009, Ukraine had received almost 500 million euros from selling its quotas. Unfortunately, this sum was used inappropriately by the corrupt governmental authorities⁷³. In order to prevent further corrupt practices, the Paris Agreement reduced the Ukrainian emissions gap to limit the quotas it is permitted to sell.

Another document, the Paris Agreement, was the first legally binding arrangement which designated a common action plan for 195 states to keep the increase in global average temperature “to well below 2°C above pre-industrial levels”⁷⁴. It was acknowledged that developing countries might require a longer period of time to decrease their emissions intensity by means of modern technologies. In addition, the countries are called upon to implement the national climate action plans which had been submitted previously. The European Union is an institution that has put much effort into supporting the Paris conference, and it therefore expects a full contribution to the climate change prevention process from its associate members. Ukraine signed the Paris Agreement in April 2016 and ratified it in September of the same year by giving a commitment to not exceed 60% of 1990 GHG emissions by 2030⁷⁵ (see Figure 7⁷⁶).

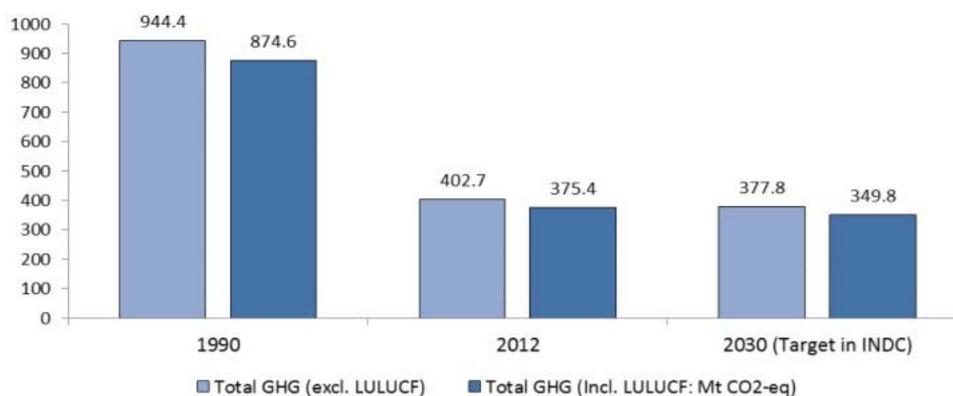


Figure 7. GHG emissions in Ukraine in recent years and in target years

⁷² Unian News Agency 2014. Online at: <https://www.unian.net/society/898821-yaponiya-mojet-potrebovat-ot-ukrainyi-vernut-kiotskie-millioni.html> (last accessed on 20.09.2018).

⁷³ Oratovska 2015. Online at: <https://ru.slovoidilo.ua/2015/06/10/statja/obshhestvo/kiotskij-protokol.-yaponcy-tak-i-ne-dozhдалиs-dejstvij-ot-ukrainy> (last accessed on 20.09.2018).

⁷⁴ European Commission 2015. Online at: https://ec.europa.eu/clima/policies/international/negotiations/paris_en (last accessed on 20.09.2018).

⁷⁵ Intended Nationally-Determined Contribution (INDC) of Ukraine to a New Global Climate Agreement: 2. Online at: <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Ukraine%20First/Ukraine%20First%20NDC.pdf> (last accessed on 20.09.2018).

⁷⁶ Cf. Government of Ukraine 2015 in Financing climate action in Ukraine 2016:7. Online at: https://www.oecd.org/environment/outreach/Ukraine_Financing_Climate_Action.Nov2016.pdf (last accessed on 20.09.2018).

The recently adopted Europe 2020 strategy is also based on the principles of sustainable development. It requires the countries of the European Union to achieve the so-called 20/20/20 goal, namely, a reduction of greenhouse gas emissions by 20% by 2020 and an increase in the share of renewable energy sources of 20% of total electricity consumption⁷⁷. As an associate member of the EU, Ukraine needs to make a major effort to implement these European strategies. However, since it is a less developed state, it will require particular measures to achieve a green transformation. Therefore, the question arises: which mechanisms for implementing a sustainable development strategy would be suitable for countries with relatively low per capita income, substantial resource and environmental problems, and a tense demographic situation.

2.1 Current state of greenhouse gas emissions in Ukraine

While considering the current state of greenhouse gas (GHG) emissions in Ukraine, it is of crucial to draw attention to the economic sectors that are eminently environmentally unfriendly. Currently about a quarter of the working population of Ukraine is employed in various fields of industrial production which thus form about 25% of GDP. Heavy industry, especially mechanical engineering, ferrous metallurgy, and the coal industry make up a large proportion of the structure of Ukrainian industry. Heavy industry accounts for more than 80% of the total value of industrial goods sold. Over the years the electricity & heating sector has been the highest contributor to harmful gas emissions, being responsible for some 20 percent of these, followed by the “metals” sector, with approx. 18 percent and “solid fuels” with 14 percent⁷⁸ (see Figure 8⁷⁹).

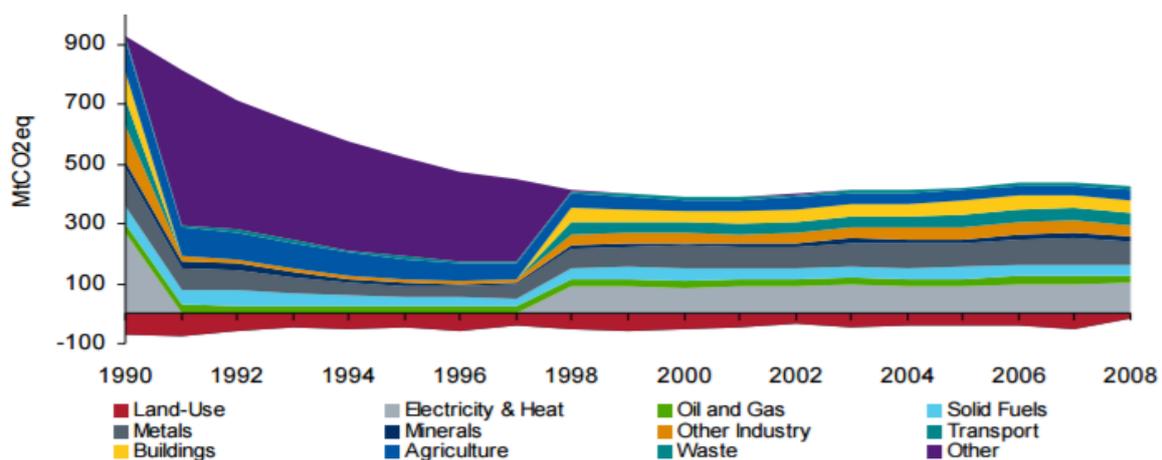


Figure 8. Historical trends of CO₂ emissions by industrial sectors in Ukraine

⁷⁷ Pidlisnyuk 2013: 2. Online at: http://nbuv.gov.ua/j-pdf/Nd_2013_6_1.pdf (last accessed on 20.09.2018)

⁷⁸ The Demand for Greenhouse Gas Emissions Reduction Investments 2012: 9. Online at: http://www.ebrd.com/downloads/research/economics/publications/specials/Ukraine_MACC_report_ENG.pdf (last accessed on 20.09.2018).

⁷⁹ Ibid.

In fact, 75% of total energy consumption in Ukraine comes from burning fossil fuels. Obsolete Ukrainian production technologies caused the highest level of CO₂ emissions per GDP of all countries at the beginning of the 1990s⁸⁰. The Soviet states' emissions rates exceeded those of the OECD countries almost fivefold (see Figure 9⁸¹). The economic and financial crisis further highlighted the structural problems of Ukraine's economy. Most of Ukrainian industry is uncompetitive on the international market. The production capacities of Ukrainian enterprises are out of date, while labour productivity is too low. The Ukrainian economy is marked by one of the highest levels of consumption of resources and energy. There is an urgent need to diversify the structure of the economy and export, which indicates the need for a high level of innovation and strong market dynamics.

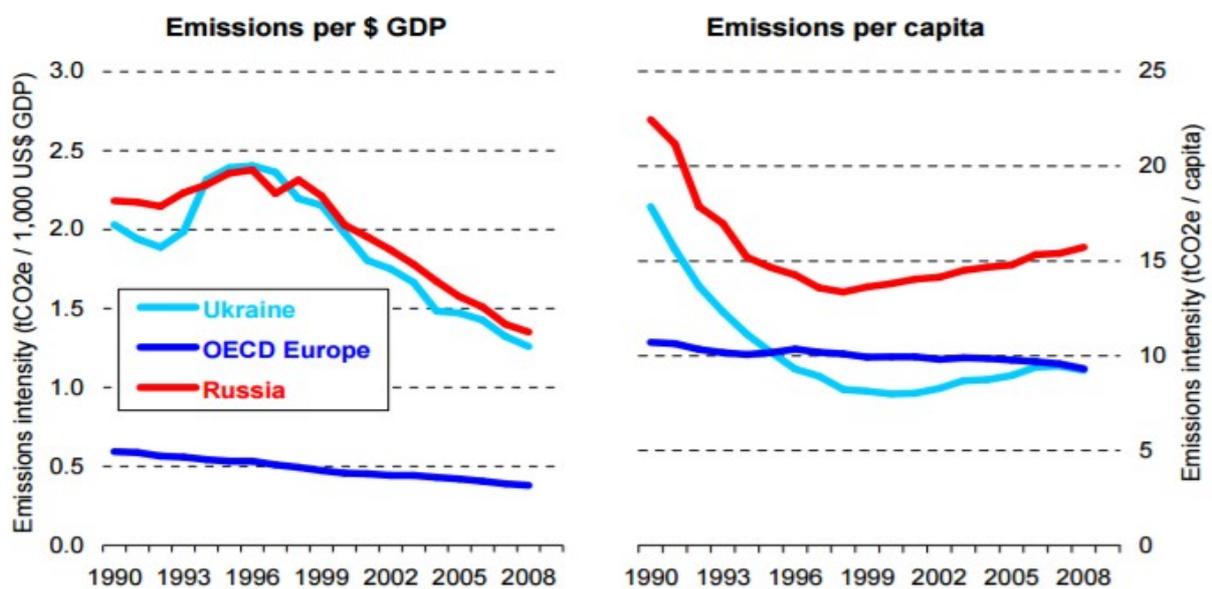


Figure 9. Emission intensity in Ukraine, Russia and OECD Europe (1990-2008)

Nevertheless, in a comparison of CO₂ emissions per capita in Ukraine and the EU countries over the years, it can be stated that, from 1993 onwards, Ukraine has steadily reduced its emission intensity to lower than the EU average (see Appendix 2). While the country emitted 15,30 metric tons CO₂ per capita in 1990, this figure had fallen to 5.25 metric tons in 2016, indicating a marked decrease in Ukraine's emission intensity in general. These numbers correspond to nearly 788 kilotons of CO₂ in 1990 and approx. 233 kilotons in 2016. If we compare Ukraine with certain EU countries that have a high and a more moderate intensity of carbon dioxide emissions,

⁸⁰ Trends in global CO₂ emissions report 2016: 39. Online at: http://edgar.jrc.ec.europa.eu/news_docs/jrc-2016-trends-in-global-co2-emissions-2016-report-103425.pdf (last accessed on 20.09.2018).

⁸¹ The Demand for Greenhouse Gas Emissions Reduction Investments 2012: 10. Online at: http://www.ebrd.com/downloads/research/economics/publications/specials/Ukraine_MACC_report_ENG.pdf (last accessed on 20.09.2018).

e.g. Germany and Austria respectively, it transpires that Germany's figures even exceeded Ukraine's figures in the 1990s (see Table 4⁸² and Annex 2). An explicit reduction in emission intensity in Ukraine within the last two decades might be a result of the decline in GDP.

Table 4. Comparison of Ukrainian, German and Austrian CO₂ emission rates in 1990 and 2016

1990	Ukraine	Germany	Austria
CO ₂ emissions (kt)	787 880	1 003 149	61 212
CO ₂ emissions per capita (metric tons)	15,30	12,68	7,93
CO ₂ emission intensity (kg per 1000 dollars GDP)	1,45	0,40	0,26
GDP (bn. USD)	81,46	1714 / 1765	164,8 / 166,1
GDP per capita (USD)	1 569,74	22 219,57	21 628,76
2016	Ukraine	Germany	Austria
CO ₂ emissions (kt)	233 220	775 752	73 764
CO ₂ emissions per capita (metric tons)	5,25	9,47	8,47
CO ₂ emission intensity (kg per 1000 dollar GDP)	0,71	0,21	0.19
GDP (bn. USD)	93,27	3 467	386,4
GDP per capita (USD)	2 185,73	41 936,06	44 176,52

In spite of a clear increase in environmental awareness over the years in Ukraine, the majority of public and private companies are facing an inability to utilize their resources accordingly. The financial insolvency of many Ukrainian producers makes it impossible for them to invest in up-to-date technical equipment. In addition, the armed conflict between Ukraine and the Russian Federation has had a significant impact on the Ukrainian economy, which has weakened by 20% since 2014⁸³. Once these problems will be overcome, Ukraine will have to restore its industrial facilities and infrastructural systems. Consequently, at least the metals, construction, transport and other industrial sectors will generate a larger amount of GHG emissions.

In the next few years, it will be necessary to lower gas imports and replace them with coal. At the same time, the adoption of the Paris Agreement obliges the Ukraine government to develop its energy strategy towards abandoning fossil fuels completely and transitioning to

⁸² Knoema (2018): The worldwide data atlas: Emissions. Online at: <https://goo.gl/4fCKNi> (last accessed on 20.09.2018). Knoema (2018): Ukraine – CO₂ emissions per capita (metric tons). Online at: <https://goo.gl/4f6fBt> (last accessed on 20.09.2018). Knoema (2018): Ukraine – CO₂ emissions intensity (kg per 1000-dollar GDP). Online at: <https://goo.gl/sxcVDN> (last accessed on 20.09.2018). The World Bank 2018. Online at: <https://carbonpricingdash-board.worldbank.org/what-carbon-pricing> (last accessed on 20.09.2018).

⁸³ Intended Nationally-Determined Contribution (INDC) of Ukraine to a New Global Climate Agreement: 1. Online at: <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Ukraine%20First/Ukraine%20First%20NDC.pdf> (last accessed on 20.09.2018).

renewable energy by 2050⁸⁴. The shift to coal-fired energy production will make it very difficult to avoid an increase in the rates of industrial emissions, however. As reported by the oversight bodies, harmful emissions in Ukraine are set to increase up until 2030⁸⁵. Ukraine will require not only the mobilization of domestic climate finance but also a colossal amount of international investment in order to fulfil its obligations under numerous international climate agreements.

Ukraine's declared goal of reducing greenhouse gas emissions does not entail a commitment to any real emission reductions compared to today's levels. Ukraine's economy being one of the most energy-intensive in the world, the country has considerable potential for saving energy and reducing greenhouse gas emissions. Ukraine's position on achieving a quantitative reduction in greenhouse gas emissions is ungrounded, as it is not based on scientific expertise regarding the link between implementation of the emissions trading system and the need to restrict the growth in global temperature by reducing greenhouse gas emissions. It has been proved that economic development and emission reductions can occur simultaneously, provided that the principles of sustainable development are applied. In addition, Ukraine's existing commitments to limit greenhouse gas emissions, which indicate the possibility of actual emissions growth, are not consistent with the goal of introducing the Emissions Trading System as a whole since, in the absence of a realistic target for emission reductions, the emission trading market will not work. At the same time, the principle of payment for pollution is offset, as there will be an excess of emission permits, which will result in lower prices due to the lack of demand for permits. It should be noted that the Paris Agreement provides for the revision of national plans every 5 years, so that the subsequent voluntary commitments of the states should be more ambitious than those submitted in the previous period⁸⁶.

2.2 Notion of the green economy in the Association Agreement with the EU

The Association Agreement with the European Union which was signed on 21st March 2014 and entered into force on 1st September 2017 offers numerous opportunities for Ukraine to introduce new environmentally friendly market incentives and political recommendations into its long-term development strategy⁸⁷. The parties to the Agreement are cooperating within the framework of the Association document to implement the laws and codes of conduct adhered to by the EU

⁸⁴ The Expert Advice Center 2017: 27. Online at: <http://www.rac.org.ua/uploads/content/371/files/climate-diplomacy.pdf> (last accessed on 20.09.2018).

⁸⁵ The Demand for Greenhouse Gas Emissions Reduction Investments 2012: 7. Online at: http://www.ebrd.com/downloads/research/economics/publications/specials/Ukraine_MACC_report_ENG.pdf (last accessed on 20.09.2018).

⁸⁶ Mission of Ukraine to the European Union 2018: 20-21. Online at: <https://ukraine-eu.mfa.gov.ua/en/ukraine-eu/sectoral-dialogue/environment> (last accessed on 20.09.2018).

⁸⁷ Ibid.

member states. The economic part of the Agreement came into force after January 2016. As a result, EU standards are embedded in the key sectors of the country's economy. The purpose of this agreement is to support the main reforms aimed at regenerating and developing the Ukrainian economy, implementing new forms of public administration, and encouraging sectoral cooperation between Ukraine and the EU in more than 30 areas, including cooperation in the field of industry, small and medium-sized businesses, energy, transport, climate change prevention, social development and consumer protection⁸⁸.

With the parties having agreed upon the main tasks for Ukraine in the field of environmental cooperation, Ukraine has the task of implementing its national environmental policy by the end of 2020, followed by building up and developing the necessary administrative agencies at the local, regional and national levels⁸⁹. Additionally, Ukraine has to expand its enforcement and monitoring agencies, as well as to develop and promote its plans and strategies for environmental protection and sustainability, including assessment and estimation of information about impact on the environment and public awareness to build on the tools on the state level and to implement the numerous agreements signed between the EU and Ukraine⁹⁰.

Other objectives include ensuring cooperation between the EU member states and Ukraine in the sphere of climate change, supporting the Joint Working Group Ukraine–EU, the Ukrainian agency tasked with implementing and adapting tools to combat climate change. Ukraine must raise awareness of sustainable development and promote green economy. As stated in the Agreement, the parties pledge to contribute to the protection of the ozone layer, cooperate in the implementation of the EU Water Initiative, including defining the principles and steps to achieve the Millennium Development Goals and Integrated Management of Water Resources Goals⁹¹. Moreover, Ukraine is obliged to contribute to the development of the Shared Environmental Information System within the scope of the EU's Eastern Partnership programme and to establish the Regional Environmental Centre of Ukraine (REC), the agency tasked with raising awareness about environmental problems and with building a civil society capable of contributing toward the prevention of environmental catastrophe⁹².

With regard to the harmonization of Ukrainian legislation with EU laws in the above-mentioned areas of cooperation, environmental issues and the environmentalization of production can be found throughout as a cross-cutting theme. Articles 360-366 of Chapter 6 of the Association Agreement between Ukraine and the EU are dedicated to shared commitments in the

⁸⁸ Mission of Ukraine to the European Union 2018. Online at: <https://ukraine-eu.mfa.gov.ua/en/ukraine-eu/sectoral-dialogue/environment> (last accessed on 20.09.2018).

⁸⁹ Ibid.

⁹⁰ Ibid.

⁹¹ Ibid.

⁹² Ibid.

field of environmental protection. A summary of the cooperation measures is shown in Annex 3 below. In the Association Agreement with the EU, green economy is mentioned only once in the article 360, but the Directives are precisely aimed at the introduction of environmental and energy taxes, the creation of an Emission Trading System as part of the green economy. The Association Agreement can thus be considered a roadmap that indicates which instruments are part of a green financial policy and what framework conditions are required to implement them.

There are several areas of cooperation which encompass economic, environmental and governance directions and correspond with certain measures that must be undertaken by both parties to the Agreement. An action plan for institutional reforms, distribution of powers and procedures development for the policy adoption has been anticipated in the fields of climate change prevention, air and water quality, waste and resource management, as well as in the sphere of nature conservation. With regard to industrial, chemical and noise pollution, as well as in questions of genetically modified organisms, civil protection and ecological management, Ukraine and the EU have agreed upon key responsibilities and core strategies for financing the necessary infrastructure and technologies. It can be concluded that the most important elements of the Association Agreement between Ukraine and the EU include informing the public about current environmental legislation, guaranteeing access to information, accountability, procedural and social responsibility, and increasing the range of environmental indicators, as well as cooperating in the field of environmental protection⁹³.

Most of the reforms undertaken in the environmental sphere involve objectives that are directly related to the regions. Regional actors face numerous challenges in connection with the proper involvement of the local resources into the implementation process. The duties imposed on regional authorities in this regard are a result of reforms in the implementation of environmental policy instruments. The functions entrusted to regional and sectoral authorities, such as waste management or water and air quality management, must simultaneously consider the needs of the region in question and the ability of the local authorities to fulfil their new obligations⁹⁴. In order to improve the effectiveness of elaborated mechanisms for interaction, central executive authorities shift a part of their responsibilities in environmental area to the local level and spreading the functions among special agencies (see Table 5⁹⁵).

Nevertheless, local executive authorities and local self-governing bodies are given a rather modest role in implementing the Association Agreement and coordinating the process of

⁹³ Environment trade 2018: 29. Online at: <http://www.rac.org.ua/uploads/content/405/files/webenvironmentalissuessocietyandenvironment2017ua.pdf> (last accessed on 20.09.2018).

⁹⁴ Resource and Analytical Center “Society and Environment” 2017: 24-25. Online at: <http://www.rac.org.ua/uploads/content/401/files/region-context-web.pdf> (last accessed on 20.09.2018).

⁹⁵ Project “Increasing the impact of civil society...” 2017: 14. Online at: <http://www.rac.org.ua/uploads/content/461/files/aalocalaspectsweb-3.pdf> (last accessed on 20.09.2018).

European integration. In particular, they are permitted to take part in discussions and monitoring the implementation of the legal acts related to the Agreement. It is within this framework of decentralization that the gradual transfer of power and budgetary resources from state bodies to local self-governing bodies takes place⁹⁶.

Table 5. Functions of the territorial subdivisions of central executive authorities

Territorial subdivisions of central executive authorities	Functions
State fiscal service	to control the process of accounting and paying taxes while selling gasoline, diesel and liquefied petroleum to the consumers.
State Service for Food Safety and Consumer Protection	to verify observance of requirements of legislation regarding the protection of consumer rights as well as the rules of trade and provision of services; to counteract unscrupulous advertising of petroleum products that misleads consumers regarding the properties of fuel mixtures declared by the manufacturer; to check the suitability of energy consumption labelling applied to household electrical and electronic devices and machines and/or to facilitate such inspections.
State Ecological Inspection	to monitor the ecological indicators of petroleum products (petrol and diesel) which are being sold by means of wholesale and retail trade.
State Nuclear Regulatory Inspection	to supervise adherence to the norms, rules and standards on nuclear and radiation safety, requirements for the physical protection of nuclear facilities and materials, radioactive waste, and other sources of ionizing radiation.

Over the past three years, the implementation of European reforms and the obligations under the Association Agreement has faced a few obstacles. Coordination structures designed to channel the efforts of the relevant authorities have been ineffective and non-transparent. In addition, the change in the local government teams and the corresponding management teams in the ministries has complicated the already challenging process of preparation and decision-making. As a result, many draft laws and regulations were suspended in the next round of interagency approval. The weak institutional capacity of the key ministries and departments responsible for implementing policies in the energy and environment sectors began to be apparent. Since the plans for implementing the EU Directives and Regulations were not specific, and without designated individuals responsible for coordinating the positions between the bodies involved, some implementing bodies did not pay due attention to their implementation, and the plans themselves were neither reviewed nor improved. Despite the constant support from European partners, the work carried out by interdepartmental working groups and thus the Government, has been ineffective. The standard of reporting on the work of each installation is not satisfactory, and the

⁹⁶ Project “Increasing the impact of civil society...” 2017: 7. Online at: <http://www.rac.org.ua/uploads/content/461/files/aalocalaspectsweb-3.pdf> (last accessed on 20.09.2018).

reports themselves are published irregularly. These factors together resulted in a failure to meet the 2015-2016 targets in the pre-set deadlines⁹⁷.

Despite this, in 2016 there were also significant achievements. One of the most successful reforms was that of the public procurement system, and a number of preparatory tasks for state aid regulation were fully implemented. In general, the transparency of the activities undertaken by both state institutions and large companies in the state sector of the economy have increased considerably. The government has shown that it can pursue successful communication strategies. The international structures, primarily the European Commission, the IMF, and the World Bank, as well as the Energy Community Secretariat, have been significantly impressed by the pace of reforms⁹⁸. In general, international partners have begun to be more actively involved in the preparation of decisions and in putting forward more practical recommendations to the authorities.

The fact that Ukraine and the European Union have reaffirmed their intention to pool their efforts in developing and strengthening cooperation on environmental issues through the Association Agreement brings numerous benefits for all the key actors involved. Citizens of Ukraine will benefit from enhanced ecological conditions as well as from improved housing, communal and transport infrastructure. Ukrainian businesses will have the prospect of improving efficiency in production and the competitiveness of their products through the introduction of modern technologies and equipment for emissions reductions. They will also have access to the European market for trading greenhouse gas emission quotas under the EU Emissions Trading Scheme, which is applied in the energy, industry and aviation sectors⁹⁹.

The introduction of the EU Emissions Trading Scheme is closely linked to the commitments of Ukraine towards the European Community. Appendix XXI to Chapter 6 “Environment” of Section V “Economic and Industrial Cooperation” of the Association Agreement stipulates the development and implementation of long-term measures aimed at reducing greenhouse gas emissions and elaborating a long-term Action Plan. In addition to implementing the GHG emission reduction policy, the implementation of Annex XXX of the Association Agreement, which relates to the development and implementation of climate change policy and to the provisions of other directives provided for in the Association Agreement and the Energy Community Treaty, is important in order to implement appropriate policy on reducing greenhouse gas emissions. One of these directives is Directive 2003/87/EC of the European

⁹⁷ Project “Increasing the impact of civil society...” (2017): 9-10. Online at: <http://www.rac.org.ua/uploads/content/351/files/report2016web.pdf> (last accessed on 20.09.2018).

⁹⁸ Ibid.:11.

⁹⁹ Garlytska 2017). Online at: <https://www.econa.org.ua/index.php/econa/article/viewFile/1348/pdf> (last accessed on 20.09.2018).

Parliament and of the Council of 13 October 2003 on the establishment of a scheme for greenhouse gas emission reductions within the community. Directive 2004/101/EC establishes a scheme to finance greenhouse gas emission reductions to help reduce greenhouse gas emissions in a cost-effective way¹⁰⁰.

2.3 Current state of the GFP in Ukraine

To follow the path of greening the economy in Ukraine, it is of utmost importance to emphasize the economic, environmental and social benefits of green financial policy in this country. As for the economic advantages gained by greening the economy, it stimulates economic growth, increases income and employment, while ensuring a compromise between economic development and environmental sustainability¹⁰¹. One of the ultimate goals of greening the economy is the conservation and restoration of natural capital, which requires a wide range of actions, such as structural adjustment of many economic sectors, investments in clean technologies and human capital, expansion of state and private partnerships, solving the problem of subsidies, and expanding international cooperation¹⁰².

One of the most attractive advantages for Ukraine in the greening of all spheres of the economy is the opportunity to enter the European goods market. European trade policy obliges suppliers of goods from other countries to be environmentally friendly and to provide their consumers with high-quality products exported from ecologically clean areas. Independent consultants and experts from the countries of the European Union are keen to receive and verify truthful and transparent information about the current environmental status of Ukraine, after which they could guarantee a long-term trading partnership between the country and the Union. Since Ukraine intends to expand and to reorient its exports, it needs to meet the already existing conditions on the European market, which are core of the cooperation.

Thus, the green economy is seen as a promising and progressive mechanism of achieving sustainability that can adequately respond to the challenges of Ukraine's future development. Since the green economy is based on alternative sources of energy and fuel, cleaner production and resource-saving technologies, as well as programmes for protecting natural resources from pollution, and for recycling and utilizing waste, it can be stated that this concept fully coincides with the requirements of the international climate agreements which were ratified by Ukraine.

¹⁰⁰ The Expert Advice Center 2018: 21-22. Online at: <http://www.rac.org.ua/uploads/content/449/files/webetsinukraine2018ualayout.pdf> (last accessed on 20.09.2018).

¹⁰¹ UA Foreign Affairs 2018. Online at: <http://uaforeignaffairs.com.ua/ekspertna-dumka/view/article/chi-dopomozhe-zelena-ekonomika-rozvjazati/> (last accessed on 20.09.2018).

¹⁰² Ibid.

As for the social advantages of the green economy, it is assumed that it can provide the same level of jobs as the “brown” economy. In a large number of sectors, it will contribute a more pronounced increase in employment in the short, medium and long term than regular development. However, in sectors where there is a severe depletion of natural capital, such as fishing, the transition to a new model can lead to the loss of a certain number of jobs in the short and medium term, due to the need to replenish fish stocks. The green economy has the potential to become a model that enhances people’s well-being and provides social justice, while substantially reducing the risks to the environment and its impoverishment¹⁰³.

Thus, the biggest issue to be tackled on the way to achieving widespread well-being in Ukraine lies in the enormous challenge of accumulating sufficient green finance by means of internal green financial instruments as well as external investments, and to establish a distinctive green fund. With regard to Ukraine’s mobilization of internal climate finance, it is necessary to mention the risks which arise in connection with the country’s environmental tax reform.

The purpose of an environmental tax reform strategy is to create jobs while simultaneously protecting the environment: it can be used to fund the protection of natural resources by deducting a proportion of company earnings and individual wages. It increases labour costs along with economic development and stimulates investment in innovative technologies while reducing material production and energy consumption¹⁰⁴.

Instead of introducing pollution charges, the Ukrainian government opted in January 2011 to implement an environmental tax. Article 243 of the Tax Code, adopted in 2010, doubled the environmental tax rates to UAH 0,2 per 1 ton of CO₂ emissions¹⁰⁵. The tax system introduced in Ukraine is progressive and is aimed at reducing the use of resources and limiting the generation of waste. The tools of the new tax system include the provision of tax benefits for enterprises engaged in the following activities: waste recycling, use of secondary raw materials for production, use of environmentally friendly packaging materials, introduction of low-waste energy-saving technologies, and investments in green production. Thus, the implementation of environmental taxes in Ukraine will also stimulate the introduction of a green economy in the context of the transition to sustainable development¹⁰⁶.

Nevertheless, an existential threat appears on the way to successful functioning of the new taxation system. In order to complete all the tasks documented in the international climate-related agreements, EU ETS terms require a gradual increase of the environmental tax. With the rate

¹⁰³ Pidlisnyuk 2013: 6. Online at: http://nbuv.gov.ua/j-pdf/Nd_2013_6_1.pdf (last accessed on 20.09.2018).

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Pidlisnyuk 2013: 7. Online at: http://nbuv.gov.ua/j-pdf/Nd_2013_6_1.pdf (last accessed on 20.09.2018).

of 0,25 UAH per 1 ton of CO₂ emissions¹⁰⁷, Ukrainian producers are already experiencing considerable economic pressure. A further increase in taxation rates will cause the epidemic bankruptcy of the Ukrainian companies and to the subsequent shadow economy activation.

Mobilizing climate finance solely from internal sources would not be sufficient to establish a green fund in Ukraine, since the tools which could help to accumulate climate finance, such as green bonds, have not been used in this country to date. Consequently, receiving a significant amount of climate-related finance specifically from foreign investments will be crucial for achieving Ukraine’s climate-related goals before the country is able to bring internal green financial instruments, mechanisms and platforms into operation.

A great amount of external investment has already been operationalized in order to support the energy, agriculture, transport and water supply sectors of the Ukrainian economy. Over the two-year period 2013-2014, Ukraine received financial support of nearly 860 million USD annually from foreign climate finance providers. EU countries including Germany, Switzerland and Sweden remitted approx. 60,7 million USD on a yearly basis. The largest multilateral contributors were EBRD with 309 million USD, IBRD with 165 million USD, and EIB with 150 million USD annually¹⁰⁸ (see Figure 10¹⁰⁹).

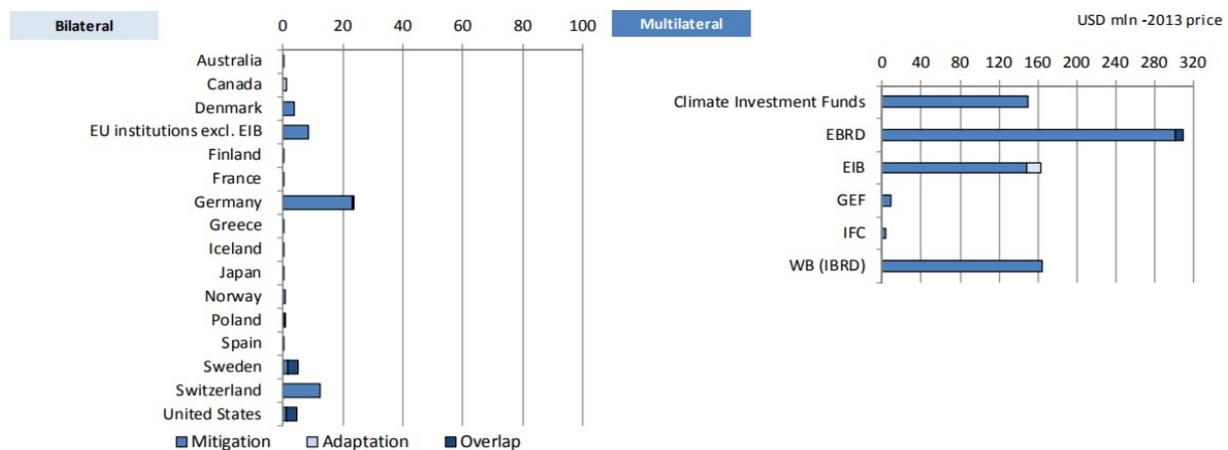


Figure 10. Major providers of climate-related development finance, USD million per year, 2013-2014 average

Investments must be target-driven and carefully channelled to improve the state of the green economy in Ukraine. With regard to the forestry sector, the investments must be directed toward reducing deforestation; this can be done in the form of forest maintenance payments to forest

¹⁰⁷ Nekrasenko 2015. The Environmental Tax Policy in Ukraine and Sweden. Online at: <https://voxukraine.org/2015/02/28/the-environmental-tax-policy-in-ukraine-and-sweden/> (last accessed on 20.09.2018).

¹⁰⁸ OECD Green Action Programme 2016: 9-10. Online at: https://www.oecd.org/environment/outreach/Ukraine_Financing_Climate_Action.Nov2016.pdf (last accessed on 20.09.2018).

¹⁰⁹ Ibid.:11.

holders as well as private financing for forest restoration. This will lead to the absorption of greater amounts of harmful gases by forested areas as well as to a rise in official employment in the forestry sector. To achieve these objectives, various economic mechanisms could be implemented in Ukrainian forestry, such as certified timber production programmes, certification of wood products from rain forests, payment for ecosystem services, joint use programmes and various partnerships at the local level¹¹⁰.

As for the greening of the agricultural sector, it is associated not only with the improvement of the quality of natural capital but also with the resolution of the food problem and the enhancement of living standards, which could be achieved by means of green agricultural technologies. European experience combined with financial contributions could bring about an effective solution of the problem. Nevertheless, UNEP experts believe that the main way to minimize the negative effects of water scarcity is to increase investment in improvements to water use efficiency in order to reduce demand for the consumption of underground and surface water, both in the short and long term¹¹¹.

During the financial crisis of 2008, ordinary Ukrainian citizens experienced the jump in fuel prices and the associated increase in food and commodity prices. These price increases provided evidence of structural weaknesses that have not been resolved despite a wide range of measures being implemented since that time. Replacing fossil fuels with renewable energy sources and technologies with a lower carbon footprint could significantly increase energy, economic and financial security in Ukraine. Reducing raw material extraction and increasing its energy usage, as well as improving the waste management and recycling are becoming more and more profitable and promising in Ukraine.

The modernization of housing and communal services is the most important condition for creating green cities. This includes the modernization of transport infrastructure and construction, as well as the implementation of sustainable and environmentally sound urban planning. Annual investments in greening this sector can increase employment and significantly reduce greenhouse gas emissions¹¹². However, Ukraine must demonstrate the first steps towards green changes in order to show it is keen to achieve a positive outcome and to attract foreign investors.

¹¹⁰ UA Foreign Affairs 2018. Online at: <http://uaforeignaffairs.com/ua/ekspertna-dumka/view/article/chi-dopomozhe-zelena-ekonomika-rozvjazati/> (last accessed on 20.09.2018).

¹¹¹ Ibid.

¹¹² Ibid.

2.4 Green finance in relation to development and private banks

One of the most important factors in establishing a green financial policy in a country is the availability of sufficient financial resources to achieve sustainable development. For this reason, various financial institutions, such as central, development and private banks, national and international credit and financial agencies, facilities, programmes, and funds play a crucial role: ideally, their task is to allocate investments to sectors that further the development of green economy rather than to the sectors that destroy it. The various financial actors and authorities can change the course of a country's development drastically if they implement climate change related policies and laws aimed at preserving natural resources and the environment.

The main authority with the power to influence the political and financial course of a certain country towards sustainability and low-carbon growth are central banks. They are able to make sure that negative impacts on the environment will be punished by means of financial pressure and legal enforcement. Micro- and macroprudential policies, as well as allocation of financial resources, can be influenced by this financial authority. Central banks have the responsibility of supporting a country's financial stability. Giving central banks additional responsibilities effectively means giving them more power, which can lead to unpredictable consequences. The decision regarding whether to make central banks responsible for supporting a green economy is basically a political challenge and must be analysed accordingly¹¹³.

Central banks have different functions that can or cannot make an impact on changing the course of a country toward sustainable development. Central banks have many different financial tools at their disposal that can encourage the development of a green economy. However, central banks are not the only institution capable of promoting sustainable development. Moreover, it is highly recommended by the economists not to overburden central banks with additional responsibilities, as they already have many functions. In some countries, it could be a problem and a danger to the financial system¹¹⁴. Central banks are not the only institutions that can impact the green economy. Others include the ministry of finance, the ministry of environment, and public banks that have an environmental mandate. The ministry of finance has many financial tools in its possession that can impact the development of a green economy, one example being environmental subsidies to reallocate investments or pollution taxes. The ministry of environment can ban investments that have a negative impact on the environment. Additionally, financial

¹¹³ Inquiry: Design of a sustainable financial system 2017: 20. Online at: http://unepinquiry.org/wp-content/uploads/2017/02/On_the_Role_of_Central_Banks_in_Enhancing_Green_Finance.pdf (last accessed on 20.09.2018).

¹¹⁴ Ibid.

industry agencies could presumably support market participants and develop standards for lending and disclosure with no harm to environment¹¹⁵.

To sum up, giving central banks additional responsibilities and thus power to support and promote sustainable development can be looked upon as the last resort. For example, a government will have decided on certain policies to implement and maintain sustainable development. If these policies are successful, there is no reason to overburden central banks with additional responsibilities. In case the governmental policies have failed, it is worth giving greater power to central banks in an attempt to change course towards a green economy. Consequently, the fundamental decision that has to be made is whether other agencies have the potential and capabilities to implement the policies; if not, then central banks will play the role of sustainability enforcer. On the other hand, giving additional responsibilities to central banks before other options have been explored will make policy implementation redundant. However, there is a danger of giving too much power to private banks, which are not accountable to the government. This can easily lead to major misunderstandings and difficult situations between the central bank and other financial agencies¹¹⁶.

Foreign development banks and foreign private banks have a strong and direct influence on establishing a green financial policy in Ukraine through their financial and technical aid. Ukraine raises loans for environmental purposes from the different transnational and international banks, such as the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the Nordic Investment Bank (NIB) and the Reconstruction Credit Institute (*Kreditanstalt für Wiederaufbau*, KfW). With regard to international credit and financial institutions, the World Bank, the International Finance Corporation (IFC) and the Nordic Environment Finance Corporation (NEFCO) could be added. The international financial agencies, facilities and funds which could provide credit to help Ukraine on its path toward greening the economy include the Corporation for International Cooperation Ltd. (*Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH*, GIZ), the Global Climate Partnership Fund (GCPF), the Global Environment Facility (GEF), the Swiss Cooperation Office (SECO and SDC), the Swedish International Development Cooperation Agency (*Styrelsen för Internationellt Utvecklingssamarbete*, SIDA), as well as the US Agency for International Development (USAID), followed by international development programmes and projects such as the Eastern Europe Energy Efficiency and Environmental Partnership Programme (E5P), the EU

¹¹⁵ I Inquiry: Design of a sustainable financial system 2017: 20. Online at: http://unepinquiry.org/wp-content/uploads/2017/02/On_the_Role_of_Central_Banks_in_Enhancing_Green_Finance.pdf (last accessed on 20.09.2018).

¹¹⁶ Ibid.

Horizon 2020 programme, Sustainable Urban Demonstration Projects (SUDEP) and the Municipal Project Support Facility (MPSF)¹¹⁷.

The national loan suppliers are represented by the national banks Ukreximbank and Ukgazbank, as well as by the State Agency for Energy Efficiency and Energy Conservation of Ukraine (SAEEC) and the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine¹¹⁸. Table 6 depicts the role of international vis-à-vis national green finance creditors, from which can be concluded that Ukrainian sustainable development strategy will have pre-dominantly to rely on foreign funds (see Table 6¹¹⁹ and Annex 4).

Table 6. List of international and national green credits donors

International donors				National donors	
Banks	Credit and financial institutions	Agencies, facilities, and funds	Programmes and projects	Banks	Agencies and ministries
<ul style="list-style-type: none"> - EBRD - EIB - NIB - KfW 	<ul style="list-style-type: none"> - IFC - NEFCO 	<ul style="list-style-type: none"> - GIZ - GCPF - GEF - SECO and SDC - SIDA - USAID 	<ul style="list-style-type: none"> - E5P - EU Horizon 2020 Programme - SUDEP - MPSF 	<ul style="list-style-type: none"> - Ukreximbank - Ukgazbank 	<ul style="list-style-type: none"> - SAEEC - Ministry of Regional Development

The EBRD is an international financial institution. It works mainly with privately owned companies. Among the services EBRD provides are financing for banks, industries, and businesses, both new ventures and existing companies. The total amount of investment fluctuates between 5 and 250 million EUR¹²⁰. Loans, equity, and guarantees are the main forms of financing. The EBRD does not subsidize projects, nor does it offer soft loans. The main advantage of the EBRD as compared to other banks is its ability to spread risk and provide relatively cheap financial resources. Though the EBRD can bear risks, it asks the companies it finances to take out insurance against normally insurable risks and to secure the loan with different project assets such as, for example, mortgages on fixed or movable assets¹²¹.

As of today, the EBRD is the largest investor in the Ukrainian financial market, with almost 9,8 billion EUR in 337 projects in the country. The main goal of such large investments is to support Ukraine during the integration process into the European energy market and guide it in the projects aimed at achieving overall energy efficiency. The projects are mostly concerned with

¹¹⁷ Soglasheniemerov.eu 2017: 24. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last accessed on 20.09.2018).

¹¹⁸ Ibid 25.

¹¹⁹ Ibid.:24-25.

¹²⁰ Ibid: 26-27.

¹²¹ Ibid: 26-27.

district heating (DH), such as DH in Chernivtsi (2015), Poltava (2014), Lutsk (2014), Zaprizhzhia (2011), Lviv (2012) and Ternopil (2014). The investments that EBRD provide aim at providing support in the installation of a bio-fuel boiler, modernization and rehabilitation of existing boilers and sections of networks. Among other projects are the Ukraine Public Transport Framework (2015), the Odessa Trolleybus Project (2015), the Vinnytsia Automated Fare Collection Project (2015), the Lviv Wastewater Biogas Project (2014), and the Ukrainian Residential EE Financing Facility (2014)¹²². The figures for the usual disbursements granted by the EBRD are shown in the Table 7¹²³.

Table 7. Information about the EBRD loans disbursed to Ukraine

Minimum loan amount	€5 million
Maximum loan amount	€250 million
Maximum share percentage	35% for private, 70% of total capital for public sector projects
Interest rate	Based on current market rates
Maturity period	5 to 15 years
Loan repayment	Normally in equal, semi-annual instalments

Specific examples of EBRD green finance projects that directly target the Ukrainian population include the IQ Energy programme, which provides loans to households through partner banks for energy-saving measures in the residential sector. Customers of the programme receive appropriate compensation from the European financial donors. Such compensation may be as much as 3 thousand euro per consumer. Since it is of utmost importance to monitor and verify the use of donor funds, several Ukrainian banks joined the IQ Energy programme. The convenience and efficiency of such a programme is evidenced by the impact of the EBRD's investment, which extends to the end customer. For example, there is a heat supply company that generates thermal energy, and then there is a consumer of this energy, who is interested in obtaining high-quality service at the lowest possible price. To achieve this, it is necessary to reduce the cost of generating heat in the boiler house, for example by switching from expensive gas to cheaper biofuels or by modernizing existing gas boilers. When the company has generated heat energy, it needs to be transported to the house – most importantly, with minimal losses. At the same time, it is necessary to insulate or even replace the existing heating networks. In this case, the EBRD lends directly to the energy supplier, which makes it possible to achieve a high level of efficiency

¹²² Soglasheniemerov.eu 2017: 26-27. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last accessed on 20.09.2018).

¹²³ Ibid.: 27.

in the production and delivery of heat energy. However, there may also be considerable heat loss in the house itself. The solution to this problem is the IQ Energy programme, which enables the consumer to apply for funds to modernize the heating system in their home. Therefore, EBRD financing covers all levels from heat production to heat consumption, with the consumer being the final beneficiary¹²⁴.

One of the most active green financial donors for Ukraine is the Nordic Environment Finance Corporation (NEFCO). An international finance institution, it was established in 1990 by five countries: Denmark, Finland, Iceland, Norway and Sweden. The main beneficiaries of loans from NEFCO are businesses and municipalities that contribute toward the protection of the environment and the implementation of a green economy. The main aspects considered by NEFCO before deciding on whether to issue a loan are: 1) whether the project is located in one of NEFCO's countries of operation; 2) whether the project has a significant environmental impact; 3) whether the project is based on long-term cooperation through investments; 4) whether the project has a Nordic company or institution as its business partner, and 5) whether the project is economically, financially, institutionally and technically viable¹²⁵.

Of the many projects financed by NEFCO, 459 of them are located in Ukrainian cities. NEFCO's Ukrainian partner is the Bank Lviv. Together they have come up with a plan to implement energy saving programmes in small and medium-sized enterprises (SMEs) and private households. The aim of these projects is to reduce heating costs by 60%. The city of Konotop and NEFCO have signed a loan agreement to improve energy efficiency in the city. The measures included in the project to reduce energy intensity in the city are the installation of new boilers and radiators as well as automatic heat regulators. A total of ten institutions will benefit from this project and will generate savings of about UAH 324 000¹²⁶. The details about the NEFCO loans are shown in Table 8¹²⁷.

¹²⁴ Maslichenko,2017. Online at: <https://www.pravda.com.ua/graphs/2017/05/31/7145425/> (last accessed on 20.09.2018).

¹²⁵ Soglasheniemerov.eu 2017: 32-33. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last accessed on 20.09.2018).

¹²⁶ Ibid.

¹²⁷ Ibid.

Table 8. Information about the NEFCO loans granted to Ukraine

Minimum loan amount	No specific minimum amount
Maximum loan amount	€4–5 million
Maximum share percentage	Usually around 30%
Interest rate	In accordance with market rates
Loan repayment	5 years

Another example of a strongly engaged committed green creditor might be the Global Climate Partnership Fund (GCPF), a Luxembourg-based innovative public-private partnership. GCPF's investments are focused on projects related to energy efficiency and energy saving. The GCPF invest mostly in countries with the highest rates of energy consumption. The beneficiaries of GCPF are home owner associations, leasing companies, and SMEs. Two types of investments are undertaken by GCPF: 1) investments in financial institutions such as local banks and leasing companies; 2) direct investments in organisations such as project developers and ESCOs. The goal is to reduce CO₂ emissions by 20% via all possible energy-related measures. In order to select a reliable and stable beneficiary, GCPF conducts a step-by-step approach that includes the evaluation of risks and its mitigation options¹²⁸.

The Global Climate Partnership Fund issued 30 million USD to the State Export-Import Bank of Ukraine (Ukreximbank) under a seven-year senior unsecured loan facility. The investment is to be used for re-channelling financial support for the implementation of energy saving measures. Ukreximbank targets SMEs as project owners¹²⁹. The amount of the GCPF loans can be seen in Table 9¹³⁰.

Table 9. Information about the GCPF loans granted to Ukraine

Minimum loan amount	\$ 5 million
Maximum loan amount	\$ 20 million
Maximum share percentage	30% of total assets of the Fund
Interest rate	Based on current market rates
Maturity period	Up to 15 years

¹²⁸ Soglasheniemerov.eu 2017: 42. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last accessed on 20.09.2018).

¹²⁹ Ibid.

¹³⁰ Ibid.

As for the national actors in this field, Ukreximbank deserves special mention. The only stakeholder of the JSC Ukreximbank (Joint Stock Company “The State Export-Import Bank of Ukraine”) is the state. The main functions of the bank include export and import activities that affect Ukrainian companies and enterprises, trade finance. The bank is the only representative of the Ukrainian government if it acts as a borrower from international financial institutions. Such loans are given to Ukraine through JSC Ukreximbank and the Ukrainian government guarantees that these loans will be passed. Ukreximbank has business connections with some of the world’s biggest financial institutions, such as the World Bank and the European Bank for Reconstruction and Development. Ukreximbank is also a partner of *Kreditanstalt für Wiederaufbau* in numerous environmental projects¹³¹. Also, Ukreximbank is the only Ukrainian bank that is acknowledged by over 30 major export credit agencies as a reliable borrower and guarantor¹³².

Ukreximbank works together with IBRD within the framework of the Energy Efficiency Project in order to reduce energy intensity and the amount of energy loss in households. Ukreximbank provides financial support and investments for the implementation of long-term energy efficiency projects. Additionally, Ukreximbank works with EBRD within the Ukraine Energy Efficiency Programme (UKEEP), which has a budget of USD 50 million to provide financial support to companies in Ukraine in order to secure energy efficiency related projects and contribute toward environmental protection¹³³.

After the success of the Programme, the budget was extended by an additional USD 50 million, the intention being to ensure sustainability by providing financial support to small private companies. Ukreximbank and the EBRD signed a loan agreement in 2012 to strengthen their cooperation in terms of implementing sustainable energy projects in Ukraine. With the help of the EBRD/EIB Multilateral Carbon Credit Fund (MCCF), JSC Ukreximbank has provided carbon financing for its customers by arranging the purchase of greenhouse gas (GHG) emission reduction units¹³⁴. This process will provide additional income in the framework of the Kyoto Protocol mechanism. In addition, Ukreximbank and EIB signed a loan agreement of EUR 100 million that will provide support in implementing energy efficiency and environmental protection projects¹³⁵.

As stated in the loan agreement, Ukreximbank will issue sub loans to invest in projects with a maximum budget of 25 million EUR per borrower and duration of up to 10 years. The EIB funds will support the development of the local private sector, social and economic infrastructure,

¹³¹ Ibid: 52-53.

¹³² Ibid.

¹³³ Soglasheniemerov.eu 2017: 52-53. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last accessed on 20.09.2018).

¹³⁴ Ibid.

¹³⁵ Ibid.

including transportation, energy, and environmental infrastructure, IT and communication technologies, as well as mitigation of and adaptation to climate change. The projects that qualify for investments should include renewable power and environmental projects, water supply and sewage systems¹³⁶.

The GCPF and the EBRD signed a facility agreement in 2012 with a budget of USD 30 million to finance projects in Ukraine aimed at reducing energy intensity and implementing modern technologies while improving their competitive standing on the energy market. The main beneficiaries of the agreement are small and medium-sized enterprises. The duration of the investment is 7 years. If the projects succeed, the energy savings could reach 20% with additional reduction of the GHG emissions¹³⁷.

Thus, international financial organizations often have a considerable direct influence on the process of building a green economy in Ukraine. Even without the implementation of EU Directives, the loans from international financial institutions force Ukrainian companies to follow ‘green rules’, meaning non-financial reporting. Non-financial reporting, also called sustainability reporting, social and environmental reporting, or corporate social responsibility reporting, is a report that covers both the economic, environmental and social aspects of a company’s activities, revealing information about its non-financial initiatives and its contribution to the sustainable development of the world around it. The subject of non-financial reporting can be a business company, a non-profit organization, or a government body¹³⁸. Investors and management companies, especially those that are limited in the choice of beneficiaries or instruments of investment, are obliged to take into account all the risks associated with the investment beneficiary and also to strive to ensure that investments not only fulfil their main task, e.g. raise the cost of capital, but also work for the benefit of society. At the level of the European Union, legislative acts have been passed which have ultimately influenced the mode of production in some industries, such as the aircraft, metallurgy, or chemical industry. Since the main processes of a company’s business are interrelated, non-financial reports can soften and explain the inevitable consequences¹³⁹.

A large number of voluntary initiatives have appeared in which not only companies but also public entities and NGOs. Even if a company itself does not want to join an initiative, this does not insure it against possible demands for openness and accountability on the part of those groups that participate in these initiatives. A clear trend recently was the change in the nature of relations

¹³⁶ Ibid.

¹³⁷ Ibid.

¹³⁸ Soglasheniemerov.eu 2017: 52-53. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last accessed on 20.09.2018).

¹³⁹ Social corporate responsibility 2015. Online at: <https://soc-otvet.ru/nefinansovaya-otchetnost/> (last accessed on 20.09.2018).

in such initiatives: it is now not enough simply to become a "signatory" to a convention or agreement; many initiatives require mandatory reporting by their participants¹⁴⁰.

While in Ukraine the issue of assessing the impact of managerial risks on the financial performance of a company is in its infancy, there is a clear system in the world for assessing such impacts. It is significant that the requirement to apply the OECD principles to corporate governance came from international financial institutions that provide loans to Ukraine's state-owned enterprises, which should know about the level of risks of investments. Since the EBRD also attracts funds in the financial market, mainly using debt instruments, similar reporting requirements for funds received extend to those who are the final recipient of the loan. In particular, this concerns the use of EBRD green bonds and sustainable development bonds, which should be used only for projects related to the improvement of the environmental, social or managerial component of risk management and the creation of social value. At the same time, numerous scandals associated with the leadership of the world's largest multinational corporations have once again demonstrated that gaps in management can lead to losses and negative consequences for a company's attractiveness to external investors¹⁴¹.

One of the most striking examples might be the Exxon Mobil case. The company did not reveal its susceptibility to climatic risks. As Exxon Mobil's shareholders were not able to influence the disclosure of the required reporting, it resulted in the exclusion first of Rockefeller Family Fund shareholders and then of other prominent owners. As a result, there was a sharp fall in stock prices, and due to court judgements at various levels the company was forced to prepare detailed information about the above-mentioned risks. Another example involves signs of environmental and managerial risks. Volkswagen manipulated the emissions detection system in some vehicles. Consequently, the capitalization of the company fell by 2 billion USD¹⁴².

Due to the active intervention of international organizations and financial institutions, the problems of sustainable development have moved from corporate social responsibility to corporate sustainability. A similar transition can be seen in the UN Global Compact example, which is a partner in major Global Reporting Initiatives and Principles of Responsible Investments. And if the ecological and social component was given considerable attention, then the weight of managerial risks was still insignificant in comparison with other components of non-financial reporting and non-financial rating¹⁴³.

¹⁴⁰ Ibid.

¹⁴¹ Gychka 2017. Online at: <https://delo.ua/business/sustainability-jak-upravlinski-riziki-vplivajut-na-finansovi-po-329285/> (last accessed on 20.09.2018).

¹⁴² Ibid.

¹⁴³ Ibid.

The importance of managerial risks is evident for both foreign and Ukrainian companies. However, while for foreign companies this issue is related to direct access to the financial market and the market capitalization of the company, Ukrainian companies only pay attention to it due to the persistent recommendations made by foreign donors.

Having signed the Association Agreement with the EU, Ukraine has undertaken to implement Directive 2013/34, which provides for the preparation of non-financial reporting by large companies. Despite the delay with its implementation, Ukrainian exporters should first feel the need to prepare such reporting as their non-financial risks are contributing to the overall evaluation of the EU companies. At the same time, no matter what initiative the EU company chooses, there is a requirement for disclosure about suppliers of environmental, social and managerial risks. In fact, about 30% of the total non-financial valuation falls on them¹⁴⁴. That is to ignore global trends and managerial risks, and to delay the implementation of necessary regulatory acts can lead to a loss of markets at the very least and may even cause the closure of financial markets to domestic economic agents. To gain a closer understanding of the first attempts made in Ukraine to act according to the sustainability rules, it is helpful to examine two case studies on Ukrainian facilities.

2.5 Case Study 1: Ukrgasbank as an example of a Ukrainian green bank

In terms of total assets, Ukrgasbank is one of the largest state-owned commercial banks in Ukraine. Its headquarters are located in Kyiv. Since its establishment in 1993, the bank has grown from being merely a financial institution that lends money to become one of the most stable and reliable banks on the Ukrainian market. The main stakeholder of Ukrgasbank is the Ministry of Finance, which controls 87,72% of the bank's shares¹⁴⁵.

The loans were mostly for the purpose of buying materials and equipment. The most important detail for this research paper is the fact that, as stated in the programme, the Ukrainian Agency for Energy Efficiency and Energy Saving will reimburse almost 40% of the costs of materials and equipment if these are used to contribute to the green economy, namely to energy saving and efficiency. After the programme was implemented, Ukrgasbank loaned about 700 thousand UAH (25 thousand USD) in two months. The first loan was issued to the association of apartment owners "Barvy" in the city of Lutsk to install a heating and electrical

¹⁴⁴ Ibid.

¹⁴⁵ Soglasheniemerov.eu 2017: 54. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last access on 20.09.2018).

network. The purpose of the second loan was the purchase of energy efficient triple-glazed window panes and external insulating materials in the city of Kozyatyn in the Vinnytsia region¹⁴⁶.

Indeed, the leading eco-bank of the country already has a wide range of eco-products not only for large corporate clients and smaller businesses but also for members of condominiums and private households. Ukrgasbank has already loaned a total of about 70 million UAH (2,5 million USD) to more than 400 associations of co-owners of multi-apartment buildings¹⁴⁷. Most often credit facilities are provided for the replacement of lighting, units for heating water and rooms, windows and doors, as well as the complex thermo-modernization of multi-storey buildings. Upon registering a loan, the bank receives up to 70% compensation from the State Department of Energy Efficiency, including additional compensation if the regional programme is in place, and the residents of the home forget about problems with payments for utilities. Today, any holding company can issue such an energy-efficiency loan of up to 10 million UAH (354 thousand dollars USD) for up to 10 years without a down payment or collateral¹⁴⁸.

Ukrgasbank began to provide loans to individuals for the purchase and installation of domestic solar power plants, solar collectors and heat pumps at 0,01% per annum. Preferential loans for Ukrainians can be received as part of the credit programme “ECO-Energy. The maximum amount of loans is 1 million hryvnia for a period of up to 5 years¹⁴⁹. The credit programme “ECO-Energy” was developed by Ukrgasbank within the framework of the implementation of the ECO-banking strategy, which supports clients who implement projects related to efficient use of resources, alternative energy and reducing harmful impacts on the environment.

In addition, Ukrgasbank offers a loan for the purchase of electric cars only at 0,001% per annum for a significant reduction of fuel costs. So, if one’s own contribution to the electric car is half its value, then monthly payments to repay the loan will be equal to the fuel consumption for a conventional car. In particular, the most popular electric car in Ukraine, the Nissan LEAF, costs at least 400 thousand hryvnia. After paying the first instalment of 240 thousand hryvnias, the buyer will pay only 111 UAH (4 USD) daily for four years. This corresponds roughly to the average amount of money spent by one citizen on daily refuelling of a car with an internal combustion engine. During the first year of using the electric car, the car dealer provides free access to its network of charging stations. To operators of electric transport, Ukrgasbank offers its own network of charging stations located in Kyiv, Zhytomyr, Kherson, Rivne, Cherkasy, and

¹⁴⁶ Ibid.

¹⁴⁷ Soglasheniemerov.eu 2017: 54. Online at: http://www.soglasheniemerov.eu/IMG/pdf/Annex_C_Georgia_Ukraine_IFIs_donors_fiches.pdf (last accessed on 20.09.2018).

¹⁴⁸ Unian News Agency 2017. Online at: <https://www.unian.ua/common/1953859-zeleni-kredit-ukrgazbanku-zaporuka-vlasnoji-energenezalejnosti.html> (last accessed on 20.09.2018).

¹⁴⁹ Ibid.

Mykolaiv. And for those who really care about the environment and are not indifferent to the future in which children will live, Ukrgasbank offers another unique product, which has no analogues not only in the domestic banking market but also in the Eastern European market - the first eco-bank card. Corn and sugar cane are used to make the new cards. In use, the card does not differ from the traditional kind, and once it has expired, it decomposes within two years, without harm to the environment¹⁵⁰.

Ukrgasbank is a strong partner of the Ukrainian government in terms of energy saving measures. Germany uses five times less energy than Ukraine. In comparison with Poland, Ukraine spends three times more energy not only for heating but also for lighting and consumption inside buildings. Almost 50% of the heat transport is not covered by thermal insulation and experiences a lack of thermal management. While the consumer of utility services can not affect the price of gas, they can affect their own consumption of heat energy. This will inevitably lead to a decrease in household costs, and with the introduction of the law “On the natural gas market”, consumers will be able to choose the best offer. Inefficient consumption of resources leads to excessive costs for the purchase of gas and, as a consequence cross subsidization. Investing in energy conservation is more profitable than paying subsidies to buy gas from importers and contribute to development of foreign businesses. If meters were installed in citizens’ apartments to properly calculate heat, electricity and water usage, and if houses were modernized and insulated, gas costs could be cut by 1,7 billion USD annually (roughly 9 billion cubic meters per year) and 55% of the gas imported to Ukraine could be saved¹⁵¹.

To reduce gas consumption, 30 billion euros for the implementation of energy efficiency measures are needed. Since the state cannot bear this financial burden, donor assistance from global partners and business is needed. However, an independent and modern mechanism should be implemented to attract funds and to use them in a proper way. Thus, the government has launched a programme of so-called “warm loans” along with creating an Energy Efficiency Fund. Establishment of the Energy Efficiency Fund is a way of modernizing buildings and reducing energy consumption that has been tested by the countries of Eastern and Central Europe. This step for Ukraine is one of the conditions for the implementation of Directive 2012/27 / EC, which is a route map for the Association Agreement with the EU¹⁵².

Citizens want to live in warm homes and pay a moderate price for utilities, so responsible citizens modernize and insulate their houses. If families do not have enough financial resources

¹⁵⁰ Unian News Agency 2017. Online at: <https://www.unian.ua/common/1953859-zeleni-krediti-ukrgazbanku-zaporuka-vlasnoji-energenezalejnosti.html> (last accessed on 20.09.2018).

¹⁵¹ Ibid.

¹⁵² Ecotechnica.com.ua 2016. Online at: <https://ecotechnica.com.ua/stati/1783-teplye-kredity-2017-i-fond-energoeffektivnosti-ukraina-termomoderniziruetsya.html> (last accessed on 20.09.2018).

for this, they use “warm credits”. These credits are part of a nationwide strategy of energy efficiency reform. They became the driver of private energy-efficiency improvements and were used by 180,000 families, who then began to receive smaller utility bills. This reduced Ukrainian gas consumption in 2014-2016 by 11%¹⁵³. It can be concluded that Ukrgasbank is an example of a rather successful use of green financial policy instruments. Ukraine has made great progress compared to the years before. The example of other European countries and the close cooperation between Ukraine and the EU have brought some visible positive results.

2.6 Case Study 2: Example of DTEK

DTEK is a strategic holding company that develops four business lines in the energy sector. Direct management of production enterprises in each of the business areas is carried out by 4 operating companies – DTEK Energo, DTEK RES, DTEK Naftogas and DTEK ESCO. The company has 75 000 employees. DTEK enterprises produce coal and natural gas, generate electricity at thermal and renewable energy stations, supply heat and electricity to end users and provide energy services¹⁵⁴.

DTEK is an organization that supports Ukraine towards its goal to develop a strong internal economic system by strengthening the cooperation with the external markets. For this reason, Ukraine is the main focus of DTEK. It mostly supports the economic and energy sector of the country by developing new technologies and implementing new strategies of economic growth. The key goal is to be able to compete with European’s vendors on external markets. It can be achieved through implementation and facilitation of new innovative technologies and expansion of economic opportunities¹⁵⁵.

DTEK aims at introducing Ukraine to European partners as a reliable and transparent business ally that is focused on long-term sustainable development. For that reason, this enterprise is a member of diverse organizations. DTEK is an active participant of the UN Business for Peace (B4P) Platform which aims at stabilizing economic relationships in combat zones and high-risk areas. Additionally, DTEK is one of the founders of Energy for Society. The company is a member of the CSR (Corporate Social Responsibility) Centre in Ukraine and promotes the country’s sustainable development. It is also a member of the European Business Association and the American Chamber of Commerce¹⁵⁶. Finally, DTEK is a member of major global organizations such as the European Association for Coal and Lignite (EURACOAL), the

¹⁵³ Ibid.

¹⁵⁴ <http://igees.agency/dtek-stal-uchastnikom-climate-bonds-initiative/>

¹⁵⁵ Ibid.

¹⁵⁶ Dtek.com 2016: 29. Online at: https://dtek.com/content/files/dtek_ar_2016_en_e-version.pdf (last accessed on 20.09.2018).

Union of the Electricity Industry (EURELECTRIC), and the European Federation of Energy Traders (EFET)¹⁵⁷.

With regard to the European partners of DTEK, it is important to mention the Climate Bonds Initiative in particular, which is a non-profit organization that relies mainly on investments and aims at facilitating the growth of the green bonds market. The only way to achieve this goal is to transition to a low-carbon and climate resilient economy. The Climate Bonds Initiative's approach is to develop and maintain a flexible green bonds market that will reduce the costs needed to implement a green economy in emerging and developing countries, and to help governments in the process of implementing the green economy¹⁵⁸.

The Climate Bonds Initiative has a Climate Bonds Partners Program at its disposal, meaning that different investors such as banks, institutional investors, non-governmental organizations, and governments are welcome to give an input or financial support for the initiative that will facilitate the growth of the green bonds market. Additionally, partners help to determine the agenda and policy for the Climate Bonds Initiative and can participate in market development committees¹⁵⁹.

DTEK and Climate Bonds Initiative signed an agreement on cooperation. Since this international organization promotes the implementation of projects in the field of sustainable energy and infrastructure through the development of the debt capital market, DTEK's initiative supports Ukraine's goals to increase the share of renewable energy sources in the energy balance and opens up opportunities for attracting capital on the international market.

As stated by Maxim Tymchenko, CEO of DTEK,

“Ukraine's energy sector tends to follow global trends. Development of various energy sources creates a stable platform for further evolution of the sector taking into account the need for capacity substitution. We always welcome innovations and new business areas. To encourage the use of renewable energy, we build wind and solar power plants. Thus, we contribute to the development of new Ukrainian energy: clean, efficient and competitive”¹⁶⁰.

Sean Kidney, CEO of the Climate Bonds Initiative, has also shared his opinion about the new cooperation:

“Policy makers, investors, asset managers, and the wider community want to see more ‘brown to green’ financing and energy companies shifting generation towards clean sources. We are starting to see some

¹⁵⁷ Ibid.

¹⁵⁸ Climate Bonds Initiative 2017. Online at: <https://www.climatebonds.net/about> (last accessed on 20.09.2018).

¹⁵⁹ Climate Bonds Initiative 2017. Online at: https://www.climatebonds.net/files/releases/media_release_dtek_joins_climate_bonds_partnerprogram_311017.pdf (last accessed on 20.09.2018).

¹⁶⁰ Climate Bonds Initiative 2017. Online at: https://www.climatebonds.net/files/releases/media_release_dtek_joins_climate_bonds_partnerprogram_311017.pdf (last accessed on 20.09.2018).

global examples, but the pace must dramatically accelerate. Partnering with DTEK provides us with an opportunity to work with a major Eastern European company that has both brown and green assets and is looking at how to make that energy transition”¹⁶¹.

Nevertheless, if we consider the actual financial indicators of the company, it could be said that DTEK is not yet ready for such an active cooperation with the foreign partners. In fact, the financial results of DTEK in 2015 indicated the company’s inability to withstand monetary risks, since the net loss of the company amounted to ca. 42 million UAH¹⁶². The environmental tax paid by DTEK in 2015 was almost 520 million UAH and the other environmental costs were around 822 million UAH¹⁶³, with total emissions equal to 43 thousand tons of CO₂ and equivalents¹⁶⁴. It was understandable that the amount of tax exceeded the income of DTEK. This giant enterprise almost went bankrupt, but in 2016 it managed to improve its financial performance.

DTEK production indicators for 2016 were as follows: coal production amounted to 31,3 million tons, natural gas production to 1,6 billion cubic meters, production of electricity to 40,1 billion kWh, and the transmission of electricity through networks to 45,8 billion kWh¹⁶⁵. In 2016 the net loss of the company totalled 1 215 million UAH¹⁶⁶, while the costs of environmental protection amounted to 857 million UAH, of which 111,8 million UAH were capital investments¹⁶⁷ (see Table 10¹⁶⁸). Despite the expenditure on environmental protection, which amounted to 2 133,3 million UAH, and the environmental tax of 2 047 million UAH¹⁶⁹, DTEK failed to fully integrate into the European green financial management system and to overcome the negative indicators of their activities.

Among the company’s negative aspects, it can also be noted that in its balance sheet there is a very large percentage of “dirty” resources in the production of heat and power. If the company does not initiate drastic changes, DTEK might stop exporting in the very near future.

Nevertheless, the company is moving towards transformation, beginning to install numerous wind farms in the south of the country, joining international organizations, and improving its non-financial reporting. The company actively uses the green tariff and pays an environmental tax, which indicates their environmental responsibility.

¹⁶¹ Ibid.

¹⁶² Integrated report on financial and non-financial results of DTEK 2015: 126. Online at: http://www.dtek.com/content/files/godovie_otchety/dtek-web-ru-08-07.pdf (last accessed on 20.09.2018).

¹⁶³ Ibid.: 143.

¹⁶⁴ Ibid.: 145.

¹⁶⁵ IGEES 2017. Online at: <http://igees.agency/dtek-stal-uchastnikom-climate-bonds-initiative/> (last accessed on 20.09.2018).

¹⁶⁶ Dtek.com 2016: 100. Online at: https://dtek.com/content/files/dtek_ar_2016_en_e-version.pdf (last accessed on 20.09.2018).

¹⁶⁷ Dtek.com 2016: 148. Online at: https://dtek.com/content/files/dtek_ar_2016_en_e-version.pdf (last accessed on 20.09.2018).

¹⁶⁸ Ibid.

¹⁶⁹ Ibid.: 116.

Table 10. Environmental costs of DTEK Group in 2016, UAH thousand

Business line	Capital investments	Operating expenses	Additional expenses	Total by business line
Coal production and processing	38 755,4	127 989,8	63 844,8	230 590,0
Electricity generation	72 905,1	542 266,4	8 106,9	623 278,4
Electricity distribution	167,8	1 009,6	1 921,8	3 099,2
Gas production	-	1 322,9	-	1 322,9
Total	111 828,3	672 588,7	73 873,5	858 290,5

To conclude, as can be seen by the example of a large Ukrainian enterprise, companies are not successful yet in terms of following the path of sustainable development. Green financial instruments are not used in a proper way, and the conditions for their proper functioning are lacking. Despite some visible effort, DTEK remains neither a positive nor a negative example in this context.

III. Possible ways for developing a GFP in Ukraine

There is currently a historical window of opportunity for the development of a green financial system in Ukraine. New business models that use innovation, information and communication technologies create modern funding channels and possibilities. Before determining the concrete steps toward establishing a green financial policy in Ukraine, it is important to sum up the current status of the reform process.

First and foremost, the signing of the Association Agreement with the EU will help the country to take advantage of European experience with regard to green financial policy as well as issues surrounding the EU ETS. The country is about to implement the regulations set out within the Paris Agreement and the Kyoto Protocol, together with the emission trading mechanism execution and with a clear reference to using green investment schemes (green debt financial instruments, green loans, etc.). The next crucial step was the creation of the Ukraine 2020 sustainable development strategy by the national government, a programme aimed at introducing an independent and rational energy supply system that will lead to a decrease in GDP energy intensity of 20% by the year 2020. The Renewable Energy and Energy Efficiency Action Plans foresee a contribution of 11% renewables and a 9% reduction in domestic energy consumption by the end of the same year¹⁷⁰. Additionally, the Ukrainian government needs to adopt a range of legislation with the ultimate goal of forming an energy efficiency fund from the internal and external financial sources consisting of national climate finance mobilization on the one hand and financial support from European donors on the other. Since Ukraine has set in motion numerous initiatives and policies regarding the green economy that are to be implemented by 2030, Ukraine has become a reliable and attractive partner for investments. Despite the fact that investments in climate-related activities usually demand a durable adjustment (costs of capital, etc.) to become more attractive, modern market trends also offer opportunities for high revenues in a shorter period of time.

According to evaluations, around 75-100 billion EUR are required for Ukraine to successfully implement the transfer to low-carbon development and to comply with the regulations of the Paris Agreement¹⁷¹. The absence of green investment may actually exacerbate the difficult ecological situation of the country. Despite the gradual increase of the environmental tax for pollution, the financial motivation of polluters to reduce emissions is insufficient. The

¹⁷⁰ Zoï Environment Network (2018).

¹⁷¹ Ibid.

government's intention is to establish a fund that will be maintained by the constant financial flows from savings on utility subsidies¹⁷².

In order to attract private investments in the green economy, it is necessary to implement measures that will have a positive impact on green finance. For instance, a positive business climate, appropriate legislation and an attractive investment regime are the main requirements to encourage private investments to flow into the green economy. Moreover, the government must be seen to be the main supporter of its own policy to successfully implement the green economy countrywide and to meet the requirements of the Paris Agreement¹⁷³.

One further important aspect to consider is that more clarity is needed when it comes to defining the green economy. This is important in order to avoid "greenwashing"¹⁷⁴, in other words, to prevent the spread of false information about the green economy and consequently negative reactions to it. For this reason, regulations and guidelines have to be developed and maintained at all levels (including bonds, banks, credits) to ensure a more transparent implementation of the green economy.

Additionally, all institutions that in some way are connected to or responsible for the implementation of the green economy should provide support for further establishing the green economy countrywide. Institutional investors should disclose in their reports how their investments impact environmental, social and governance factors. They should also report their carbon emissions level. International financial institutions are one of the main players capable of impacting the implementation of the green economy in the country from outside. For example, they can provide financial instruments that could prevent risks, offer involvement in green projects, and assist in promoting the country's market for green financial products. Regulatory authorities should evaluate environmental damage and risks and also report them¹⁷⁵.

As one of the key actors in the process of implementing the green economy, the banks should notify investors whether there is an environmental risk associated with their actions; furthermore, they should use only green finance instruments. Central banks have an almost identical function, except that they should additionally monitor the level of impact of environmental changes on the financial situation. The outcome of policy for implementing the green economy fully relies on the actors mentioned above, which have the power to influence these changes¹⁷⁶.

¹⁷² Ibid.

¹⁷³ German Development Institute 2016: 3-4. Online at: https://www.die-gdi.de/uploads/media/BP_23.2016.pdf (last accessed on 20.09.2018).

¹⁷⁴ Ibid.

¹⁷⁵ Ibid.

¹⁷⁶ Ibid.

The progress that Ukraine has achieved in the context of energy efficiency is a good basis for introducing new green projects. The EBRD's credit lines to energy efficiency and renewable energy measures (the Energy Efficiency Program for Banks in Ukraine, or UKEEP) are aimed at preserving Ukraine's economic growth. However, the banking sector has suffered greatly due to economic stagnation and currency depreciation. Additionally, there is a crisis in the southern and eastern parts of Ukraine. That is why it is very important to support the local banking sector, as it provides additional benefits to the Ukrainian economy¹⁷⁷.

Thus, the main goal of the long-term formation of the green economy mechanism in Ukraine is the introduction and effective use of green financial instruments as described in the first part of this paper. The following sections take a closer look at existing green financial tools used in the advanced economies.

3.1 Prospects for adopting the European experience in Ukraine

The signing of the Association Agreement between Ukraine and EU offered numerous opportunities for Ukraine to receive advisory support from its European partners. Closer cooperation and access to advanced technologies became possible only due to this legally binding Agreement. Ukrainian public and private sector representatives may pay attention and investigate the experience of the European governmental authorities and financial facilities.

One of the most successful countries in this regard is the United Kingdom, which is one of the European countries that has a reliable and stable green economy thanks to numerous policies and laws that have been implemented at the state level. For instance, tax relief, social compact bonds, and many more other inducements are now available for further development and for investments in the UK. Social impact bonds are supported by a number of different institutions throughout the UK, such as governmental departments, private institutions, and local authorities. The government of the UK offers a 100% first year enhanced capital allowance for energy saving plants and machinery. But the most remarkable input into green economy in the UK is its first Green Investment Bank in the world¹⁷⁸.

The Green Investment Bank (GIB) was established in 2012 and was instantly given State Aid approval by the European Commission, enabling it to provide financial support according to commercial regulations. UK GIB Financial Services Ltd is responsible for the GIBs impact and

¹⁷⁷ Financing climate action in Ukraine 2016:21-22. Online at: https://www.oecd.org/environment/outreach/Ukraine_Financing_Climate_Action.Nov2016.pdf (last accessed on 20.09.2018).

¹⁷⁸ Inquiry: Design of a sustainable financial system 2014: 65-70. Online at: http://unepinquiry.org/wp-content/uploads/2014/05/141017_UNEP-Inquiry-Green-Economy-through-Financial-Policy-3.pdf (last accessed on 20.09.2018).

functionalities. This bank is one of a kind in the world and is responsible for meeting the requirements in the framework of the Kyoto Protocol, Climate Change Act (2008) and Energy Bill (2012). The priority sectors that GIB is investing in are offshore wind, waste recycling, and energy from waste, and energy efficiency, including support for the government's Green Deal. Other additional sectors involve biomass power, carbon capture and storage, marine energy and renewable heat. As of today, GIB has supported 23 projects and has made investments amounting to GBP 3.5 billion. Additionally, GIB evaluates the influences of specific projects and initiatives on economic growth¹⁷⁹.

A climate change levy was recently implemented in the UK. It is an environmental tax on gas, electricity and solid fuels and it provides a 90% discount on any carbon saving and energy efficiency activities. Large enterprises have to be a part of the Carbon Reduction Commitment Energy Efficiency Scheme (CRC), meaning these organizations must buy allowances or they will be penalized. Company cars are also taxed for carbon emissions. For example, a car that emits over 255 gram of CO₂ per kilometre is taxed at 723 USD per year while a car that emits only 100 gram is free of tax¹⁸⁰.

There is also an active tax on commercial exploitation of rock, sand, and gravel in the UK. The Renewable Energy Strategy was presented by the British government in 2008. This initiative facilitates the establishing and development of renewable energy sources. In the framework of this initiative, investors have a number of fiscal and non-fiscal privileges, such as zero-rated value-added tax on specific green transactions and tax exemption on the sale of carbon credits¹⁸¹.

Another illustrative example is the green initiative in the Netherlands. This country is one of the most developed European countries with a well-established environmental control scheme that is supported through the different incentives. Moreover, banks are active supporters of green initiatives. They have a wide range of green products, and demand for green savings and investment opportunities has also grown significantly¹⁸².

In 1995 the Dutch government introduced and successfully implemented the Green Funds Scheme (GFS) which gives its clients the opportunity to save money by investing in green initiatives¹⁸³. It is made possible through "green banking"¹⁸⁴ practices. With tax reductions (tax on capital gains and income tax) people who invest money can save them because they are accepted on a lower rate than on the market; banks demand a lower rate interest from green

¹⁷⁹ Inquiry: Design of a sustainable financial system 2014: 65-70. Online at: http://unepinquiry.org/wp-content/uploads/2014/05/141017_UNEP-Inquiry-Green-Economy-through-Financial-Policy-3.pdf (last accessed on 20.09.2018).

¹⁸⁰ Ibid.

¹⁸¹ Ibid.

¹⁸² Ibid.:70-73.

¹⁸³ Ibid.

¹⁸⁴ Ibid.

projects as well, and in this way private investors are not subject to taxation and thus get an additional discount on their green capital. The average sum of such investments is 30 thousand EUR. Thank to this scheme the number of green investors today is about 100,000 people, and rising¹⁸⁵. With the help of the GFS, many new technologies have been developed and introduced, from environmentally friendly greenhouses and wind turbines to organic farming and afforestation. This also gives opportunities for people who would like to invest money in green bonds and funds. The aim of the Green Funds Scheme is to create nature reserves in protected zones and to promote nature management measures, solar cells, hydropower pumps, and green public transport¹⁸⁶.

The banks in the Netherlands are a part of the Green Institutions Scheme, meaning that they issue bonds with a fixed value, term and interest rate. As a rule, the interest rate or dividend paid out by the bank is lower than the market rate; consequently, the bank could potentially invest these funds in green projects for a lower interest rate¹⁸⁷.

Initially, the purpose of the Green Funds Scheme was to give people the opportunity to support environmental protection by investing money in such projects. In addition, however, the scheme has also influenced organizations and supported them in implementing corporate social responsibility and thus combining sustainable development and corporate management. One of the consequences of implementing GFS is that institutions include green aspects in their decisions regarding company development, which in turn leads to a growing interest among people in investing money in green projects. Banks now have a variety of credit options that give citizens the opportunity to invest in green funds¹⁸⁸.

The Action Plan for designing a financial system that is resilient to non-financial risks, developed by the European Commission and adhered to by the EU member states, gives the latter a vision regarding the future steps that need to be taken in order to foster sustainable growth. European countries are the best example for Ukraine to follow in terms of building up a green financial system. Nevertheless, some of the instruments of a green financial policy still do not exist in Ukraine. For instance, there are no auctions for electricity and no trade system or guarantees of origin for producers of renewable energy. Even though the environmental tax on CO₂ and other harmful gas emissions has started to operate in Ukraine, and the authorities responsible have created numerous reports to register the emissions intensity level, unfortunately the system of monitoring, reporting, and verification which is needed for this – the MRV system

¹⁸⁵ Ibid.

¹⁸⁶ Inquiry: Design of a sustainable financial system 2014: 70-73. Online at: http://unepinquiry.org/wp-content/uploads/2014/05/141017_UNEP-Inquiry-Green-Economy-through-Financial-Policy-3.pdf (last accessed on 20.09.2018).

¹⁸⁷ Ibid.

¹⁸⁸ Ibid.

– does not yet exist at this time. The Ukrainian state faces drastic changes in order to eliminate these gaps.

3.2 Normative framework “de jure” versus operational measures “de facto”

Before suggesting the future course of action for Ukraine, it is important to highlight which authorities are responsible for the entire process of establishing a green financial policy. The legislative framework for launching the green economy in Ukraine will need to adhere to the laws adopted by the Supreme Council of Ukraine, the resolutions of the Cabinet of Ministers of Ukraine and the orders of the President of Ukraine. The Ministry of Ecology and Natural Resources of Ukraine is the institution in charge of establishing and executing the climate change policy. Its main functions include monitoring the proper functioning of the emission trading scheme, environmental taxes, and corresponding legislative acts, as well as implementing regulations and policies, and compiling and presenting reports to the relevant international authorities on the work carried out. The Ministry is also responsible for cooperating with international partners and is a member of the Presidium of the Interdepartmental Commission for Compliance that oversees the implementation of the United Nations Framework Convention on Climate Change (UNFCCC). The members of this Commission are ministers of parliament, representatives of the Secretariat of the President, the National Security and Defence Council, the National Academy of Sciences, NGOs and the main ministries that are responsible for implementing climate change policies¹⁸⁹.

There are also different working groups that are not attached to any specific department but nonetheless help to facilitate the regulations and legislation on climate change. Other authorities responsible for climate-related issues are the Ministry of Energy and the Coal Industry, the Ministry of Economic Development and Trade, the Ministry of Regional Development, Construction and Housing and Communal Services, the Ministry of Agriculture and Food, and the State Agency for Energy Efficiency and Energy Saving¹⁹⁰. The functions of the central climate-related facilities in the country are summarized in Table 11¹⁹¹.

¹⁸⁹ Zoi Environment Network (2018).

¹⁹⁰ Ibid.

¹⁹¹ Financing climate action in Ukraine 2016: 23. Online at: https://www.oecd.org/environment/outreach/Ukraine_Financing_Climate_Action.Nov2016.pdf (last accessed on 20.09.2018).

Table 11. Functions of the national institutions responsible for climate action in Ukraine

Institution	Functions
Ministry of Ecology and Natural Resources	Directs and coordinates the elaboration and application of the national environmental policy
Ministry of Energy and Coal Industry	Coordination and enforcement of electric power generation, nuclear, coal, oil and gas industry policies
Ministry of Regional Development, Building and Housing, and Communal Services	Elaboration and application of regional building and construction policies
Ministry of Economic Development and Trade	Elaboration and application of national policy in the field of economic and sustainable development, as well as interstate trade
Ministry of Foreign Affairs	Fostering international relations with the goal of integrating Ukraine into the European system of sustainable economic growth
State Agency on Energy Efficiency and Energy Saving	Adaptation of national policies in the area of energy efficiency and alternative energy usage
National Commission for State Energy Regulation	Executing the Green Tariff policy that includes solar and wind, biomass and biogas
UKRENERGO	National Power Company, which delivers power using transmission lines

Implementation of the green economy model implies a greater role of the state and interstate bodies in economic regulation, the creation of conditions for business development on the basis of new environmental standards and technologies for cleaner industries, and a greater focus on the environment in the industrial sectors of the economy. In the context of the resource and energy dependence of Ukraine, which is formed by the situation when environmentally harmful technologies are used in outdated energy-efficient enterprises, the gradual replacement of the brown industrial economy with the green economy as a strategic priority for development gives a chance to ensure the country's national security in the coming decades¹⁹². In the process of drafting the Law of Ukraine "On the Basic Principles of the State Environmental Policy of Ukraine for the Period up to 2020" and the National Action Plan on Environmental Protection for 2011-2015, numerous proposals were made to promote the greening of all sectors of the economy and to implement such instruments of the green economy as cleaner production, organic farming, green building, and green procurement in the public and private sectors¹⁹³. The focus on the greening of the economy is evidenced by various programmes run by the Ukrainian government, including the Transport Strategy of Ukraine for the period up to 2020, the State Program for the Development of Domestic Production, the State Target Economic Program for the automotive

¹⁹² Zhiva-planeta.org.ua 2012. Online at: <http://www.zhiva-planeta.org.ua/diyalnist/staluy-rozvutok.html> (last access on 20.09.2018).

¹⁹³ Ibid.

industry by 2020, as well as the state policy strategy for the development of a green economy by 2020 and the strategy for the introducing cleaner production systems in Ukraine¹⁹⁴. The main climate-related legislative acts are shown in Table 12¹⁹⁵.

Considering what has already been achieved with regard to the green financial mechanisms already implemented in Ukraine, it is important to highlight the Green Tariff Scheme which the Ukrainian government has presented as its version of a feed-in tariff. Its goal is to channel domestic financial assets into renewable energies. After the introduction of the Green Tariff, tariff rates and local content premiums changed drastically. Since the feed-in-tariffs were implemented in Ukraine, the number of producers active on the renewable energy market has increased from one or two to 209¹⁹⁶, and this number is constantly growing.

Table 12. The main climate-related legislative acts passed by the Ukrainian government

Name	Description
The Tax Code of Ukraine, Law No. 2755-17, 02.12.2010	Established a tax on harmful gas emissions in 2011 for stationary sources, mainly for the energy sector and the processing industry
Law of Ukraine “On the main principles of the State Environmental Policy of Ukraine up to 2020”, 21.12.10	Elaboration of the fundamental frame of reference for climate change policy adaptation by the year 2015, elaboration and gradual enhancement of a national action plan on climate change mitigation by 2030
Law of Ukraine No. 5485-17 “On Amending the Law of Ukraine On Electricity”, 20.11.12	Determination of the guidelines in favour of alternative energy sources, introduction of the Green Tariff scheme
Resolution № 588 “On approval of the action plan aimed at the implementation of activities to ensure a regulatory legislative base for energy efficiency policy implementation, heat consumption and modernization of heat supply systems”, 2012	Enhancement of the heat supply sector, improvement of energy efficiency in the private and public sector
Energy Strategy of Ukraine for the Period up to 2030, 2006, (amended in 2013)	Description of the energy sector development path for the period up to 2030
Decree No. 583 “Inter-agency commission on ensuring implementation of the United Nations Framework Convention on Climate Change” (amended in 2015)	Launch of the Inter-agency Commission to guarantee the implementation of the UN Framework Convention on Climate Change
Economic Programme on energy efficiency and development of production of energy from renewable sources and alternative fuel for 2015-2020	Elaboration of correct use of the national budget in order to fulfil the State Targeted Economic Programme on energy efficiency
State Climate Policy Concept by 2030	Fulfilment of the Paris Agreement in three steps

¹⁹⁴ Ibid.

¹⁹⁵ Financing climate action in Ukraine 2016: 23-24. Online at: https://www.oecd.org/environment/outreach/Ukraine_Financing_Climate_Action_Nov2016.pdf (last access on 20.09.2018).

¹⁹⁶ PV Europe 2017. Online at: <https://www.pveurope.eu/News/Markets-Money/Feed-in-tariffs-in-Ukraine-history-dynamics-and-perspectives> (last accessed on 20.09.2018).

The green tariff, on the other hand, has been reduced. The plan of the Ukrainian government was to reduce the value of the feed-in-tariff by 2030, but it is, in fact, already steadily decreasing as more and more players come onto the renewable energy market. The key factor in this is that, regardless of how much the value of feed-in-tariffs decreases, the revenue for investors is guaranteed by the state. Moreover, it should be noted that the exchange rate is constantly fluctuating, because the Ukrainian hryvnia is linked to the euro; as a result, the value of feed-in-tariffs also changes. In order to control the exchange differences, the Ukrainian feed-in-tariff offers a minimum tariff, in other words, a safety net that is fixed to the exchange rate between the Ukrainian hryvna and the euro on 1st January 2009¹⁹⁷.

In 2017 the government of Ukraine has passed the Electricity Market Act whose goal is to expand the market for renewable energy products and projects. In addition, the Act defines specific guidelines and regulations that help to protect investments in these projects. According to these regulations, renewable energy producers are obliged to sell the electricity generated from renewable energy sources. National JSC “Ukrenergo” is responsible for the whole scheme and its implementation¹⁹⁸.

With the current progress that Ukraine has managed to achieve on the renewable energy market, the state has only gained 2% of alternative energy supply. Nevertheless, after Ukraine became a member of the Energy Community in 2016, the country pledged to increase this figure to 11% by 2020. This is one more positive effect of the green economy that will attract more investors to Ukraine so that the country will be able to implement more green projects. As of today, solar energy is the fastest growing sector in Ukraine. In 2017 wind energy and biomass energy have also gained more popularity and support. In fact, Ukraine will be able to meet the requirements of the Energy Community earlier than 2020¹⁹⁹.

The State Agency for Energy Efficiency and Energy Saving in 2015 decided to implement a new policy that will reduce natural gas consumption. The main plan was to provide funding for private home owners who would like to install non-gas boilers instead of gas-boilers. Ukrainian government funded this initiative with 50 million UAH (1,9 million USD). As a result, there was a 19% reduction in natural gas consumption in the years 2013-2014²⁰⁰. The financial support was made possible thank to the EU-funded sector budget support for energy efficiency.

¹⁹⁷ Standard Fixed Feed In Tariffs 2015. Online at: <https://www.pv-magazine.com/features/archive/solar-incentives-and-fits/feed-in-tariffs-in-europe/#germany> (last accessed on 30.09.2018).

¹⁹⁸ Baker McKenzie 2018. Online at: <https://www.bakermckenzie.com/en/insight/publications/2017/06/green-energy-ukraine> (last accessed on 20.09.2018).

¹⁹⁹ PV Europe 2017. Online at: <https://www.pveurope.eu/News/Markets-Money/Feed-in-tariffs-in-Ukraine-history-dynamics-and-perspectives> (last accessed on 20.09.2018).

²⁰⁰ Financing climate action in Ukraine 2016: 21-22. Online at: https://www.oecd.org/environment/outreach/Ukraine_Financing_Climate_Action.Nov2016.pdf (last accessed on 20.09.2018).

A national Energy Efficiency Fund is planned for the near future. The Ukrainian government made a decision to create such a fund in order to provide financial support for energy saving programmes. Germany is the main partner working with the Ukrainian government and is helping to establish the Energy Efficiency Fund. This will support not only private home owners and the public sector but also large companies. The first investments for this fund will be allocated from the state budget and donor contributions²⁰¹.

Funding from municipal governments and local authorities is a crucial aspect that will be able to facilitate different projects aimed at reducing GHG emissions in cities. For instance, the Lviv Communal Enterprise “Lvivvodokanal” (Lviv water utility) is responsible for the water sector; City of Lviv, Odesmiskelectrotrans (a public transport operator in the city of Odessa) is responsible for the transport sector, and Dnipropetrovsk Municipal Energy Management Company (owned by the city of Dnipropetrovsk) is responsible for the energy sector²⁰².

These examples demonstrate that despite some measurable progress, the green financial system in Ukraine is still in an embryonic state. The chaotic operations of the Ukrainian government do not have a clear direction and resemble unsuccessful attempts to prove that the government is going towards the SDGs. Those state structures whose responsibility it is to ensure that all financial structures function for the benefit of a sustainable economy remain disoriented, corrupt and irresponsible. The state shifts responsibility to non-governmental organizations, foreign investors and supranational institutions. Ukraine faces the onerous task of setting up a green financial system that will be effective even in such initial conditions.

3.3 Recommendations for establishing a long-term GFP in Ukraine

The Association Agreement between Ukraine and the EU contains initial guidelines for establishing a National Action Plan by 2020 for introducing green financial policy in Ukraine. It is of utmost importance for the authorities responsible in Ukraine to place a greater focus on and accord special priority to the considerations given in this document.

In order to properly implement the Association Agreement, ensuring the continuity of the process of fulfilling Ukraine’s commitments throughout the period of validity, the Ukrainian government approved a plan of measures for the implementation of the Association Agreement between Ukraine and the EU by means of Resolution No.1106 of the Cabinet of Ministers of Ukraine dated October 25, 2017. The plan sets clear deadlines and responsibilities for performing specific tasks. The roadmap of legislative support for the implementation of the Association

²⁰¹ Ibid.

²⁰² Financing climate action in Ukraine 2016: 21-22. Online at: https://www.oecd.org/environment/outreach/Ukraine_Financing_Climate_Action.Nov2016.pdf (last accessed on 20.09.2018).

Agreement for 2018-2019 is the result of the joint work of the Ukrainian government and the parliament. The Cabinet of Ministers of Ukraine, by its Resolution No. 272 dated April 25, 2018, approved the Action Plan for 2018 on the implementation of the Communication Strategy in the field of European Integration for 2018-2021²⁰³.

Different green financial tools, such as green credit, green bonds, green stock indices and many more are a part of the green financial system. This system is the corporate or governmental structure that takes advantage of the above-mentioned green financial instruments. In addition, various policies, incentives, and projects must support the efficient implementation of the green financial system. The green financial system aims at reducing the amount of investments channelled into those industries that negatively affect the environment and, in turn, provides much-needed support for the channelling of investments into green industries. The system has many advantages not only for the economic sector, such as the green economy and ecologically friendly society, but also for the technological field. This includes, for instance, the development and implementation of new energy efficient technologies, new energy sources, and new environmentally friendly machinery and mechanisms²⁰⁴.

It is crucial to support the establishment of the green financial system by passing the necessary laws and regulations and implementing policies in different fields such as financial, fiscal and environmental ones. The successful implementation of the system is impossible without the modernization of financial institutions and financial markets, in other words, without developing new financial instruments and services. Furthermore, the system has to be appropriately introduced to the public in order to avoid unnecessary misunderstandings and to facilitate more investments²⁰⁵.

First and foremost, it is advisable for the Ukrainian Ministry of Ecology and National Resources to create a harmonized green operations classification system (the so-called, green taxonomy)²⁰⁶ to determine which activity can contribute to the green economy and make green finance more transparent. Such a standardized roadmap on climate-related practices will simplify the distribution of information to investors. This is a significant measure for stimulating the flow of green funds into the ecological segment. A competent legislative group should be formed to elaborate the green operations classification system, as well as a technical group for its

²⁰³ Association Agreement between Ukraine and EU (transl.). Online at: <http://dsbt.gov.ua/storinka/ugoda-pro-asociaciyu-mizh-ukrayinoyu-ta-yes> (last accessed on 20.09.2018).

²⁰⁴ China Daily USA 2016. Guidelines for establishing the green financials system. Online at: http://usa.chinadaily.com.cn/business/2016-09/04/content_26692956.htm (last accessed on 20.09.2018).

²⁰⁵ Ibid.

²⁰⁶ European Commission 2018: 4. Online at: https://www.novethic.fr/fileadmin/user_upload/tx_ausynovethicblocs/Info_ext/action-plan-sustainable-growth_en.pdf (last accessed on 20.09.2018)

adaptation. On the local level, a green projects database can be launched in order to monitor the wide variety of green activities.

A further important step is to introduce green bonds which will enable banks, firms and other organizations to receive loans from investors to fund their green initiatives. It should be understood, however, that the insufficient quantity of green bonds labelled discourages investors from injecting additional funds and instead favours the “green laundering” of existing funds²⁰⁷. It would be beneficial to introduce a green bond standard and a detailed scheme for the green bonds’ issuance in the green banks of Ukraine, such as Ukrgasbank. The Ukrainian Ministry of Economic Development and Trade might encourage green bonds on the local level through granting special arrangements. The interpretation of green bonds must also be standardised. With the introduction of the Green Authentication Reports, investors can use these to make decisions and assess the degree of sustainability of their green portfolios²⁰⁸. For the Ministry of Foreign Affairs of Ukraine, it remains important not only to maintain international cooperation by means of information exchange and financial channelling but also through promoting the green bonds issuance of the Ukrainian companies on the territory of the European Union with the further creation of the common green finance platforms using the experience of Luxembourg in creating the leading financial centre to stimulate the issuance and circulation of green, sustainable and social impact bonds.

For the development of the green economy in Ukraine it is of utmost importance to further green lending. More specifically, green credits might be stimulated by maintenance of the central bank re-lending performance (through green funds, etc.) or by granting special warranties. Green projects which are funded by the green loans should receive a permit to request a tax subsidy on interest charges. It is necessary to set up a green credit policy with its statistics and monitoring components. The presentation of this component of green financial policy will determine the progress of sustainability by forcing financial flows towards climate-related projects. The next step could be to increase the number of committed funding agencies after the process of their selection has been made transparent and systematised. Creditors should have a statutory financial responsibility²⁰⁹.

To determine the price of green financial instruments it is necessary to apply benchmarks in order to help the donors to monitor achievements and to manage their investments accordingly. Besides, benchmarks are needed to prevent greenwashing. Benchmarks should be adjusted to

²⁰⁷ Ibid:5.

²⁰⁸ China Daily USA 2016. Online at: http://usa.chinadaily.com.cn/business/2016-09/04/content_26692956.htm (last accessed on 20.09.2018).

²⁰⁹ Ibid.

those used by the European partners and in accordance with the current situation on the domestic market²¹⁰.

To secure the proper functioning of all green instruments, the establishment of the green financial infrastructure will be an important step. The Ministry of Regional Development, Building and Housing and Communal Services might be designated as a responsible agent. This infrastructure should bring together the central authority for the green financial system with representatives of the private and public sectors (such as stock exchanges, large companies, financial institutions, etc.). A Green Infrastructure Planning Agency²¹¹ could execute functions such as implementing the strategies on climate and infrastructure in the relevant projects. The enhancement of the sub-sectoral programmes should be the main task of the environmental administration authorities.

It would make sense if the Ukrainian government could encourage long-term green investors. They have to be informed of the new investment opportunities that the green economy will bring. For instance, the recently launched Green Infrastructure Investment Coalition²¹² in the EU is a platform that provides opportunities for cooperation between governments, investors, and banks on the specific project.

As the main providers of domestic investments in the green economy, Ukrainian banks can supply only a certain amount of green funding to accelerate the sustainability of the country. These financial institutions are in danger of commercial exhaustion if they do not take into consideration the prudential requirements (risk capital requirements, etc.)²¹³. It is therefore crucial to reduce the cost burden of certain companies through the use of derivatives and synthetic financial instruments in order to free up funds for green development. Banks must create a lending control system and be able to check their risks since environmental affairs are considered to be hazardous activities.

Additionally, the State Agency on Energy Efficiency and Energy Saving and the National Commission for State Energy Regulation should urgently implement a national system for measuring emissions and removals of greenhouse gases. Among the priority objectives of the development of green investment instruments are the detailing of the accounting system to the level of individual stationary emission source, the establishment of a system for measuring

²¹⁰ European Commission 2018: 7. Online at: https://www.novethic.fr/fileadmin/user_upload/tx_ausynovethicblocs/Info_ext/action-plan-sustainable-growth_en.pdf (last accessed on 20.09.2018).

²¹¹ Climate Bonds Initiative 2017. Scaling up green bond markets for sustainable development. Online at: <https://www.climatebonds.net/resources/publications/scaling-green-bond-markets-sustainable-development> (last accessed on 20.09.2018).

²¹² Climate Bonds Initiative 2017. Scaling up green bond markets for sustainable development. Online at: <https://www.climatebonds.net/resources/publications/scaling-green-bond-markets-sustainable-development> (last accessed on 20.09.2018).

²¹³ European Commission 2018: 9. Online at: https://www.novethic.fr/fileadmin/user_upload/tx_ausynovethicblocs/Info_ext/action-plan-sustainable-growth_en.pdf (last accessed on 20.09.2018).

greenhouse gas emissions in transport based on data on fuel and transport consumption and applied technologies, direct monitoring with geo-information and satellite technologies for emissions and sinks in agriculture and forestry, integration into the regular monitoring system based on direct measurement of greenhouse gas concentrations and the system of monitoring the results obtained²¹⁴. These areas are of prime importance and relate mainly to the national system for accounting for emissions and absorption of greenhouse gases, but the gaps in this area preclude the development of green investments in Ukraine.

Therefore, Ukraine needs to pay attention to the Directives on non-financial reporting (Directive 2013/34), the green financial instruments market (Directive 2014/65/EU), and emissions trading system permits (Directive 2003/87 EU), as well as consider the Directive 2009/28/EC on certificates of origin of electricity, Directive 2014/57/EU on market abuse regulation, and Directive 2003/87/EC on monitoring and reporting of GHG emissions²¹⁵.

It should be stated that members of the Ukrainian government sometimes act contradictorily in relation to their duties: the decisions they make often serve to further their own interests, rather than the interests of the whole country. Corruption can cause deviations from the course of action to be followed and may delay the transition to the green economy. The irresponsibility of the state can be compensated by the fact that enterprises can independently take action in favour of the green development of their firms by adopting certain corporate governing measures. These procedures will help the companies to implement low-carbon technologies, to advance their risk-management and to ameliorate their non-financial reporting. This will attract new investments for the further consolidation of the firms' sustainable growth.

A beneficial decision would be to encourage long-term financial facilities, e. g. pension or insurance funds, to participate in green investment. There would, of course, need to be a study undertaken on how climate-related risks will affect this kind of companies²¹⁶. To build up a sustainable development fund and to mobilize green finance, the competent authorities can also enhance Public - Private Partnership (PPP) ties "through measures such as relaxing market access restrictions, improving pricing of public services, granting franchises, implementing favorable fiscal and land policies, and improving benefit- and risk-sharing mechanisms"²¹⁷. Public support plays an essential role in motivating companies to act in an ecologically friendly manner. If environmental awareness is intensified and green consumption is encouraged, the companies themselves will be interested in green growth.

²¹⁴ Kvach, Firsova 2015: 54. Online at: <http://global-national.in.ua/archive/6-2015/12.pdf> (last accessed on 20.09.2018).

²¹⁵ Gonta 2015: 27-31. Online at: http://www.kas.de/wf/doc/kas_42407-1522-1-30.pdf (last accessed on 14.06.2017).

²¹⁶ China Daily USA 2016. Online at: http://usa.chinadaily.com.cn/business/2016-09/04/content_26692956.htm (last accessed on 20.09.2018).

²¹⁷ Ibid.

Taking a long-term perspective, if Ukraine were to achieve all the previously established objectives, the government could take a decision to continue the process of moving towards a green economy and to introduce green insurance schemes, as well as new market mechanisms for maintaining the GFP, such as “carbon forwards, carbon swaps, carbon options, carbon leases, carbon bonds, carbon asset backed securities, carbon funds and other carbon finance products and derivatives”²¹⁸.

Thus, it is crucial to establish a legal basis for the future green financial system and to help financial tools to function properly by means of government fiscal levers, whereupon the market will balance the intensity and volume of their impact. The combination of the state and market mechanisms will lead to the proper functioning of the GFP in Ukraine.

Conclusions

The aim of the financial systems previously established in different states around the world was to achieve the highest level of economic growth as rapidly as possible. After achieving this objective, many countries have reached the point of stagnation and have been in a state of degradation. Numerous economies were severely damaged after the economic crisis of 2008, which suggests that the world community requires a modern sustainable financial system based on the principles of green growth. Such a system needs to be focused on both economic achievements as well as on dealing responsibly with non-renewable natural resources and caring for future generations, which is a central pillar of the green economy. The green economy ensures an increase in income and employment and facilitates the creation of an economy resilient to non-financial risks, while at the same time providing a better quality of life, social development and equitable access to scarce resources, as well as focusing on reducing environmental risks and pollution. The green economy seeks to increase the efficiency of resource and energy usage and requires all economic actors to take ecological responsibility and to limit the burdens placed on the environment.

As a newly industrialising state, Ukraine seeks to follow the example of its western neighbours and to achieve the same level of economic, political and social development. The transition to the green economy will have an enormous impact on Ukraine’s overall growth. First, it will reduce its carbon footprint. Second, it will help to avoid numerous social problems and, lastly, it will encourage competition that will lead to more efficient production and to a reduction in resource costs.

²¹⁸ Ibid.

In order to implement the principles of the green economy and use its benefits, it is necessary to establish a green financial policy, namely the actions and tools that help raise financial resources for the green economy, using the fiscal financial instruments, such as green taxes, governmental subsidies, green tariffs and carbon pricing, and market financial instruments, such as green credits, green bonds and emission trading. A green financial system is a dynamic mechanism, where each component functions using embedded tools at different levels, such as governmental, private and public sectors, financial market. The state has the task of creating conditions under which the issue of green loans, risk assessment, and non-financial reporting are aimed at financing the green economy. At the same time, the market should adjust these initiatives in accordance with the domestic economic situation in Ukraine.

Even though Ukraine is a member of numerous international climate agreements, such as the Kyoto Protocol, Paris Agreement and Europe 2020 Strategy, and already has made some progress in reducing the emissions intensity of its economy, there is no doubt that this country requires information and financial assistance from its European partners. The signing of the Association Agreement between Ukraine and the states of the European Union formed a basis of building a green economy in Ukraine. The first step towards establishing a green financial policy was the elaboration of the Action Plan, which is the document that explains what steps must be taken in order to achieve sustainability. The main goals of the Action Plan are to reallocate investments to green projects and initiatives for the benefit of long-term development and growth, as well as to make provisions for different financial risks such as climate change, resource depletion, and environmental degradation.

Due to the closer cooperation between Ukraine and the EU states, Ukraine has already received and still requires a colossal amount of green investment. Despite attempts to mobilize internal green financial resources, the government of Ukraine is at cross-purposes with its own state. For this reason, local and even non-governmental organizations often have a greater direct influence on the course of events in the process of building a green economy in Ukraine than the government itself. The most important examples of such non-governmental organizations, national, international and transnational financial institutions, facilities and funds include the European Bank for Reconstruction and Development, the Nordic Investment Bank, the Corporation for International Cooperation Ltd., the Global Climate Partnership Fund and the Environmental Partnership Program. These influence Ukrainian companies and firms by encouraging them to undertake sustainable activities in order to present their non-financial reports and thereby attract domestic and foreign investors. One of the positive examples of Ukrainian companies which take care of their green reputation are the Ukrainian green bank Ukrgasbank

and the large energy enterprise DTEK, which contributes to climate-related projects even despite the fact that real environmental projects are still missing.

To establish a green financial policy, it is important to combine a legislative base with efficient implementation of financial instruments. The regulatory framework for introducing the green economy in Ukraine will rely on the laws adopted by the Supreme Council of Ukraine, resolutions of the Cabinet of Ministers of Ukraine and orders of the President of Ukraine. The national authorities responsible for the implementation of green legislation are the Ministry of Ecology and Natural Resources of Ukraine, the Ministry of Energy and Coal Industry, the Ministry of Economic Development and Trade, the Ministry of Regional Development, Construction and Housing and Communal Services, the Ministry of Agriculture and Food, and the State Agency for Energy Efficiency and Energy Saving.

As for practical proposals for the proper functioning of the green financial system, it is crucial to prioritize the recommendations stated in the Association Agreement between Ukraine and the EU. The next steps would be to harmonize the definitions of all green financial instruments, inform public and private sector representatives about the new regulations, build up the green financial infrastructure and designate responsible authorities. Domestic markets need to be financially supported in order to introduce green bonds and investment. The primary distribution could come from national treasuries, municipalities and development banks. Further investments may flow from public pension funds, public sector treasuries and e.g. from the publicly organized fund for investing in the green economy. It is necessary to introduce green bonds and to maintain green lending, as well as to support green banks and to encourage the green reporting that will attract new green investments.

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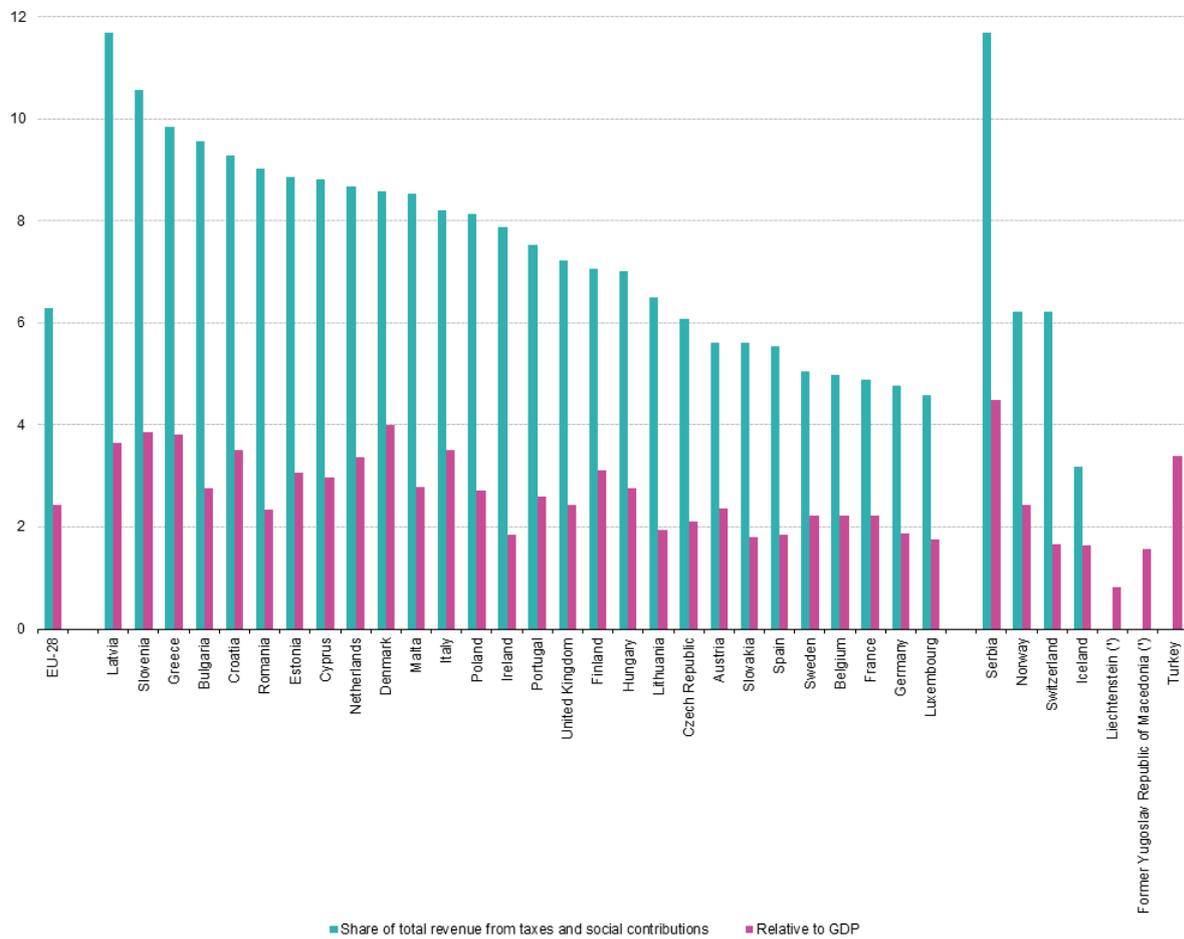
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Annexes

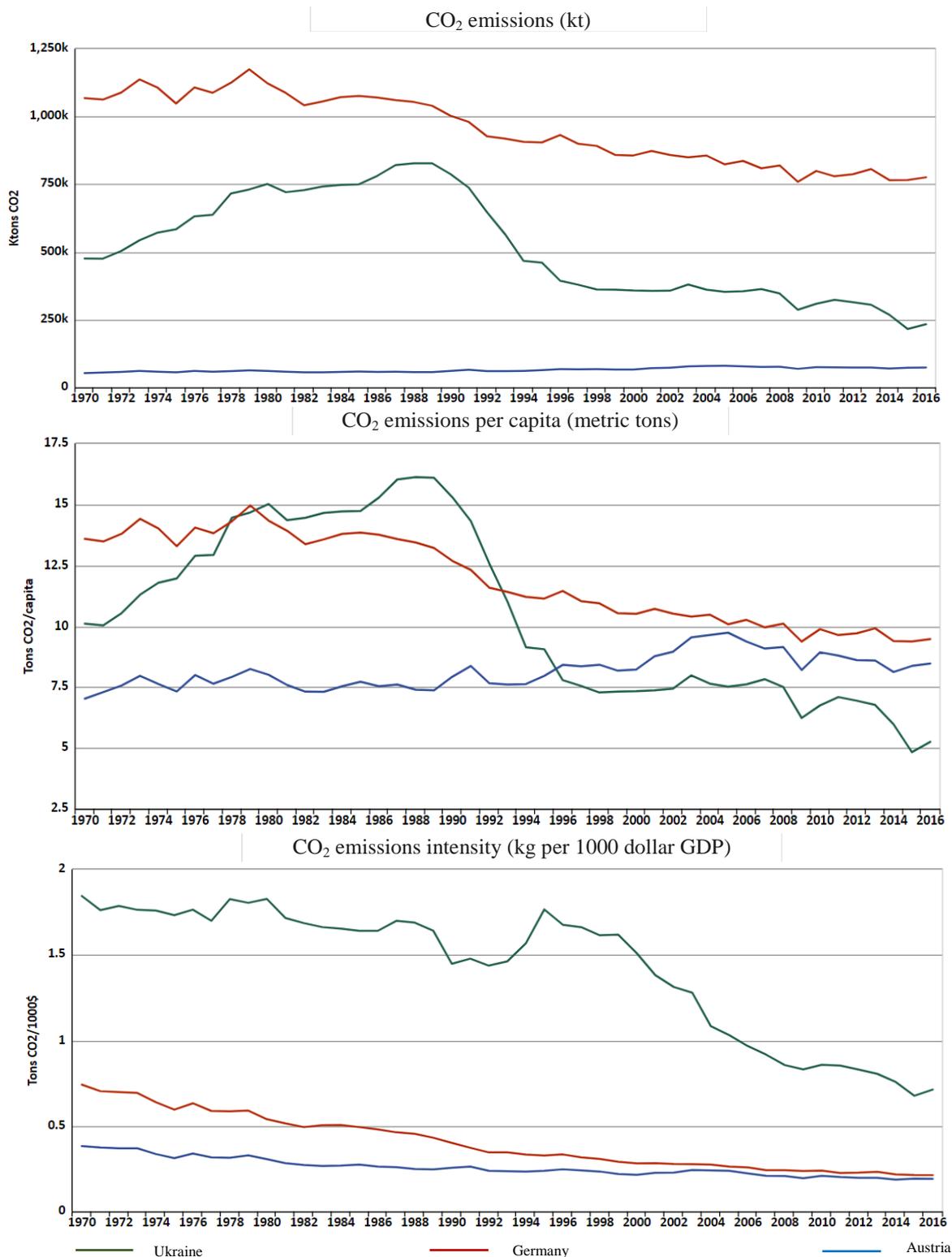
Annex 1. Total environmental tax revenue, EU-28, 2016 (%)²¹⁹



(*) 2015 instead of 2016.

²¹⁹ Eurostat: Statistics Explained 2016. Online at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_tax_statistics (last access on 20.09.2018).

Annex 2. Comparison of Ukrainian, German and Austrian CO₂ emission rates from 1970 till 2016²²⁰



²²⁰ Knoema 2018. Online at: <https://goo.gl/4fCKNi> (last accessed on 20.09.2018). Knoema 2018. Online at: <https://goo.gl/sxcVDN> (last accessed on 20.09.2018). Knoema 2018. Online at: <https://goo.gl/sxcVDN> (last accessed on 20.09.2018).

Annex 3. Analysis of the Association Agreement between Ukraine and the EU
in the context of cooperation on environmental protection²²¹

Scope of cooperation	Measures for cooperation
Climate change	<p>Development of a common strategy for the environment protection by covering the following issues:</p> <ul style="list-style-type: none"> -planning of institutional reforms to ensure implementation and enforcement of environmental legislation; -distribution of powers of the administration in the field of environmental protection at the national, regional and municipal levels; -development of procedures for the adoption and implementation of decisions; -development of procedures for integrating environmental protection policy into other policy areas, identifying the necessary human and financial resources, development of surveillance mechanisms. <p>Development of sectoral strategies for a clearly defined timetable and key stages of implementation, with the definition of administrative responsibilities, as well as strategies for financing investment in infrastructure and technology, in particular regarding:</p> <ul style="list-style-type: none"> -air quality; -water quality and management of natural resources, including the marine environment; -waste and resource management; -protection of the natural environment; -industrial pollution and harmful production factors and chemicals.
Air quality	
Water quality and water management, including the marine environment	
Waste and resource management	
Nature conservation, including conservation and protection of biological landscape diversity (eco-networks)	
Industrial Pollution and Harmful Production Factors	
Chemical substances	
Genetically modified organisms, including in the field of agriculture	
Noise pollution	
Ecological management and issues of horizontal cooperation, including education and training, access to environmental information and decision-making	
Civil protection, including from natural and man-made hazards	<p>Development and implementation of climate change policies, in particular, listed in Annex XXX to the Association Agreement.</p>
Urban environment	
Ecological payments	

²²¹ Garlytska 2017: 16. Online at: <https://www.econa.org.ua/index.php/econa/article/viewFile/1348/pdf> (last accessed on 20.09.2018).

Annex 4. Key players in Ukraine in establishing green financial policy

