CARBON TAX PERSPECTIVES IN UKRAINE: LEGAL REGULATION AND COMPARISON OF THE NATIONAL AND EUROPEAN EXPERIENCE OF IMPLEMENTATION

SVITLANA ROMANKO

Abstract. Environmental tax in general is one of the state’s instruments in environmental protection and financing of the environmental protection measures. The purpose of the tax is to encourage business entities to reduce emissions / discharges of pollutants into the air / water bodies, to establish direct dependence of the amount of tax deductions on the degree of negative impact on the environment, mobilization of funds to budgets of different levels in order to finance the costs of protection and rational use of natural resources. This article examines and compares with Ukraine and EU countries the experience, rates and background policies of the carbon taxation. The carbon tax as an environmental tax with a significant effect on economic and legal incentives for business entities and state authorities to fulfill the policy of energy efficiency, energy saving and energy transition to renewable energy sources what is coincided with the mitigation of greenhouse gas emissions and achievement of National Determined Contributions according to the Paris Agreement and Kyoto Protocol. The main issue is that rate of carbon tax, used nowadays in Ukraine is not being sufficient to provide the energy transition of country economy to the less consuming model according the examples from Germany, Netherlands, Finland and other countries of Europe. Interconnected linkage between carbon tax, energy and climate policy is proven in the article along with mechanisms of economic, political and environmental peculiarities and benefits of the carbon taxation regulation improvement in national legislation.

Keywords: carbon tax, energy saving, renewable energy sources, Nationally Determined Contributions (NDC), Emissions Trading System (ETS).

1. INTRODUCTION

Carbon tax and environmental taxation system in general used to be considered as a part of the mechanism of the economic and legal incentives to increase by sufficient funding of the energy efficiency measures and renewable energy use in industry and industrial production. Therefore carbon is directly interconnected with the mitigation of the emissions of the greenhouse gases and is an effective tool to measure the negative impact from CO$_2$, creating the positive impact on decreasing the CO$_2$ emissions in the country and increasing the energy efficiency in economic industries and individual energy supply.

At the same time, the research, made in 1990-s [1; p. 279] proves, that energy-saving or inter-fuel substitution processes, that result from the introduction of environmental taxation, stabilize emissions
at the 1988 level only in the electricity generation sector, and only if high tax rates are assumed ($100/ton.C). By contrast, total emissions (all sectors and all fuels) keep growing, and the implementation of a tax of $100/ton. According to a new study published by Yale scientists in Environmental Research Letters [2], for example, Americans are willing to pay a carbon tax that would increase their household energy bills by $15 per month, or about 15%, on average. But the USA is only about to develop the concept and legislation on carbon taxation, as it’s been politicized.

Given that in 18 countries of the world carbon tax strengthens the economic motivation of the companies to energy efficiency and renewable energy use transition. In Denmark what worth mentioning is the existing mechanism of agreements between companies and Danish Energy Agency [3; p. 3]. The Danish Energy Model has shown that through persistent and active energy policy with ambitious renewable energy goals, enhance energy efficiency and support for technical innovation and industrial development, it is possible to sustain significant economic growth and a high standard of living, while reducing fossil fuel dependency and mitigating climate change.

In order to secure 100% renewable energy in 2050 the Danish government has developed several energy policy milestones in the years 2020, 2030 and 2035. Half of the traditional consumptions of electricity is covered by wind power till 2020. Coal is phased out from Danish power plants. Oil burners phased out till 2030 [3; p. 5]. Carbon tax will fill the financial funds and creates the range of economic incentives.

2. Analysis and Discussion

Scientific discussion about environmental taxation was a focus point for a lot of distinguished national researchers Kostytsky V.V., Malysheva N.R., Hetman A.P., Kobetska N.R., Erofeev M.I., Synyutka N.G., Yastrubsky M.Y. Matchievych T.O. [4–9].

Environmental tax in general is one of the state's instruments in environmental protection. The purpose of the tax is to encourage business entities to reduce emissions / discharges of pollutants into the air / water objects, to establish direct dependence of the amount of tax deductions on the degree of negative impact on the environment, mobilization of funds to budgets of different levels in order to finance the costs of protection and rational use of natural resources.

According to clause 14.1.57 of 14.1 of Article 14 of the Tax Code of Ukraine [10], environmental tax is a national mandatory payment, which is charged, in particular, from actual volumes of emissions into the air, pollutants, discharged into water objects. In Ukraine some steps towards the carbon taxing were made in a year, and existing rates of the tax for the atmospheric air contamination were specified in new amounts since 01.01.2018 and increased by 11.2% compared with the same rates in force in 2017. Thus, the rates of the tax on emissions into the air of certain pollutants by stationary sources of pollution from 01.01.2018 saved the same magnitude (paragraph 243.1 of Article 243 of the Tax Code of Ukraine) [11]. In 2011, the Tax Code introduced a section on environmental tax [5; p.4]. Thus, it was planned to stimulate manufacturers to introduce energy-saving technologies, and to raise funds for environmental protection measures. But the rates of this tax, which are insignificantly increasing every year, in fact on the level of inflation, are not responding the expectations in comparison with other countries. So, the environmental, especially carbon tax, tax does not fulfill its basic functions.

During the period of 2015-2017 the rates of environmental tax on atmospheric emissions and pollution discharges into water bodies increased in 2016 (by 26.7 percent) and in 2017 (by 12.0 percent). However, with an increase in the amount of pollutant emissions into the air by 8.4 percent in 2016 compared with 2015, the tax revenues increased 2.5 times; in 2017, revenues decreased by 17.3 percent [12; p. 5]. The lack of a proper accounting system for business entities that have received permits for the emission of pollutants into the air, proper interaction and the exchange of information between public authorities connected to the proper control over the environmental tax, effective measures of state control over the issues of air protection and water use allowed taxpayers to avoid paying environmental tax to the budget over reported years. Ukraine now has a tax for carbon dioxide emissions, and the tax rate has been increased since 1.01.2018 from 0.37 UAH / t to 0.41 UAH (item
243.4 of Article 243 of the Tax Code). This amount is obviously economically insufficient and comparison made with the EU countries underlines the fact, that this price is not targeted to make a significant impact on energy efficiency and reduction of greenhouse gas emissions.

Hence, carbon tax regulation has a twenty eight years long history in European countries as Finland (1990), Sweden (1990), Norway (1991) and Denmark (1992) have been frontrunners in launching specific CO2- taxes to curb CO2 emissions (Andersen, 2004). Netherlands (1996) and Slovenia (1997) established the policy trend a few years later, and towards the close of the 1990s two of the largest EU economies, Germany (1998) and UK (2000) introduced carbon-energy taxation policies too, adding more weight to the approach. While UK introduced a specific climate change levy on fossil fuels, Germany increased more broadly its energy taxes as part of a so-called ‘ecological tax reform’.

Worth mentioning, that carbon taxes are in place in 14 countries in Europe, complementing emissions trading schemes for power plants and large industrial installations. Nordic countries pioneered carbon taxes 25 years ago, while France and Portugal most recently did so. Carbon taxes have been leveraged by linking their introduction to other issues and often through a ‘roundtable’ method of policy-making enabling agreement on exemptions and compensations. Distributional questions are a key to the introduction of carbon taxes, although they are less regressive than many other taxes [13]. The ultimate goal of the carbon taxes is creating the economically grounded pathway for transforming energy and transport systems. In the world carbon tax is used to avoid damaging economic growth and at the same time, creating new financial supportive mechanisms for the mitigation of the emissions, new energy saving technologies, transition of workers towards the renewable energy industry instead of coal mines development and investing. Concerns over climate change coincided with policies in these countries aiming at reducing income taxes and by addressing these two issues in combination a series of tax shifting packages were created, which have been in the main revenue-neutral [13].

The Ukrainian economy remains one of the worst energy efficient in the world because of depreciation of funds, old equipment and inefficient housing and communal services. Over the past 20 years, the world’s major economies have dramatically reduced their energy consumption but in Ukraine, as of 2017, the energy intensity of the Ukrainian economy remains on the same level. Thus, according to the annual report Global Energy Statistical Yearbook 2017, the Ukrainian economy remains the second most energy-consuming in the world with an index of 0.318 kg NES/$ 2005 [14]. The carbon intensity of the country’s GDP (Gross Domestic Product) in 2014 was almost 2.8 times higher than in OECD - countries and 2,4 higher than in Visegrad Group-countries. And it was 3,8 times higher compared with the EU-28 countries [15].

At the same time, Ukraine is Annex I Party to United Nation Framework Convention on Climate Change (1996), Annex B Party to the Kyoto Protocol (2004) (Second Commitment Period of the Kyoto Protocol is under ratification process), Party to Paris Agreement (19, 2016) and is responsible for a Nationally Determined Contribution (NDC) that presents national policy targets on climate mitigation, reduction of GHG emissions and adaptation to impacts of climate change. Ukraine defines NDC in 2030 will not exceed 60% of 1990 greenhouse gas emissions level. According to the numerous researches of the National Academy of Science of Ukraine, in 2016 68% of emissions were caused by the energy sector, therefore the energy saving, energy efficiency, wide use of the renewable energy is an effective tool to decrease the CO2 emissions and achieve NDC till 2030. Ukraine has been expensively developing the new energy legislation, started from 2015. The main Laws in this area are:

- The Law of Ukraine “On Electricity Market”;
- The Law of Ukraine “On Electricity”;
- The Law of Ukraine “On Alternative Energy Sources”;
- The Law of Ukraine “On alternative fuels”;
- The Law of Ukraine “On principles of functioning electricity market of Ukraine”;
- The Law of Ukraine “On energy saving”;
- The Law of Ukraine “On Architectural Activity”;
Ukraine also establishes the range of national strategies, specifically regulating the basis of the energy policy, use and management for a next decades. After the adoption of the Energy Strategy of Ukraine till 2035 in 2017, was declared to develop the interconnected regulatory documents. Part of secondary legislation of the National Commission Carrying Out State Regulation in the Fields of Energy and Utilities is been provided in accordance to the following range:

- Code of Transmission System;
- Code of Distribution Systems;
- Code of Commercial Recording of Electricity;
- Rules for the Retail Electricity Market;
- Market Rules;

Also, amendments to the model Power Purchase Agreement (so-called “PPA”) were adopted, which was a necessary document for attracting potential investments into the industry. At the same time, there is a general revival of the energy sector and its development taking place.

New Energy Strategy of Ukraine till 2035, adopted by the Order of the Cabinet of Ministers “On approval of the Energy Strategy of Ukraine till 2035 “Safety, efficiency, competitiveness” on August 18, 2017, No.605-p [16], highlights the significant reformation of the energy companies in accordance to Ukrainian commitments in Energy Community Treaty (EnCT): increasing of the gas production, reducing the energy consumption and gross domestic product (GDP), further development of renewable energy sources. The process of energy system reformation is divided into three time bound periods – energy sector reforms on the basis of EU legislation implementation; optimization and innovative development of the energy infrastructure EU-Ukraine energy markets integration; ensuring sustainable energy development adjusting the energy policy in line with the European and global tendencies.

Step 1. Energy sector reforms on the basis of EU legislation implementation (2020):
- Completion of the implementation of the 3rd EU Energy Package; modern energy markets formation;
  - Institutional reforming of the state energy companies and integration to ENTSO-G1;
  - Increasing the domestic natural gas production;
  - Progressive decreasing of GDP energy intensity;
  - Increasing of the RES share and investments in regard to Emissions Reduction National Action Plan.

Step 2. Optimization and innovative development of the energy infrastructure EU-Ukraine energy markets integration (2025):
- Integration to ENTSO-E2;
- Modernisation of the energy grids infrastructure, smart-grids implementation;
- Development of heating infrastructure depending on local resources and regional specifics;
- Country’s achievement to self-provision with natural gas from domestic production;
- Follow-up increasing of the RES share and investments in regard to Emissions Reduction National Action Plan.

Step 3. Ensuring sustainable energy development adjusting the energy policy in line with the European and global tendencies:

1 The role of ENTSOG (the European Network of Transmission System Operators for Gas) is to facilitate and enhance cooperation between national gas transmission system operators (TSOs) across Europe in order to ensure the development of a pan-European transmission system in line with European Union energy goals. Available at: https://www.entsog.eu

2 The European Network of Transmission System Operators for Electricity, which united in July 2009 the electrical networks of the ATSOI, BALTSO, ETSO, NORDEL, UCTE and UKTSOA networks. Available at: https://www.entsoe.eu
- Innovative development and CHP plants and NPP construction instead of disposal or obsolete units;
- Extensive implementation of smart-grids and client-oriented networks;
- Adaptation of the gas transportation system to the actual demands of the all-European gas market;
- Increasing domestic natural gas production;
- Follow-up increasing of the RES share up to 25% of GES and investments to further emissions reduction.

Energy taxes and carbon prices on every step of the Strategy implementation could raise significant additional revenue as a fraction of GDP, about ~1%, impose economic costs which are no higher than and may be lower than other forms of taxation (such as income and value added tax) and offer additional environmental benefits, create adverse effects on poor households and energy-intensive trade-exposed firms which are politically acutely difficult but can be largely mitigated as been proven in the appropriate research [17]. This research illustrated that:

- highest rate in Portugal (87 €/tCO2 at PPP exchange rates³);
- lowest rate in Poland and France (both 58 €/tCO2 at PPP exchange rates);
- at market exchange rates, Italy highest (78 €/tCO2), Poland lowest (35 €/tCO2), and France in midfield (66 €/tCO2);
- within France, some energy use is not taxed at all (e.g. residential use of natural gas), while some other use is taxed at 30 €/tCO2 (residential use of electricity), €37/tCO2 (LPG used for transport) or 258 €/tCO2 (petrol);
- this variation is shown in energy tax curves.

The Law of Ukraine On the Energy Saving [18] in clause L of the article 3 defines the stimulating the implementation of energy efficiency and energy saving measures, including the programs of the Energy Efficiency Fund as one of the key priorities of the state energy efficiency policy. The funds of Energy Efficiency Fund are used for the financial support of the measures for rational use and economy of fuel and energy resources, including research and development of the project and constructor work in the energy saving field, shared participation in the implementation of programs of structural adjustment of the economy, targeted at energy saving, development and implementation of energy saving technologies and equipment, provision of credit privileges and subsidies for the development and implementation of energy saving activities and programs. The costs of Energy Efficiency Fund are also used for the development of unconventional energy sources, alternative types of fuel production, holding of the state energy expertise and audit, organization of training and retraining of personnel, development of energy standards, norms and technical regulation, participation in providing the enterprises with supportive tools for accounting, controlling and management energy use.

The National Energy Efficiency Action Plan of Ukraine until 2020 [19] is mostly focused on the process of implementation of the Directive 2006/32/EC on energy end-use efficiency and energy services; Directive 2010/31/EC on the energy performance of buildings; Directive 2010/30/EC on labeling of energy products. cently, the State Agency on Energy Efficiency and Energy Saving of Ukraine came out with the initiative to develop a special legislation for a carbon tax to charge and fill the special state fund that should support energy efficiency in national industries. On the 6 of June, 2018, on the Cabinet of Ministers meeting The Action Plan on Energy Strategy 2035 was adopted. It foresees ambitious energy transition goals and success indicators in energy efficiency, energy saving and renewable energy transition.

Strategy of Low Carbon development is a key element for transformation of the energy consumption, energy saving and renewable energy development which generalize and empowers the

³ Purchasing power parity (PPP) is an economic theory that compares different countries' currencies through a “basket of goods” approach. According to this concept, two currencies are in equilibrium or at par when a basket of goods (taking into account the exchange rate) is priced the same in both countries Available at: https://www.investopedia.com/updates/purchasing-power-parity-ppp/
provisions of the energy legislation and CO2 regulation legislation. Low-carbon Development - is a long-term socio-economic development of the country, resulting in enhanced welfare while reducing long-term greenhouse gas emissions (GHG emissions are balanced by their absorption and/or capture) [15; p. 1]. Ukrainian Low Carbon Strategy on the national level is an instrument of legal regulation, public administration and climatically responsible behavior of business and citizens and maintains the global goal of stabilizing greenhouse gases concentrations in accordance with the scenario of maintaining the global average temperature below 2°C on preindustrial level.

As a result of the analysis of these legislative acts we can remind that new energy policy of Ukraine establishes quite ambitious goals: reducing the energy intensity of the economy twice by 2030, increasing the Ukrainian production of both traditional and alternative sources of energy.

3. CONCLUSIONS

I. Proved, that current ecological tax does not stimulate emission reductions for two main reasons: low tax rate and lack of accrual methodology. The reform of the taxation of emissions should eliminate both causes. Quality reporting and monitoring of emissions are a prerequisite for the reform of the carbon tax. The transparency and efficiency of the use of the tax for the direct reduction of emissions is determined by monitoring methods and emission calculations. The Ministry of Environment and Natural Resources of Ukraine currently develops a system for reporting and verification of monitoring. The introduction of high-risk to the completion of the IPM implementation is associated with the risks of manipulations when calculating emission volumes for tax purposes.

II. The issue of emission reductions must be solved in a sustainable systematic way. In the EU, the Emissions Trading System (ETS for large pollutants) and carbon tax (CT for other categories of pollutants) are separate and independent environmental policy measures. If the tax does not agree with the ETS, it will complicate the introduction of the latter. Both instruments must be implemented in parallel and, necessarily, coordinated among themselves. Clear outline is to be provided by each executive authority regarding the implementation of these instruments, and the final price of emission allowances per tonne should commensurate with the size of the carbon tax.

III. The implementation of a carbon tax and Emissions Trading System should be the result of economic analysis, and not exclusively based on the political decisions. Solid research and simulation of the joint effect of STS and carbon tax on the economy is to be an environmental policy concern and, most importantly, has to impact on the reduction of greenhouse gas emissions, as this is the main objective of the introduction of both instruments. The carbon tax rate should effectively encourage industrial enterprises to reduce emissions. The carbon tax is an effective emission reduction tool, but only in the case of an appropriate tax rate. The rate depends on many factors, but it must necessarily be economically based and rationally justified. The carbon tax rate in EU countries ranges from 6 to 130 euros per tonne, and an average of 15-20 euros. According to the experience of European countries in which the carbon tax was introduced in the early 1990s, the carbon tax is an effective tool for reducing emissions at a rate of 50-100 dollars [1; p.279].

IV. The important step for the improvement of the carbon taxation is the divesting from the budget subsidies as a tools of constant fossil fuel industry support. Currently the subsidies, envisioned for national coal industry for financial year 2018 from the state budget of Ukraine are 2 billion hryvnas (UAH). This is a about a half of the planned income from the carbon tax (4,7 billion hryvnas) which is expected by The State Agency of the Energy Efficiency to be charged in 2018 as a carbon tax.

V. The emergence of another State Fund for carbon tax is associated with corruption risks. In Ukraine, there are currently State Fund for the Protection of the Environment (within the State Budget) and special environmental funds at the local level and an Energy Efficiency Fund, described on above.

The distribution of funds collected from an additional tax through a separate fund requires transparency and effective procedures, but at the meantime Ukraine has a predominantly negative experience of public funds. Thus, the results of the research of International Charity NGO Environment.People. Law demonstrates that the system of distribution of funds is opaque and contains
corruption risks, measures financed from environmental funds are not always targeted to environmental problems solving, and sometimes even environmentally harmful. Hence, the idea of creation of a separate fund to use revenues from the new carbon tax is inappropriate [21]. Instead, it is necessary to ensure and deliver the reform of the modern system of environmental funds in order to ensure the efficient use of revenues from all environmental taxes. The introduction of a high, economically grounded carbon tax level, capable of performing both fiscal and security functions, will stimulate the development of biofuels, alternative energy and other climate solutions further implementation.

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Address: Svitlana Romanko, Vasyl Stefanyk Precarpathian National University, 57, Shevchenko Str., Ivano-Frankivsk, 76018, Ukraine.

E-mail: svitlana.romanko@gmail.com

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Екологічний податок в цілому є одним із державних інструментів захисту навколишнього середовища та фінансування природоохоронних заходів. Метою податку є заохочення суб’єктів господарювання зменшувати викиди / скиди забруднюючих речовин у повітря / водні об’єкти, встановити пряму залежність суми податкових відрахувань від ступеня негативного впливу на навколишнє середовище, залучення коштів до бюджетів різних рівнів для фінансування витрат на охорону та раціональне використання природних ресурсів. У цій статті розглядаються та порівнюються з Україною та країнами ЄС досвід, нормативи та фонові стратегії оподаткування вуглецю. Вуглецевий податок розглядається у статті як екологічний податок, що суттєво впливає на економічні та юридичні стимули для суб’єктів господарювання та державних органів для здійснення політики енергоефективності, енергозбереження та переходу енергії на відновлювальні джерела енергії для пом’янщення викидів парникових газів та досягнення національно визначених внесків відповідно до Паризької угоди та Кіотського протоколу. Головне питання полягає в тому, що рівень вуглецевого податку, який сьогодні використовується в Україні, недостатній для забезпечення енергетичного переходу економіки країни до моделі менш екстенсивного споживання енергії та викопного палива за прикладами Німеччини, Нідерландів, Фінляндії та інших країн Європи. Встановлено взаємозв’язок між вуглецевим податком, енергетикою та кліматичною політикою, а також механізмами економічних, політичних та екологічних особливостей та переваг удосконалення регулювання згаданого податкового режиму в національному законодавстві.

Ключові слова: вуглецевий податок, енергозбереження, відновлювани джерела енергії, національно визначені внески, торгівля викидами (ETS).