UNIVERSITY OF ECONOMICS IN BRATISLAVA
FACULTY OF NATIONAL ECONOMY

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TAX BENEFITS RESULTED FROM THE CONSTRUCTION OF THE GREEN BUILDINGS IN THE FOREIGN COUNTRIES AND IN THE SLOVAK REPUBLIC – IMPACT ANALYSIS FROM THE TAX SYSTEMS POINT OF VIEW

Master Thesis

2019 **Bc. Miroslava Kašubová**

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Study program:	Taxation and Tax Consulting
Study field:	Finance, Banking nad Investment
Department:	Department of finance
Thesis advisor:	Ing. Anton Čiernik, PhD.

Bratislava 2019 **Bc. Miroslava Kašubová**

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ABSTRACT

KAŠUBOVÁ, Miroslava: *Tax benefits resulted from the construction of the green buildings in the foreign countries and in the Slovak republic – impact analysis from the tax systems point of view* – University of Economics in Bratislava. Faculty of National Economy. Department of Finance. – Thesis supervisor: Ing. Anton Čiernik, PhD. – Bratislava FNE UE, 2019, 64 p.

The aim of the master thesis is to point out the tax incentives that can be applied in building construction. Define the concept of emissions trading, energy certificate and carbon tax, highlight the need to involve the green economy in the tax system and compare the cap and trade system with the carbon tax, as well as bring the consequences of each of these forms of combating air pollution closer together.

Work contains 5 chapters, 6 charts and 3 tables.

The first chapter deals with the definition of green buildings and the description of the most important summits and documents that created the basis for the creation of regulations and measures of individual national economies in the field of environmental protection. The following chapter deals with the building plan by 2050, the factors that affect the construction of buildings and the state energy certificate over the next few years, putting pressure on the minimum energy requirements for construction. The third chapter is devoted to commercial certifications, which form the superstructure of the state certificate and bring new areas of evaluation and requirements for construction. The fourth part is devoted to the methods used in the work. The last chapter is devoted to emissions trading and carbon tax, which can greatly affect the amount of CO2 produced by building construction.

Key words: carbon tax, energy certification, green buildings

ABSTRAKT

KAŠUBOVÁ, Miroslava: *Daňové výhody pri výstavbe zelených budov v zahraničí s porovnaním daňového systému na Slovensku – analýza z pohľadu daňového systému* – Ekonomická univerzita v Bratislave. Národohospodárska fakulta; Katedra financií. – Vedúci záverečnej práce: Ing. Anton Čiernik, PhD. – Bratislava: NHF EU, 2019, 64 s.

Cieľom záverečnej práce je poukázať na daňové stimuly, ktoré je možné aplikovať pri výstavbe budov. Vymedziť pojem obchodovanie s emisiami, energetický certifikát a uhlíková daň, vyzdvihnúť potrebu zapájania zelenej ekonomiky do daňového systému a porovnať systém "cap and trade" s uhlíkovou daňou a rovnako priblížiť dôsledky jednotlivých spôsobov uplatňovania jednej z týchto foriem boja proti znečisťovaniu ovzdušia.

Práca obsahuje 5 kapitol, 6 grafov a 3 tabuľky.

Prvá kapitola sa venuje definícii zelených budov a opísaniu najdôležitejších summitov a dokumentov, ktoré vytvorili základ pre nariadenia a opatrenia jednotlivých národných ekonomík v téme ochrany životného prostredia. Nasledujúca kapitola sa venuje plánu budov do roku 2050, faktorom, ktoré ovplyvňujú a v najbližších rokoch budú ovplyvňovať výstavbu budov a štátnemu energetickému certifikátu, ktorý vytvára tlak na plnenie minimálnych energetických požiadaviek pri výstavbe. Tretia kapitola je venovaná komerčným certifikáciam, ktoré tvoria nadstavbu štátom stanoveného certfikátu a prinášajú nové oblasti hodnotenia a požiadaviek pri výstavbe. Štvrtá časť je venovaná metodám, ktoré sú v práci použité. Posledná kapitola je venovaná obchodu s emisiami a uhíkovej dani, ktorá dokáže vo veľkej miere ovplyvniť množstvo CO2 vyprodukovaného pri výstavbe budov.

Kľúčové slová: uhlíková daň, energetické certifikáty, výstavba budov

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LIST OF ABREVIATIONS

COP	Conference of the parties
SD	Sustainable development
CT	Consumption tax
OECD	Organization for Economic Cooperation and Development
EETs	Global environmental and energy taxes
ESFR	Early suppression fast response
CAT	Cap and trade system
BAT	Best available techniques
UN	United Nations
UNCED	UN Conference on Environment and Development
UNCSD	UN Conference on Sustainable Development
WSSD	World Summit on Sustainable Development
COP 21	Conference of the Parties
UNFCCC	UN Framework Convention on Climate Change
CFO	Chief financial officer
EET	Exempt- Exempt- Tax
ETS	Emission trading system
GHG|	Greenhouse gas
EUETS	European Union Emission Trading Scheme
GDP	Gross domestic product
AEA	Annual emission allocation
NECP	National energy and climate plan

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INTRODUCTION

The early 1970‘s were unbearable due to frequent natural disasters, the over-use of natural resources and the rapidly growing gap between people below the poverty line and the enormously rich society. Fortunately, not all of us were indifferent to our future, as confirmed at the first UN conference in 1972 in Stockholm, which began to discuss this issue and at the same time created a country-by-country sustainable development plan. This conference was just the beginning of all the summits, the essence of which was to raise awareness that we were destroying our planet ourselves. Unfortunately, people are not able to realize the consequences of their actions, which are driven by the prospect of profit. State institutions and individual organizations have to create the rules which come to the fore. People spend up to 90 % of their time inside a building. This is primarily due to the transformation of the economy towards services. Similarly, the need for buildings in which we will spend this time is increasing. By 2050, only Slovakia is expected to build 500-600,000 new buildings. Unhealthy indoor environments not only increase the sensitivity of the population to various diseases but also increase the amount of CO2 released into the air. Most of the buildings in Slovakia are built according to the standards of the twentieth century. Changes in climatic conditions and construction requirements have changed considerably in recent years, which is why these buildings no longer meet the requirements for minimum energy or user demands.

The solution is the construction of green buildings, which makes developers more responsible for the environment. But not everyone behaves responsibly. At that time, state should come up with specfic measures, such as the carbon tax, which we will discuss in the practical part of the thesis.

1. DEFINITION OF GREEN BUILDING

The construction of the green buildings in Slovakia and the world is based on the knowledge of the need for sustainable development, which is defined in several areas. For a better understanding of my master thesis, let's find out what exactly term "sustainable development" is all about.

„A 'green' building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of life.

There are a number of features which can make a building 'green'.

These include:

- Efficient use of energy, water and other resources
- Use of renewable energy, such as solar energy
- Pollution and waste reduction measures, and the enabling of re-use and recycling
- Good indoor environmental air quality
- Use of materials that are non-toxic, ethical and sustainable
- Consideration of the environment in design, construction and operation
- Consideration of the quality of life of occupants in design, construction and operation
- A design that enables adaptation to a changing environment"[1]

Any building can be a green building, whether it's a home, an office, a school, a hospital, a community centre, or any other type of structure, provided it includes features listed above. However, it is worth noting that not all green buildings are – and need to be - the same. Different countries and regions have a variety of characteristics such as distinctive climatic conditions, unique cultures and traditions, diverse building types and ages, or wide-ranging environmental, economic and social priorities – all of which shape their approach to green building.

[1] *building* WGBC. 2017, *About green*. [onine]. [2018-12-12]. Available at: <https://www.worldgbc.org/what-green-building>

1.1 Definition of Sustainable Development

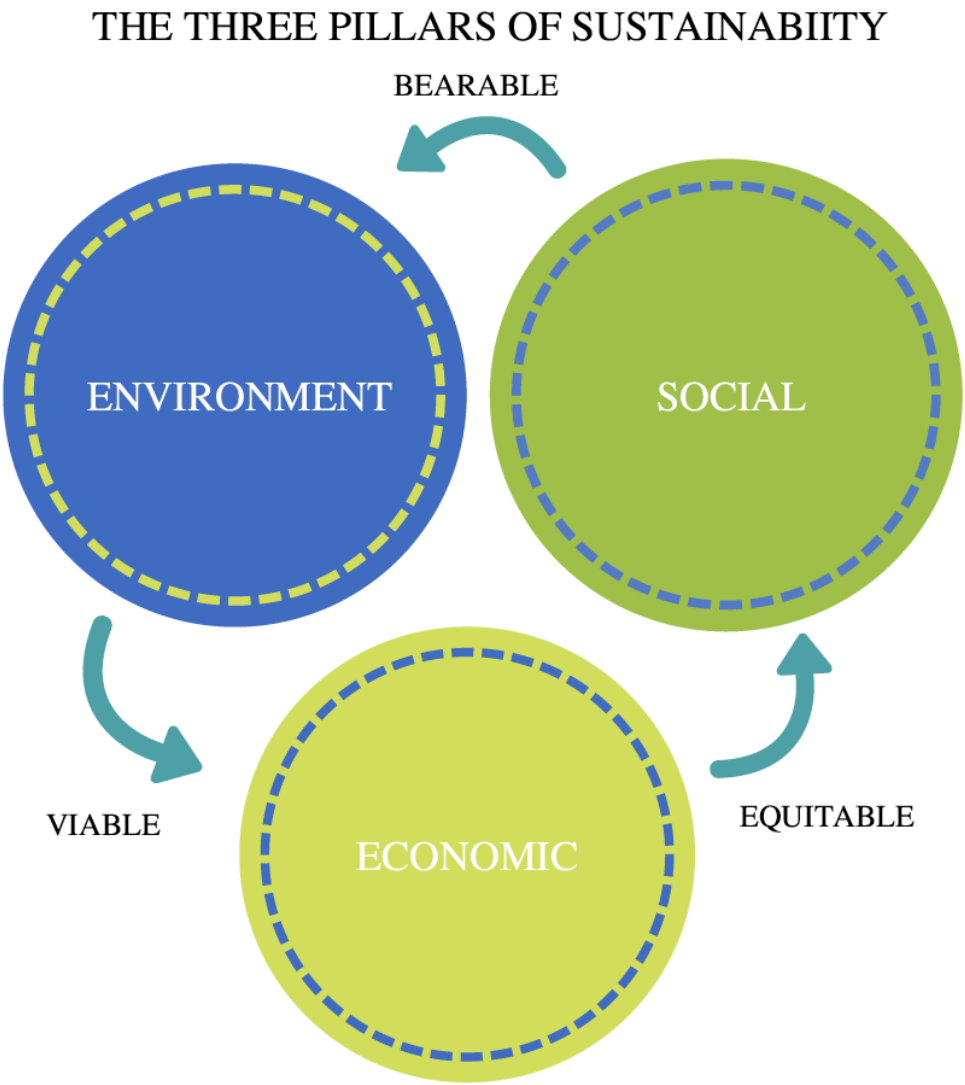
Sustainable development is the basis of every environmental agreement which was signed from the 20st century. For the purpose of my diploma work, it's necessary to clearly understand what the "sustainable development" means and how it is going to be applied in taxation or any other area.

Sustainable development in the Slovak Republic is legally defined by Section 6 of Act athat preserves the present and future generations of the opportunity to satisfy their basic living needs while not reducing the diversity of nature and preserving the natural [2]functions of ecosystems."

Sustainable development means a "*targeted, long-term, comprehensive and synergistic process that influences the conditions and all aspects of life at all levels and is geared towards such a functional model of a particular community that satisfies the biological, material, spiritual and social needs and interests of the people, severely restricts interventions that endanger, damaging or destroying conditions and forms of life, does not include the country above an acceptable level, rationally exploits its resources, and protects cultural and natural heritage*. "

[2] EPIS.SK. 2017, Zákon o životnom prostredí. [online]. Available at: <http://www.epi.sk/zz/1992-17>

Chart 1: *The three pillars of sustainability*



Source: *building* WGBC. 2017, *About green*. [onine]. [2018-12-12]. Available at: <https://www.worldgbc.org/what-green-building>

The Sustainable Development Syllabus consists of 3 main pillars – economic, social and environmental. During the construction of the green buildings, all the pillars and their conditions must be applied to preserve the goal of sustainable construction.

1.2 Historical documents and summits

Frequent natural disasters and their impact on the ecosystem are causing an urgent need for international organizations to create measures that can prevent harmful effects on the environment. The beginning of the seventies of the 20th century was untenable due to pollution and excessive use of natural resources. The UN was therefore forced to make fundamental changes. People have become aware that the environment is too important to leave it unnoticed. In 1992, the first conference of its kind, the United Nations Conference on Environment and Development, commonly referred to as the Rio Conference or Earth Summit, succeeded in raising public awareness of the need to integrate environment and development.

1.2.1 Rio + 20

One of the most important conferences analyzing sustainable development at reconciling the economic and environmental goals of the global community was certainly the United Nations Conference on Sustainable Development (UNCSD), also known as **Rio+20.** Rio+20 was a 20-year follow-up to the 1992 United Nations Conference on Environment and Development (UNCED) held in the same city, and the 10th anniversary of the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg. The Rio + 20 conference was created to bring together the summits that were its predecessors and at the same time wake up humanity to work in the environmental, economical and social world. The Rio + 20 offers the opportunity to take action, when taking the right approach, that will ultimately reduce poverty in the world and prevent environmental damage.

"*Rio + 20 will be one of the most important global meetings on sustainable development today. We need a clear vision in Rio: a sustainable, environmentally friendly economy and supporting millennium development goals through income growth, decent work and land degradation.* "

UN Secretary-General Pan Ki-mun.

The Rio + 20 conference was based on the following world summits:

1. UN Environment Conference in Stockholm (1972)
2. Conferences on Environment and Development (Earth Summit) in Rio de Janeiro (1992)
3. World Summit on Sustainable Development in Johannesburg (2002) launched at the UN Millennium Summit in 2000 and the Millennium Development Goals[3]

The official discussion spoken during the conference was divided into two themes:

1. How to build a green economy to achieve sustainable development and lift people out of poverty, including support for developing countries that will allow them to find a green path for development.
2. How to improve international coordination for sustainable development by building an institutional framework.[4]

The primary result of the conference was the nonbinding document, "The Future We Want." In it, the heads of state of the 192 governments in attendance renewed their political commitment to sustainable development and declared their commitment to the promotion of a sustainable future. The document largely reaffirms previous action plans like Agenda 21. "[5]

„*We, the heads of State and Government and high level representatives, having met at Rio De Janeiro, Brazil, from 20-22 June 2012, with full participation of civil society, renew our commitment to sustainable development, and to ensure the promotion of economically, socially and enviromentally sustainable future for our planet and future generations. We also reaffirm the need to achieve the sustainable development by: promoting sustained, inclusive and equitable economic growth, creating greater opportunities for all, reducing inequalities, raising basic standards of living: fostering managemenent of natural resources and ecosystems that supports „inter alia" economic,*

[3] ODDELENIE OSN PRE INFORMOVANIE VEREJNOSTI. 2012. *Rio+20: Konferencia OSN o trvalo udržateľnom rozvoji.* [online]. 2012. [2019-12-03]. Available at: <http://www.unis.unvienna.org/pdf/2012/Rio20_brochure_sk.pd >
[4]WIKIPEDIA. 2019, *United Nation Conference on Sustainable Development*. [online]. [2018-012-12]. Available at: <https://en.wikipedia.org/wiki/United_Nations_Conference_on_Sustainable_Development>
[5] SUSTAINABLE DEVELOPMENT. 2009, *The Future we want*. [online]. [2019-12-03]. Available at: < https://sustainabledevelopment.un.org/futurewewant.html>

social and human development while facilitating ecosystem conservations, regeneration and restoration and resilience in the face of new and emerging challenges." [6] *THE FUTURE WE WANT – number 4*

1.2.2 The Kyoto protocol

The Kyoto Protocol (to the UN Framework Convention on Climate Change) is a complement to the UN Framework Convention on Climate Change It is an international agreement on global warming. States that have signed this Protocol are committed to reducing their carbon dioxide and other 5 greenhouse gas emissions or are committed to emissions trading to maintain or increase their gas emissions. A total of 141 countries have so far signed this protocol. Significant exceptions are the United States and Australia. The key Kyoto mechanisms and instruments that are geared to meeting the reduction targets in terms of country specific conditions include: joint fulfillment of commitments (Article 6), a Clean Development Mechanism (Article 12) and emissions trading (Article 17). The Protocol was debated in Kyoto, Japan, in December 1997. It was opened for signature on 16 March 1998 and concluded on 15 March 1999. On 18 November 2004, Russia joined it. The agreement entered into force on 16 February 2005.

The targets for the first commitment period of the Kyoto Protocol cover emissions of the six main greenhouse gases, namely:

1. Carbon dioxide (CO2);
2. Methane (CH4);
3. Nitrous oxide (N2O);
4. Hydrofluorocarbons (HFCs);
5. Perfluorocarbons (PFCs); and
6. Sulphur hexafluoride (SF6)

Goal was to reduce global emissions of carbon dioxide and other greenhouse gases by 5.2 percent between 2008 and 2012 compared to 1990. According to some experts, this

[6] SUSTAINABLE DEVELOPMENT. 2009, *The Future we want*. [online]. [2019-12-03]. Available at: < https://sustainabledevelopment.un.org/futurewewant.html>

reduction in climate stabilization is inadequate and will occur in decades. The Kyoto protocol had been valid since 2008 because of two reasons. The first required the protocol to be ratified by 55 countries. The key was the second - the share of these countries in current emissions had to be at least 55 percent. It fell in November 2004 with Russia's ratification, which came after the West guaranteed compensation. Now, the share of 65 ratifying states is 61.6 percent.

Annex I (emissions trading part as a part of Kyoto protocol) for each country, has agreed emission limits to the values described in the protocol, but many countries have set limits beyond their current production. These "extra values" can be purchased by other countries in free trade. For example, Russia, which easily achieves its goals, can sell its credits in great value to countries that have not yet reached their limits, such as Canada. Thus, some countries can reach their limits and provide financial incentives for others to do so as soon as possible. Countries also get their credits through various common programs of "clean energy" and "carbon dioxide sinks" in the form of forests and other systems that reduce the CO2 content in the atmosphere. The Washington-based Non-Governmental Organization, in the report "Emerging Trade in CO2 Glide in Forests," estimates $ 30-40 / tonne of CO2 for the US and $ 70-80 / ton for Europe. The Netherlands has acquired 4 megatons of CO2 emissions from Poland, Romania and the Czech Republic. However, such agreements also included conditions for project financing. Since some of these conditions were not met, the amount of credits gained has since decreased. We're going to examine more about emission trading in the practical part of this diploma work. The Kyoto protocol was the basis for other conferences and agreements about reducing the greenhouse gases. It's necessary to know the principles which have been applied in this protocol.

In December 2012, the Kyoto Protocol was approved in the Doch of Qatar. This addendum decided to continue the protocol and set the second mandatory eight-year period (2013-2020). The EU and Member States' reduction commitments for the second period of the CAP are the same as the targets for the reduction of emissions by 2020 according to the climate / energy package, a 20% reduction in greenhouse gas emissions compared to the level in 1990. The monitored six greenhouse gases from the first period will come new gas - NF3 nitrous fluoride, which has a very high global warming potential.

1.2.3 Paris Agreement

"The Paris Agreement was adopted on 12 December 2015 by the 21st Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC). It provides a framework for global actions to address climate change in the period after 2020. The Paris Agreement builds upon the Convention and for the first time brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework."[7]

The agreement recognises the role of non-Party stakeholders in addressing climate change, including cities, other subnational authorities, civil society, the private sector and others. They are invited to:

1. scale up their efforts and support actions to reduce emissions;
2. build resilience and decrease vulnerability to the adverse effects of climate change;
3. uphold and promote regional and international cooperation.[8]

[7] UNITED NATION CLIMATE CHANGE, 2018. *The Paris Agreement*. [online]. [2019-14-02]. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

[8] RADA EURÓPSKEJ ÚNIE, 2018. *Parížska dohoda o zmene klímy*. [online]. [2019-15-02]. Available at: <https://www.consilium.europa.eu/sk/policies/climate-change/timeline/

In Bonn on 6-17 November, the COP 23 or United Nations Framework Convention on Climate Change Conference (UNFCCC) convened. It has made concrete progress on the Paris Work Program and the guidelines for its implementation. The EU and its Member States have announced their intention to deposit the ratification instruments of the Doha Supplement to the Kyoto Protocol by the end of 2017 at the latest. This decision is a major expression of the EU's commitment to global climate action.

2. Plán budovy 2050 document

Building construction and renewal of existing buildings, in line with modern economic, social and environmental requirements, are among the greatest challenges for construction. Plán budovy 2050 defined some of external factors involving buildings.

2.1 External factors involving buildings

1. **OLD PEOPLE**

   In 2030, we will have 390,000 senior citizens (over the age of 65) more than today, and in 2050 we will make up to 30% of the population. Elderly people naturally need more heat during the winter months, which in turn arouses the demands of heating, and in the summer, they are heavier to wear high temperatures. In addition, the seniority pension is lower, which results in a lower budget for the repair of apartment buildings.

2. **URBANIZATION**

   We expect the number of people living in the city to rise by up to 20% in the next decade. Migrating from villages to larger cities is causing higher demands for construction in large cities.

3. **CHANGING THE WAY OF LIFE**

   We expect that in 2050 Slovakia will grow up to 500,000 - 600,000 dwellings a year more than it is today. The cause is a change in the way of life and the transition from full families with children to single-person households.

Combined with larger floor areas, energy and built-up area will also increase.

4. **TIME SPEND INSIDE**

Today's residents spend up to 90% of their time in the buildings. The main cause of this high figure is the transformation of the economy towards services. The quality of the indoor environment, which includes thermal comfort, air quality, daytime and artificial light, as well as good acoustics affects the health and activity of building users. On the other hand, unhealthy indoor environments in buildings increase the susceptibility of users to health problems. About a fifth of Slovak households suffer from leaking roofs or molds.

5. **CLIMATE CHANGES**

Slovak buildings are built predominantly according to the standards in force in the second half of the 20th century. Changing climatic conditions such as long horizons of hot days, extreme weather fluctuations, or long-term dry conditions adversely affect buildings that are not prepared for such conditions. The prediction of climate change for the coming years is equally unpriviled, and it is therefore necessary to start construction that not only takes into account the current climatic conditions but also looks for the future.

6. **ENERGY SECURITY AND ENERGY PRICES**

Slovakia is highly dependent on energy imports from the Russian Federation for natural gas - the main energy source for heating and domestic hot water (up to 98%). Reducing electricity consumption is also necessary in terms of lowering prices. Since the possibilities of the Slovak Republic to reduce unit prices are very limited, it is likely that prices will grow as well as they have done so far.

2.2 Vision of buildings in 2050

a. good thermal protection and clean indoor environment
b. thermal comfort in winter and in summer
c. plenty of daylight and the quality of artificial light
d. Non-toxic, durable and recyclable materials with a good energy balance

e. fresh air without the need for natural ventilation
f. acoustic comfort - Attenuation of the sound from the outside, from the secondary areas and technical devices
g. preparing for climate change - green roofs, shielding, autonomy
h. quality architecture, as a tool for raising and reviving the public space
i. flexibility - simple changes to the function of the building - conversion of a housing office

2.3 The role of the state in the construction and reconstruction of buildings

In accordance with the Regulation of the European Parliament and Council No. 305/2011 and the so-called of the Building Act, buildings must be carried out in accordance with the verified design and building permit and must meet the basic requirements for the works, namely:

- mechanical resistance and stability of the structure
- fire safety
- hygiene, health and the environment
- safety and accessibility in use
- noise protection
- energy efficiency and heat conservation
- sustainable use of natural resources[9]

2.3.1 State tasks and public policies

Public policy has three roles in pursuing the public interest in the construction and renovation of buildings:

- define detailed and clear building requirements - these are the technical parameters of the building, which are a condition of issuing a building

[9] EUR-LEX.SK, 2018*, Nariadenie Európskeho parlamentu rady č. 305 /2011.* [online]. [2019-20-02]. Available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:088:0005:0043:SK:PDF>

permit and an approval decision.

- create and implement systems that ensure fulfillment of building requirements. Specialized professions, such as architects or construction engineers, perform design and implementation activities for which developers do not have professional qualifications. Therefore, it is necessary to carry out a rigorous control at individual levels to ensure that individual requirements are met according to the plan and standards.

- introduce tools to overcome market mechanism failures from support, control, sanctioning to regulatory.

It is, for example, to encourage the owners of buildings to invest in the renovation of the buildings in time and to realize it at the level of public interest. This also includes rigorous and transparent pricing of monopoly suppliers of heat and other energies.

2.4 State energy efficiency act

Act no. 555/2005 Coll. on the energy performance of buildings lays down procedures and measures to improve the energy performance of buildings and the remit of public authorities.

The law of 21 October 2014 on Energy Efficiency and on Amendments to Certain Acts. This law establishes

(a) measures to promote and improve energy efficiency,

(b) the obligation to draw up conceptual documents in the field of energy efficiency,

(c) the rights and obligations of persons in the field of energy efficiency,

(d) rules for the conduct of an energy audit,

(e) business in the field of energy service provision,

(f) providing information under this Act.[10]

Renovation of buildings:

1. The Ministry of Transport, Construction and Regional Development of the Slovak Republic (hereinafter referred to as "the Ministry of Transport") shall, in cooperation with the Ministry, develop and, every three years, update the long-term strategy for the activation of investments in the renovation of buildings

   (a) an overview of buildings broken down by special regulation,

   (b) a cost-effective way of renovating buildings by category of building and climate area,

   (c) measures to promote the cost-effective in-depth renovation of buildings,

   (d) a long-term plan for the renovation of public buildings and private buildings for the purpose of guiding investment decisions by individual investors, the construction industry and financial institutions,

   (e) an estimate of the expected energy savings and other benefits, in particular the benefits for the economically lagging regions, energy security and the reduction of greenhouse gas emissions, supported by data from the energy efficiency monitoring system.

2. For the purposes of this Act, it is understood

   (a) deep redevelopment of the building; major renovation of the building; major renovation of the building's technical equipment to achieve the minimum energy class required by a specific regulation; 43) taking into account the lifecycle of each building element and taking place once or in stages in accordance with project documentation,

   (b) significant renovation of the technical equipment of the building, renovation of technical heating system, hot water preparation, ventilation, cooling, lighting of buildings and their combinations, 45) whose

[10] EPI.SK, 2019, *Zákon o enegetickej efektívnosti a o zmene doplnení niektorých zákonov*. [online]. [2019-22-02]. Available at <http://www.epi.sk/zz/2014-321>

investment costs exceed 50% of the investment costs for the acquisition of new comparable technical equipment of the building.

3. The strategy and update of the strategy under paragraph 1 shall be approved by the Government.

4. The Ministry shall submit to the Commission an update of the strategy pursuant to paragraph 3 at the deadline for submission of the action plan pursuant to Article 4 (1) c).

Table 1: *Standardized and recommended heat demand values to achieve EHB kWh*

Category of buildings	Low-energy buildings	Ultra low energy buildings	Buildings with almost zero energy needs
Family houses	81,4	40,7	20,4
Apartment houses	50	25	12,5
Administrative buildings	53,5	26,8	13,4
School buildings and school facilities	53,2	26,6	13,3
Buildings of hospitals and medical facilities	66,3	33,2	16,6
Hotel building restaurant buildings	67,4	33,7	16,9
Sports halls and buildings for sports	63	31,5	15,8

Source: STN730540-2:2012 Tepelná ochrana budov Tepelnotechnické vlastnosti stavebných konštrukcií a budov. Časť 2: Funkčné požiadavky

§ 10 -The Ministry of Transport, Construction and Regional Development in cooperation with the relevant state administration bodies and public bodies shall draw up an annual plan for the renovation of the relevant buildings for the following calendar year.
This plan contains primarily:

(a) the building energy savings target corresponding to the annual renewal of three per cent of the sum of the total floor area of the relevant buildings,
(b) the method of calculating the energy savings target of buildings,
(c) the list of buildings to be redeveloped in the following calendar year which it contains:

1. proposal for the renovation of the building by individual measures,
2. the total floor area of the building,

3. sources of financing for the renovation of a building,
4. planned energy saving of the building,
5. the person responsible for the renovation of the building.[11]

Central government authorities are required to provide the operator of the monitoring system electronically with data to monitor the energy performance of public buildings that they manage) and have been substantially restored) in the previous calendar year; the energy performance of a public building is, for the purposes of this Act, the ratio of the measured annual energy consumption in a public building and the total floor area of a public building.

Obligations do not apply to:

- buildings not subject to energy efficiency procedures and measures under a separate regulation
- State defense and state security buildings, except residential buildings and administrative buildings
- industrial buildings and warehouses, tanks and power (farm buildings, warehouses, estates and masts)
- buildings protected by a special regulation

3. Action plan of energy efficiency

The State shall report once a year on the progress of the National Energy Efficiency Plan and shall submit it by 30 April of the year concerned. The Energy Efficiency Report contains the features of: the statistical data for the year before last year in the following areas: primary energy consumption, transport, industry, households or the population of the Slovak Republic. Further up-to-date information on legislative and non-legislative changes made in the previous year, energy savings achieved over the past period or, where necessary, adjustments made in the national target. In determining and adjusting the national target, the Ministry will take into account the European Union's 2020 energy efficiency target of 1483 million tonnes of oil equivalent of primary energy consumption and 1086 million tonnes of oil equivalent of final energy consumption.

[11] EPI.SK, 2019, *Zákon o enegetickej efektívnosti a o zmene doplnení niektorých zákonov*. [online]. [2019-22-02]. Available at <http://www.epi.sk/zz/2014-321>

4. COMMERCIAL CERTIFICATIONS

In addition to state-licensed certificates, commercial certifications are also known. Current US Leed and British Breeam apply in Slovakia. Both certifications are based on gradation systems, which allow the building to gain a certain level of rating. For a better understanding, we will approach the rating systems of both certifications.

Chart 2: *Different incentives to invest in green building certifications*

Source: EY.COM, 2016. *Global sustainability tax primer.* [online]. [2019-14-01]. Available at: https://www.ey.com/Publication/vwLUAssets/EY-global-sustainability-taxes/$FILE/EY-global-sustainability-taxes.pdf >

4.1 LEED Certification

LEED (Leadership in Energy & Enviromental Design) is a certification system that compares buildings and solutions to eco-friendly buildings. The LEED system is developed by U.S. Green Building Council (USGBC), providing both building owners and building operators with a concise framework document for the identification and implementation of practical and measurable Green Building projects, including solutions for building, operation and maintenance. If a LEED-certified construction project is to be eligible, it must meet certain assumptions and obtain the necessary points to achieve different levels of certification. This certification is designed for different categories of projects, namely new buildings (offices, commercial buildings including administrative buildings), existing buildings, commercial interiors, core and cladding (construction, facade, heating, ventilation, air conditioning), schools, retailers, equipment or urbanism.

The following areas are assessed for buildings:

• Sustainability of the site, construction - restoration of the area after completion of the construction, management of rainwater during construction, alternative modes of transport of people in a given project, for example, in administrative buildings, water entering the site instead of going to sewerage, etc.

• Efficiency of water management - selection of low-flow and efficient fittings and batteries, efficient management of drinking and rain water.

• Energy and air quality - Low energy consumption, energy optimization, renewable energy, etc.

• Materials and resources - waste management, selection of regional, recycled, recyclable materials, etc.

• Quality of indoor environment - indoor air quality, user thermal and light comfort, thermoregulation, lighting control, selection of materials with low volatile content, organic substances etc.

• Innovation in the proposal - documenting the sustainability of the cost of running a building, etc.

• Regional priorities - depending on the priorities of the country in which the project will be implemented.

"*Although the energy consumption of a building depends mainly on its users, the LEED certification can also save 16% on running energy systems such as heating, cooling, ventilation, and lighting compared to the reference building. With UNIQ, for example, Staromestská covers half of the roof covering an extensive greenery that does not require special care, prevents the effect of the thermal island on the surroundings and at the same time reduces the cost of cooling. The thermal comfort of the building as well as the use of daylight was checked by modern computer simulations during the design of the project. Also, the quality of the facade has been verified by a thermowood study to control the quality of the realization,* "said Marek Kremeň, Auditor of EXERGY Studios and Building Simulation

Properties of UNIQ Staromestská, which have decided to obtain a LEED certificate:

1. a central location with good public accessibility,
2. charging stations for electromobiles,
3. bicycle stands with walk-in wardrobes and showers,
4. walking green roof without the need for regular maintenance,
5. technologies to save water and electricity.[12]

[12] KANCELÁRIE.SK, 2017. *UNIQ Staromestská získala LEED Gold.* [online]. [2019-14-01]. Available at: <https://www.kancelarie.sk/novinky/uniq-staromestska-ziskala-leed-gold>.

4.2 BREEAM Certification

BREEAM Environmental Assessment Certification is an environmental certification system for buildings that was created in the United Kingdom of Great Britain and Northern Ireland. BREEAM is listed as the mother of all methods with over 21 years of history. In terms of the number of certified buildings, the largest certification system in the world with more than a quarter of certified buildings and more than a million registered buildings.

Its special version is adapted for European countries, mainly by using national and European standards, regulations and SI units. At present, there are even national versions of BREEAM for the Netherlands, Norway, Sweden and Spain, and the method can be expected to grow into a European Sustainable Construction Assessment System.

Main data found in the certificate:

- Data that identifies the property
- Purpose of processing (new building, significant renewal, sale)
- Total floor area (from outside dimensions)
- Energy class A-G for energy consumption locations
- Global indicator - primary energy
- Share of energy from renewable sources
- CO2 emissions
- Designing measures to improve the energy performance of a building
- Date of issue and validity
- Data of contractor and authorized person
- Energy certificate number assigned to INFOREG-EC m

BREEAM OUTSTANDING is the highest possible degree of environmental certification that a building can acquire. In Slovakia, such a certificate is the first and only one this year was acquired by Lidl Logistics Center in Sered. This high score was gained by the sophisticated concept of design that was built on the use of environmentally friendly technologies. It has just been decided that the jury has unanimously agreed that the VISIO 2020 Prize laureate for 2015/16 will become the LIDL Logistics Center in Seredi.

Bratislava DC12 is a warehouse with an area of 16,170 square meters and BREEAM "Good" accreditation. Sustainable design elements include the Early Suppression Fast Response (ESFR), roof windows, smoke ventilation, internal fire hydrants and hoses. The reinforced concrete structure has an internal light height of 10 m with in-and-out loading docks.[13]

Table 2: *Comparing efficiency in each category of certification*

PEARLS		BREEAM		LEED	
Side selectionand Natural system	16%	Site selection ecology	20,50%	Site selection	24,50%
Water	25%	Water	2,50%	Water	5,50 %
Energy	25%	Energy	33%	Energy	33%
Materials	16%	Materials	13,50%	Materials	13,50%
Indoor Environmnet Quality	20%	Indoor Environment quality	13%	Indoor nvironmental quality	14%
Innovation	2%	Innovation	6,50%	Innovation	6,50 %
Integrated Design Process	7%	Facility management	12%	Regional Priority	4%

Source: CARBOUN.COM, 2018. *Comparing Estidama's Pearls Rating System to LEED and BREEAM.* [online]. [2019-14-01]. Available at: <http://www.carboun.com/sustainable-urbanism/comparing-estidama's-pearls-rating-method-to-leed-and-breeam/>

4.3 DGNB (Germany) and ESTIDAMA (United Arab Emirates)

LEED and BREEAM are the two most-known certifications that are used in the Slovakia. We also know German DGNB certification. This certificate has been awarded with the EcoPoint Košice building, which ranks among the very first commercial certificate of the award-winning building in Slovakia. This certificate is granted on the basis of an assessment by ÖGNI Authorized Experts.

[13] PROLOGIS.COM, 2017. *Bratislava DC7B & DC7C.* [online]. [2019-14-01]. Available at: <https://www.prologis.com/industrial-logistics-warehouse-space/slovakia/senec/bratislava-dc7b-dc7c >

Estidama is a building design methodology for building and operating buildings and communities more sustainable. The program is a key aspect of the "Abu Dhabi Vision 2030" drive to build the Abu Dhabi emirate according to innovative green standards. "Estidama" is the Arabic word for sustainability. The program is not a green building rating system like LEED or BREEAM, but rather a collection of ideals that are imposed in an elective building code format. [14]Within Estidama, however is a green building rating system called the Pearl Rating System that is utilized to evaluate sustainable building development practices in Abu Dhabi. The Pearls Rating system is a government initiative developed by the Abu Dhabi Urban Planning Authority and has just been launched in 2010. The Estidama program is mandatory in Abu Dhabi, United Arab Emirates - all buildings must achieve a minimum of 1 Pearl Rating, and all government-funded buildings must achieve a minimum of 2 Pearl Ratings.

Points are added up to a final rating which ranges from One Pearl to Five Pearls. These 5 levels of certification compare to LEED's 4 levels (Certified, Silver, Gold, and Platinum) and BREEAM's 5 levels (Pass, Good, Very Good, Excellent, and outstanding). The highest rating of Five Pearls requires a restorative, or a net positive, contribution to the environment in terms of energy, water, and improving diversity and health of living systems

Estidama has occasionally referred to the upcoming system as one that learns from its established predecessors. The decision to learn from these rating systems was not only to learn from their mistakes but also to help create a system whose requirements are familiar to the market.

Estidama itself is also part of Abu Dhabi's 20-year plan, known as Plan Abu Dhabi 2030, which attempts to redefine how a contemporary Arab city should look, to encourage sustainable growth, to encourage protection of the natural environment of sensitive coastal and desert ecologies, to re-emphasis the city's stature as a capital city of

[14] WIKIPEDIA.ORG, 2018. *Estidama.* [online]. [2019-14-01]. Available at: <https://www.prologis.com/industrial-logistics-warehouse-space/slovakia/senec/bratislava-dc7b-dc7c>

the United Arab Emirates, and to enable the urban fabric and infrastructure to enforce the local values and culture of this Arab community. These broad goals are tied to Estidama through a number of key performance indicators measuring energy use, water use, waste generation, carbon footprint, and biodiversity amongst other indicators.[15]

An interesting example of the city of the future is Masdar city. This planned city project, being constructed beside Abu Dhabi International Airport, was designed to be a hub for clean tech companies (basically those that reduce waste and require as few non-renewable resources as possible). The completion is now estimated to be in 2030. The plan was to home up to 50,000 people and 1,500 businesses. Currently less than 2,000 people are employed there and 300 students of the Masdar Institute (who are given free accommodation) live there. Construction began in 2008 and by October 2010 the first six buildings were completed and occupied. The city is powered by a 54-acre field of 87,777 solar panels, in addition to panels on roofs. Touted as the 'City of the Future', this project was introduced as the world's first zero-carbon, zero-waste and car-free city where photovoltaic panels would generate electricity and concentrated solar power would provide the cooling. And that's not all. A solar-powered desalination plant would be responsible for providing water, while landscaping within and crops grown around the city would be irrigated with grey water and treated waste water produced by the city's water treatment plant. Masdar City has made ambitious commitments under Abu Dhabi's building rating system, Estidama, targeting a minimum rating of 3-Pearls for all buildings under the Estidama Pearl Building Rating System. The city is also targeting a minimum rating of 4 Pearls for its public areas, including parks, plazas and streets, in line with the Estidama Pearl Community Rating System

[15] CARBOUN.COM, 2018. *Comparing Estidama's Pearls Rating System to LEED and BREEAM*. [online]. [2019-14-01]. Available at: <http://www.carboun.com/sustainable-urbanism/comparing-estidama's-pearls-rating-method-to-leed-and-breeam/>

5. WORLD Impact on Global Sustainability Tax Policy

Regardless of its outstanding ratification by the participating nations, the Agreement shows the new joint political consent to reduce emissions and limit the impact of climate change. In order to meet its emission reduction commitments, raise revenues to provide financial resources, or develop technologies to help mitigate and adapt to climate change, individual countries will look to implement or strengthen existing sustainability tax policies, including:

- Carbon regimes: under either an emission trading scheme or a carbon tax, a country or region can set limits or put a price on carbon.
- Energy and environmental taxes: while not as direct as carbon regimes, energy and environmental taxes can encourage businesses to reduce activities which have a negative impact on the environment and that may impact climate change.
- Sustainability incentives: through tax credits, subsidies and other business incentives, governments can encourage companies to engage in behaviors and develop technologies that can reduce GHG emissions. [16]

In light of the recent developments at COP21, this primer on gobal sustainability taxes provides an overview of each of these three policy mechanisms, as well as their current state. A Global Sustainability Tax Guide wAS published by EY company in the first half of 2016 which will detail the carbon regimes, environmental and energy taxes, and sustainability incentives for each of the world's major economies.

In Japan alone, environmental tax revenues reached US$93 billion in 2012, a 40% increase from 2002. Over the same period, revenues from these taxes in Italy increased by 20% to US$60 billion.

In order to offset the impact from these taxes and carbon regimes, countries often offer extensive relief opportunities against environmental taxes, including those

[16] EY.COM, 2016. *Global sustainability tax primer.* [online]. [2019-14-01]. Available at: https://www.ey.com/Publication/vwLUAssets/EY-global-sustainability-taxes/$FILE/EY-global-sustainability-taxes.pdf >

associated with alternative fuel vehicles and renewable electricity production. The United States, for example, continues to offer substantial tax incentives for both energy efficiency and renewable energy. The US Government recently passed an extension of a deduction for energy-efficient commercial buildings, offering up to US$1.80 per square foot of a qualifying building, and an investment tax credit of up to 30% remains in effect for certain renewable energy property. The European Commission also recently announced a new round of funding for the Programme for the Environment and Climate Action (LIFE), offering €3.4 billion for environmental and climate action projects between 2014 and 2020.

5.1 Global sustainability tax primer according to EY

EY, one of the world's best-known tax companies, has produced a primer that provides an overview of three unseen areas of tax policy that can help the CFO, tax directors and utilities and the energy manager go through the sea of change surrounding environmental and sustainability issues.

1. Sustainability-related tax and business incentives: countries and local jurisdictions are increasingly offering incentives to encourage organizations to invest in projects and technologies that will help reduce the carbon intensity of their operations. Identifying and securing tax and other business incentives can often help companies meet or improve the return on investment (ROI) thresholds that are required for these projects.

2. Environmental and energy taxes: governments across the globe are continuing to develop their environmental policies and are concurrently looking for new sources of revenue. This has led to an increase in environmental and energy taxes in recent years, including new legislation and the development of regulations for existing taxes. These taxes cover activities including emissions, manufacturing of certain products, transportation, energy generation, resource use and other negative environmental externalities.

3. Emission trading schemes and carbon taxes: as the global economy continues to rely on fossil fuels, concern over limiting the release of carbon dioxide emissions associated with the combustion of these fuels has intensified. Governments are increasingly turning to carbon regimes such as carbon taxes and cap-and-trade systems as an effective way to limit these emissions. Such carbon regimes are not only growing geographically but are beginning to cover more industries as they progress.

While business strategy is adapting rapidly to the continuing development of environmental taxes, sustainability incentives and carbon regimes, the tax department is often not at the table during these discussions. So why should the tax department be involved and how can the tax department help to drive corporate value?

1. cost reduction: these taxes add cost to a wide range of operational activities, from energy and resource consumption to manufacturing and transportation. The available incentives and specific impact of these taxes depend on the operations of the business and its footprint.
2. revenue generation: In addition to reducing the cost of environmental taxes, the tax department can also help drive revenue through the identification and implementation of tax and other business incentives related to investments and processes around environmental and sustainability strategies.
3. coordination: Tax reliefs and tax incentives are the most obvious and economically beneficial aspect for businesses from investments in self-generation
4. administration and compliance
5. planning and management: the increased focus on sustainability and energy strategy requires businesses to also assess and manage EET consequences.
6. multidisciplinary management approach: the management of all of these energy tax impacts is challenging for an indirect tax function, especially for multinational companies. This is not only due to the very specific tax regulations but also to the required level of interaction with related technical and environmental aspects.
7. overlap with existing tax functions

Associated with many of these EETs are potential reliefs, exemptions and tax management strategies. Opportunities to reduce EETs are
not only significant for energy producers and traders, but should be

a concern for all industries. The OECD identifies more than 1,600 exemptions from EETs across the major global economies. Some of these reliefs are triggered by obvious strategies such as switching to renewable energy, recycling, manufacturing low-carbon products, using alternative fuels and reducing emissions. Other tax reliefs may come through approaches for safeguarding international competition of severely affected industries due to missing border adjustment regimes.

Environmental taxes can be divided into the following areas

- emission taxes - greenhouse gases, dust from stationary sources
- product taxes - batteries, lightning, other “non-green” products
- transportation taxes - vehicle taxes, registration taxes
- energy taxes - taxes based on EU Energy Tax Directive, Nuclear fuels
- resource taxes - aggregates and gravel, mineral extraction taxes, water
- other environmental taxes - packaging and waste, noise pollution, others

THE AIM

Environmental policy is no longer just about environmental activists. The growing number of sustainability conferences and responsible entrepreneurship, not only from a financial perspective, but also from the perspective of access to our planet is an integral part of today's lives. Companies that disregard these factors should be responsible for the consequences of their actions for future generations. Proper application of tools and incentives can greatly influence the impact of these companies on society.

The aim of the thesis is to analyze the tax tools, which in a suitable application would be able to regulate negative impacts in the construction of buildings that do not meet energy requirements. Thanks to globalization and easy access to information, we can compare tax tools used in other countries. Up to 30% of GHG emission escapes in building construction. This number can be well eliminated with the right tools. In the practical part of this work we will focus on tax instruments in the form of cap and trade system and carbon tax.

Among the partial aims of this master thesis are following:

- highlight a number of summits calling for the importance of addressing environmental problems with a focus on energy certification, setting minimum energy performance requirements for building construction,
- define the term carbon tax and provide different perspectives on the application of this tax in Slovakia compared to other countries,
- analyze the possibilities of applying carbon tax and its impact in potential introduction into the tax system in Slovakia,
- bring a comprehensive view of the most effective way to reduce emissions.

THE METHODOLOGY

The master thesis methodology reflects the author's attitude to solving the given probematics and his ability to select suitable methods to achieve a predetermined goal. On the basis of this approach, the whole structure of work is based on which the main goal is gradually achieved. In the first chapter, we collect, through the method of empirical knowledge, the basic information on sustainable development. We focus on a detailed description of the basic documents and summits that give the foundation for environmental policy. This chapter of the work is also devoted to a deeper understanding of the Rio + 20 conference, the Kyoto Protocol and the Paris Agreement as the three underlying documents. We draw on information from book and magazine publications, professional literature, Eurostat statistics, Ministry of Environment statistics, sustainable construction conferences and Internet resources. In describing and comparing each aspect, the building 2020 plan is a very useful document, and the goals are in the process of being implemented over these years. The method of abstraction is the most important of the methods used in writing the theoretical part, thanks to which we focus on the essential aspects of the issue and we can abstract from unnecessary information.

In the fourth chapter, we explore other options for certifying green buildings offered by the commercial sector. In the fifth chapter, we compare two systems of combating the high amount of CO2 emitted into the air through the comparison method. We compare the difference between the cap and trade market mechanism and the carbon tax. We apply the achieved results and findings during the research of the given topic through the method of concretization to different countries, thus obtaining an objective view of the issue from both theoretical and practical point of view. To unify the achieved facts and phenomena, we use the method of synthesis, through which we evaluate various views on the introduction of carbon tax in Slovakia. During writing the final work we use the evaluation method as the most important part in the final interpretation of individual examples, graphs and tables as well as in the formulation of the conclusions of the bachelor thesis.

THE RESULTS

4.1 Environmental instruments applied in specified countries of European Union

In some cases, revenues are allocated to the general budget (e.g. Hungary, Spain), while in others, revenues are used to support environmental projects and activities (e.g. Czech Republic, Poland, Slovakia) or reimbursed to regulated entities (e.g. Sweden which has helped reduce potential negative impacts of the tax on competitiveness and helped increase acceptance of the tax among industry).

The effectiveness of the instruments has varied significantly depending on a number of factors including the level of fees applied, the wider policy mix and the administrative burden. For example, the low level of air pollution fees in Slovakia, Poland and the Czech Republic (until 2012) provided little incentive for companies to decrease their emissions and other policies (e.g. legal emission limits and penalties), a decline in production in heavy industry and changes in production processes/technologies are considered more important factors in the improvement of air quality in these countries since the early 1990s. It is difficult to assess the effectiveness of some instruments due to a lack of data (e.g. Spain), limited capacity to analyse available data (e.g. Hungary) and challenges related to assessing the effectiveness of these instruments in isolation from the impacts of the wider air quality regulatory framework (e.g. air quality legislation and permits).[17]

Environmental aspects have so far been implemented in the Slovak tax system in particular through various tax concessions: lower excise duty on unleaded petrol and biofuels; exemption from road tax for combined transport vehicles; the cost of running your own environmental protection device as a tax-deductible item and others. [18]

[17] INSTITUTE FOR EUROPEAN ENVIRONMENTAL POLICY. 2017, *Capacity building for Environmental Tax Reform.* [online]. [2019-23-02]. Available at: <http://ec.europa.eu/environment/eir/pdf/ETR_and_Civil_Society_Background_Report_Final.pdf>

[18] EURACTIV.SK, 2007. *Výber environmentálnych daní v EÚ je najnižší za posledných 10 rokov.* [online]. [2019-14-01]. Available at: <https://euractiv.sk/section/ekonomika-a-euro/news/vyber-environmentalnych-dani-v-eu-je-najnizsi-za-poslednych-10-rokov//>

Since the onset of the industrial revolution more than two centuries ago, people have released increasing quantities of greenhouse gases into the atmosphere—the main one being carbon dioxide, which is emitted when fossil fuels are burned. Global fossil-fuel- related emissions of CO2 are expected to grow substantially in the coming decades: by 35 percent between 2012 and 2035.

Rising CO2 emissions cause concern because they, along with other greenhouse gases, accumulate in the atmosphere—potentially remaining there for centuries—and trap the sun's heat, causing average temperatures on Earth to rise. The extent of that warming is unclear, but under a range of plausible alternative assumptions, many studies project, that the total amount of warming that might occur during the 200 years from 1900 to 2100 would be a substantial fraction of the amount of warming that occurred over an 8,000-year period at the end of the last ice age (between 18,000 and 10,000 years ago). Air pollution remains a significant environmental concern and is the single most important health challenge in Europe**.** In addition to impacts on human health, air pollution also has impacts on the environment (e.g. excessive nutrients, destruction of ecosystems) and the economy. Despite existing legislation, air quality remains problematic in many cities and regions across the EU with regular exceedances of air quality standards and in EU target and limit values for specific pollutants, especially particulate matter, ozone and nitrogen oxides. Different types of economic instruments can be used to address air pollution, for example taxes and charges on various air pollutant substances (e.g. NOx, SO2, PM, NH2, heavy metals, VOC, CO, NH3, hydrocarbons, dust, cadmium, mercury, asbestos; and ozone depleting substances) and air pollution non-compliance fees. Cases examined in the study focused on the following air pollution related instruments:

1. Air pollution fees in the Czech Republic and Slovakia;
2. Air pollution load charges in Hungary;
3. NOx fee and SO2 tax in Sweden; and
4. Tax on fluorinated greenhouse gases in Spain.

Impacts on CO2 Emissions from Commercial Buildings

1. First, carbon taxes shift energy use from less efficient to more efficient classes of

technology. For example, between 2010 and 2020, wall and window air conditioners (AC) are replaced by mid-efficiency (rooftop AC units. In the same timeframe, we see less-efficient air source heat pumps losing out to ground source heat pumps (with a higher efficiency This transition is enabled by an IRS-implemented incentive that allows for accelerated depreciation of high-efficiency GSHPs, using a 5-year tax schedule. Similarly, the standard electric water heater is displaced by heat pump water heaters. This transition is accelerated by a new regulation going into effect in 2016 that will require electric storage water heaters with a capacity of 55 gallons or more to have efficiencies equivalent to heat pumps.

2. Second, the carbon tax scenario produces cost savings by enabling consumers to move from more expensive to less expensive high-efficiency equipment within the same class of technology. This effect is illustrated in 2020 and in 2035 when consumers shift service demand from an earlier-generation, more expensive rooftop air conditioner to a later generation, less expensive rooftop AC unit with the same efficiency.

3. Third, carbon taxes enable consumers to gravitate to more efficient models within the same class of technology. As an example, in electric space heating, there is a second-tier of winners in 2035; centrifugal and reciprocating chillers that enter the market in 2020 gain market share against the less efficient centrifugal and reciprocating chillers first available in 2003.[19]

4.2 Cap and trade system vs. Carbon tax

"Cap and trade system is market-based approach to controlling pollution by providing economic incentives for achieving reduction in the emissions of pollutants. In contrast to command-and-control environmental regulations such as best available technology (BAT) standards and governmen subsidies, cap and trade (CAT) programs are

[19] GEOGRIA INSTITUT OF TECHNOLOGY. 2012, *Modeling the impact of a Carbon Tax on the commercial buildings sector.* [online]. [2019-03-15]. Available at: <https://aceee.org/files/proceedings/2012/data/papers/0193-000262.pdf>

a type of flexible environmental regulation that allows organizations to decide how best to meet policy targets."[20]

In a cap-and-trade system, government puts a firm limit, or cap, on the overall level of carbon pollution from industry and reduces that cap year after year to reach a set pollution target. As the cap decreases each year, it cuts industry's total greenhouse gas emissions to the limit set by regulation, and then forces polluters that exceed their emissions quota to buy unused quota from other companies. The emission cap ensures that total pollution goes down and companies are given an economic incentive to find better ways to reduce harmful greenhouse gas emissions and support clean energy.

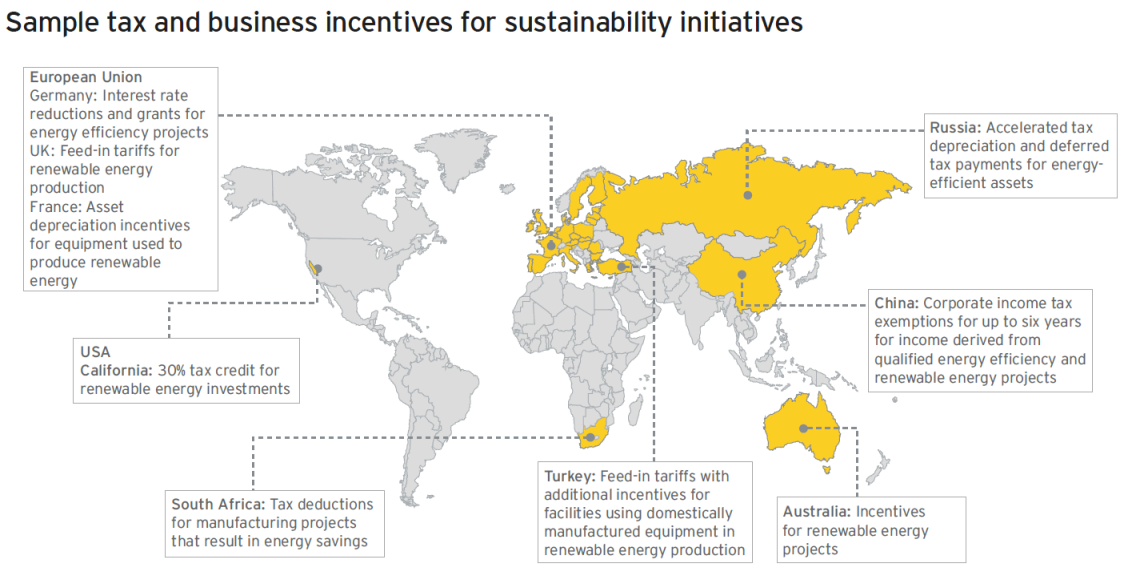
4.2.1 Carbon tax

The purpose of the carbon tax is to curb the emissions of greenhouse gases primarily CO2. CO2 can remain in the atmosphere for 100 years; it absorbs heat rays (infrared radiation). With massive amount of CO2, it results in global warming and initiates anomalies in the ecosystem threatening the living beings. The carbon tax is to create an incentive for reducing CO2 emitting human activities, from something small and everyone can do like the use of vehicles, to something big but not unattainable like adopting a cleaner technology in production. A carbon tax is a form of carbon pricing where a tax is levied on the GHG emissions associated with the combustion of fossil fuels. For businesses, carbon taxes offer an increased predictability over a cap-and-trade system, as the price of GHG emissions is set and is not subject to market volatility. However, carbon taxes might not result in the most efficient mechanism for reducing GHG emissions, and the introduction of a new tax can often face heavy political resistance. A carbon tax is a tax on energy sources that emit carbon. Carbon is present in coal, petroleum, and natural gas and converted to carbon dioxide and other products when combusted. In contrast, wind, sunlight, geothermal, hydropower and nuclear are non-combustion energy sources and do not convert hydrocarbons to CO.[21]

[20] WIKIPEDIA, 2018, Emission trading. [online]. [2%19-25-02]. Available at: <https://en.wikipedia.org/wiki/Emissions_trading>

[21] GEOGRIA INSTITUT OF TECHNOLOGY. 2012, *Modeling the impact of a Carbon Tax on the commercial buildings sector.* [online]. [2019-03-15]. Available at:

Graph 3: *Sample tax and business incentives for sustainability*



Source: EY.COM, 2016. *Global sustainability tax primer.* [online]. [2019-14-01]. Available at: https://www.ey.com/Publication/vwLUAssets/EY-global-sustainability-taxes/$FILE/EY-global-sustainability-taxes.pdf

<https://aceee.org/files/proceedings/2012/data/papers/0193-000262.pdf>

Table 3: *Application of carbon tax in individual countries*

State	Year	Rate euros/ton CO2	tax collection	Use / distribution of tax
Finland	1990	20	500. mil eur per year	National budget
Netherland	1990	15	3,12 bil. Euros per year	NB,reduce other taxes
Norway	1991	11,4-44,2	660 mil. Euros per year	National budget
Sweden	1991	Rate for industry 21,9 Normal rate 11,9	2,7 bil. Euros per year	National budget
Denmark	1992	12,1	670 mil. Euros per year	Subsidies to the environment
Ireland	2010	15	Not specified	Not specified

Source: CARBOUN.COM, 2018. *Comparing Estidama's Pearls Rating System to LEED and BREEAM.* [online]. [2019-14-01]. Available at: <http://www.carboun.com/sustainable-urbanism/comparing-estidama's-pearls-rating-method-to-leed-and-breeam/>

4.2.2 Cap and trade

A carbon cap-and-trade system or emission trading scheme (ETS) is a market-based approach where a governing body sets a limit or "cap" on the amount of emissions that can be released. Participants may either be issued or must purchase emission allowances, which represent the right to release a certain amount of emissions. These allowances may then be transferred or "traded" in the open market. A cap-and-trade system is often considered an efficient way to reduce GHG emissions since it is a market-based mechanism, where the price of emissions is decided by the participants rather than the governing authority. Thus, What's the difference between cap and trade system and carbon tax? In fact, almost none. Both of them can be a very effective ecological incentives. If both approaches are well-designed, the two options are quite similar and could even be used in tandem, but if we want to be really precise, we can find some minor differences. A carbon tax provides certainty about the price but little certainty about the amount of emissions reductions. On the other hand, application of carbon tax can be very easy. It can rely on existing administrative structures for taxing fuels and can therefore be implemented in just a few months. Every country has different policies and system of CAT application. The European Union Emission Trading Scheme (EUETS) is the world's

first international, mandatory, company-level cap-and-trade system of allowances for CO2 and other GHGs. The EU ETS currently includes 28 member countries and covers around 45% of the EU's CO2 emissions. SouthKorea'snationalcap-and-tradescheme is expected to be the most ambitious emissions reduction program to date, covering 70% of South Korea's GHG emissions. The California Cap-and-Trade Program currently encompasses approximately 350 businesses representing 600 facilities.

4.2.3 Carbon tax system in Finland

Finland was the first country to introduce carbon tax as an instrument for climate change mitigation. The carbon tax was put into effect in January, 1990 in Finland, where they only contributed 0,3% to the worlds CO2 emissions1; the tax was based on the carbon content of the fossil fuels and charged at €1.12 per tonne of CO2 when it was first started. The carbon tax was reformed in 1997 and 2011. Now, it's evolved into a combined tax of carbon and energy tax charging €18.05 per tonne of CO2 and €66.2 per tonne of carbon. In 2010, Finland's CO2 emissions was ranked 59th among the countries in the world. One of the first inceptions in carbon tax in Finland was an economy collapse, which was caused by the collapse of the Soviet Union. Main motivation was to give more money to the government. On the other hand, there was also an oil crisis and they deeply understand that there's a need to do something. Decision of the government was motivated by environmental aspect. Till the time, Finland joined the European Union, an old model of carbon tax declined the greenhouse gas emission for more than 7 percent. The carbon tax system is more than putting a levy on the fuels or energy and collecting money from those. In Finland, they have a combination of tax-shifting packages for making the carbon tax revenue-neutral, by tax reduction such as reducing income taxes etc. In fact, their earlier policies aiming at reducing income taxes just coincided with their initial climate change initiatives where the carbon tax was introduced. The Finnish government seems to be using the tax cuts for income transfer from the higher income group to the lower income group. For example, in the tax cuts proposed by Finnish government in 2009, the tax cuts would be distributed equally over all income levels, and would also apply to pensioners. Despite all, some industry representatives still think that carbon tax is just another way to increase government budget revenues.

4.2.4 Sweden carbon tax

Many industrialized countries have used carbon taxes to discourage fossil fuel emissions and promote clean energy. For example, Sweden has used a carbon tax to reduce greenhouse gas emissions since 1991. Although a suite of other policies has also been used, the Swedish Ministry of Environment estimated the carbon tax has cut emissions by an additional 20 per cent (as opposed to solely relying on regulations), enabling the country to achieve its 2012 target under the Kyoto Protocol. Sweden's carbon tax has been credited with spurring the innovation and use of green heating technologies that have significantly phased out burning oil for heating.

Although some critics claim a carbon tax would damage the economy, Sweden's carbon tax is a hefty $140 per tonne of carbon pollution. Since the carbon tax was introduced, Sweden's economy has grown by more than 100 per cent, and the country recently ranked fourth in the world on economic competitiveness.

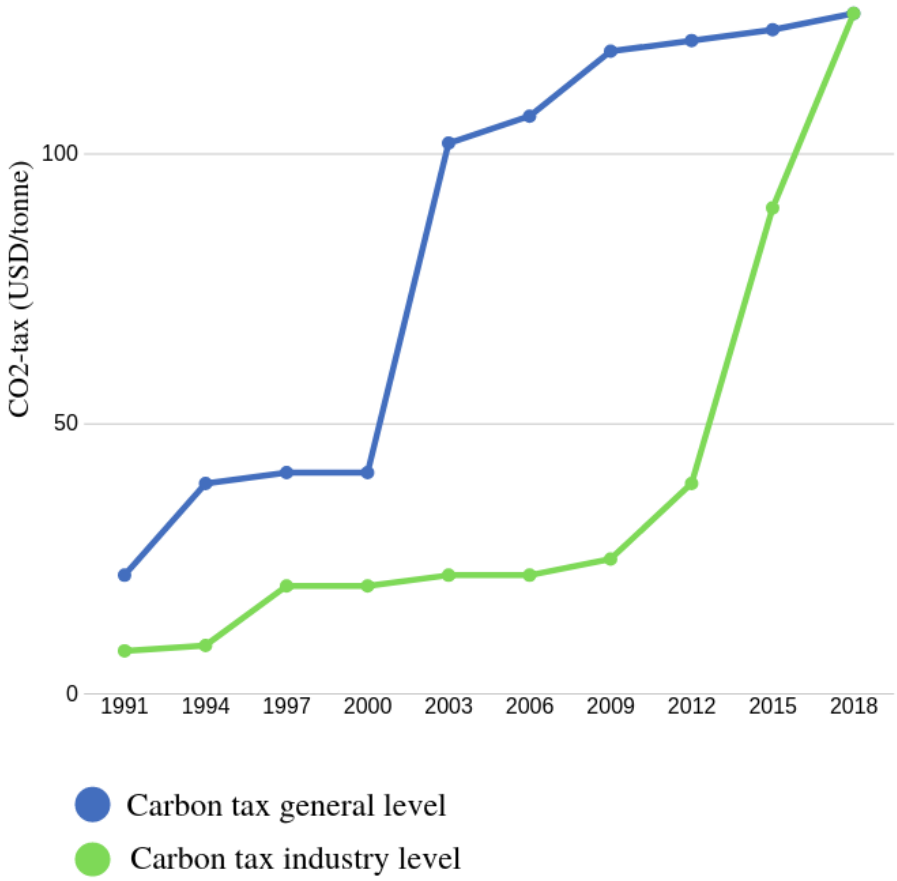
The carbon tax is levied on all fossil fuels in proportion to their carbon content, as carbon dioxide emissions released in burning any fossil fuel are proportional to the carbon content of the fuel. It is therefore not necessary to measure actual emissions, which greatly simplifies the system.

New national climate targets decided by Parliament in 2017:

- *By 2045* no net emissions of greenhouse gases.
- *By 2030* emissions from domestic transports (excl. aviation) reduced by 70 % compared to 2010

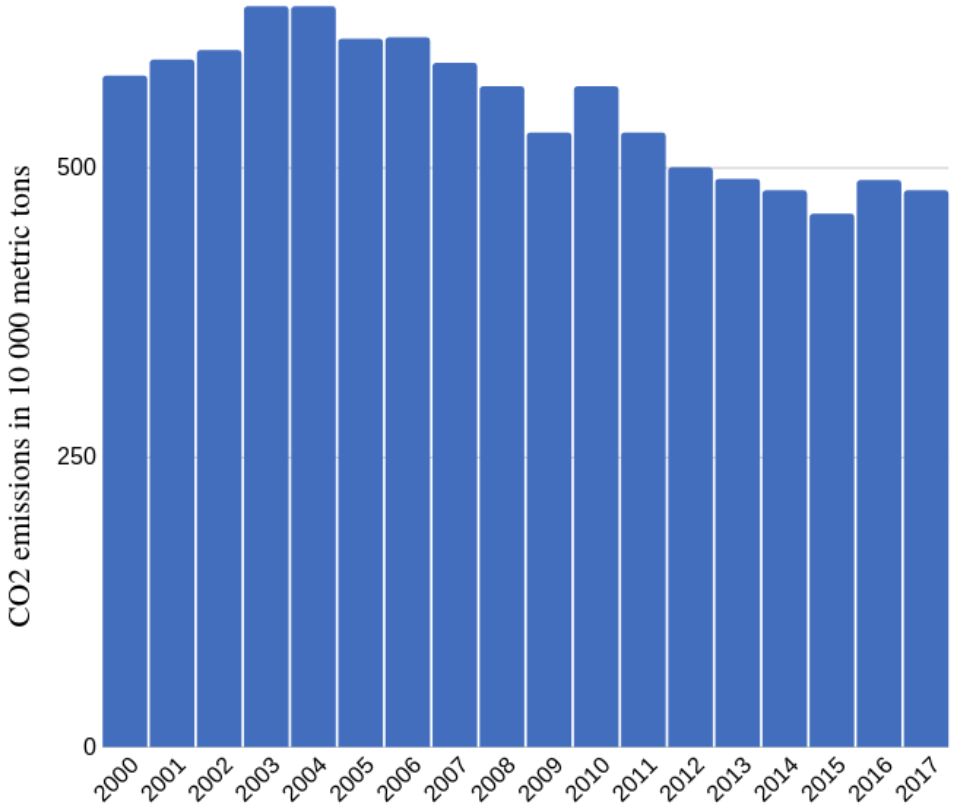
Main pro argument for carbon tax in Sweden is that, 27 years of carbon taxation show good environmental effects what exactly means that pollution from fossil fuels is not essential to economic succes. As we can see growt on the chart, inspite of raising caron tax, GDP is growing rapidly in comparasion to greenhouse gass.

Graph 3: *Carbon tax levels in Sweden*



Source: GOVERNMENT.SE, 2018, *25 years of taxation in Sweden*. [online]. [2019-23-03]. Available at: <https://www.government.se/48e9fb/contentassets/18ed243e60ca4b7fa05b36804ec64beb/lessons-learned-from-25-years-of-carbon-taxation-in-sweden.pdf#mce_temp_url>

Graph 4: *Carbon Dioxide emission in Sweden 2000-2017*



Source: GOVERNMENT.SE, 2018. *Lessons learned from 25 years of carbon taxation in Sweden.* [online]. [2019-14-01]. Available at: <https://www.government.se/48e9fb/contentassets/18ed243e60ca4b7fa05b36804ec64beb/lessons-learned-from-25-years-of-carbon-taxation-in-sweden.pdf#mce_temp_url/>

The statistic shows the level of carbon dioxide emissions in Sweden from 2000 to 2017. Emission levels decreased during the period, falling from 57.9 million metric tons of carbon dioxide emitted in 2000 to 48 million metric tons of carbon dioxide emitted in 2017.

4.2.5 US Cap and trade system

Cap-and-trade has been used successfully in the U.S. to reduce emissions of sulphur dioxide and nitrous oxide, two key ingredients responsible for acid rain. Since the early 1980s, this cap-and-trade system has reduced acid rain-forming emissions by nearly half, which has led to a healthier environment. A cap-and-trade system is often considered

an efficient way to reduce GHG emissions since it is a market-based mechanism, where the price of emissions is decided by the participants rather than the governing authority. The effects of a carbon tax on the U.S. economy would depend on how the revenues from the tax were used. Options include using the revenues to reduce budget deficits, to decrease existing marginal tax rates (the rates on an additional dollar of income), or to offset the costs that a carbon tax would impose on certain groups of people.

4.2.6 United Kingdom carbon tax

The U.K. — England, Scotland, Wales and Northern Ireland — has maintained a carbon tax since 2013. Technically, the tax is a "carbon price floor" that functions as the minimum price that fossil fuel producers pay to emit CO2. Whenever the carbon price in the EU's Emissions Trading System (ETS) is less than the U.K. minimum — which has been essentially all of the time since 2012 — the producers pay the difference to the British Treasury. Brits sometimes call their carbon tax a "top up" tax since it was intended to top up European carbon prices. The mandated rate for 2016 was 18£ per metric ton. This equated to $24-$25 per short ton, at last year's average 1.5 to 1 sterling to dollar exchange rate (the exchange rate is a good deal lower at this writing in 2017, however), and converting metric to short tons. Evans notes, however, that "The future of the carbon price floor is uncertain; it has only be fixed out to 2021," as some argue that the tax will be mooted by closure of remaining coal-fired capacity in the U.K. and that its continuance will lead to increased emissions through importation of cheaper and dirtier electricity from the European continent.

4.3 Cap and trade system in Slovakia

The Emissions Trading Scheme, which accounts for around 50% of total annual GHG emissions, will continue to be the key instrument for cost-effective greenhouse gas emission reductions in industry, energy and air transport. The EU ETS scheme is based on the "cap-and-trade" system with a set of continuously reduced annual ceiling for the volume of emissions emitted. The scheme aims to reduce greenhouse gas emissions by 43% by 2030 compared to 2005. Slovakia has the opportunity to sell about 55% of its annual emission ceiling under the EU ETS scheme and, at the same time, to surplus in non-ETS sectors, also allocates annual allocated allowances to cover the emissions

generated in these sectors. The proceeds from the sale of all emission allowances will be used to meet environmental targets in the area of climate change and to ensure the reduction of greenhouse gas emissions of the national economy, or to support climate projects and measures in developing countries. Slovakia will make the most of the support mechanisms provided for in the revised Emissions Trading Directive to achieve the climate change targets.

AEA emission allowances (individual household heating, transport and agriculture) are used to cover own emissions from sectors outside the emission allowance trading scheme and can be moved between years or between EU Member States. A Member State may transfer up to 5% of its allocated annual emission allowances for the year in question to other Member States. The receiving Member State may use that quantity for the purposes of fulfilling its own obligations under this Article for the year in question or for any of the following years until 2020. This excess can be transferred to the next years or sold to other EU Member States. The Union will allocate approximately 25 million tonnes of AEA emission allowances annually to Slovakia. Slovakia spends about 21 million annually on this allocated amount. The amendment to the Act provides that the AEA allocator of allowances is the Ministry of the Environment of the Slovak Republic which can deal with them in the form of direct sales, nat auction or directly.

Revenue earned from direct sales, bids or auctions from the AEA are the income of the Environmental Fund and will be used to

a) the upgrading of facilities to save energy on the consumer's side,
b) increasing the energy efficiency of existing buildings, including insulation
c) promoting the transition to low-emission forms of transport and the transition from individual transport to public transport,
d) irreversible financing of environmental projects prepared by the Slovak Republic in cooperation with the European Bank for Reconstruction and Development on the basis of the previous instruction of the Ministry of the Environment of the Slovak Republic,
e) supporting the management of forests located in the threat zone under the influence of immissions under and in support of projects aimed at saving and capturing greenhouse gas emissions in the area of agriculture and forestry,

f) contributions to climate-energy funds.[22]

4.3.1 Slovak republic and GHG emission trading

Even before we'll start to talk about carbon tax, let's clear the actual way how's the GHG emissions traded in Slovakia:

The European Union will allocate approximately 25 million tonnes of AEA emissions annually to Slovakia. They serve to cover the transport, agriculture and waste sectors, as well as individual household heating. Slovakia uses about 21 million per annum of this allocated amount. Therefore, the Ministry of Environment of the Slovak Republic has prepared an amendment to the Emissions Trading Act, which sets up a clear system of trading with annual allocated emission allowances, determines how to use the proceeds of their sale and introduces greenhouse gas emissions reporting through an electronic system

Newly, operators and other participants in the trading scheme will register and submit selected data via the electronic system. It will be used to report on greenhouse gas emissions, operational activity level reports or verification reports and monitoring plans. Emissions trading outside the EU ETS will also change - individual household heating, low energy, transport, agriculture and waste (AEA quotas). The amendment to the Act will allow Slovakia to sell it. "Based on current estimates, we expect an excess of these emissions by 2020. It will not be possible to transfer them to the next period after this year. If we did not sell this surplus, the emission allowances will be forfeited.

The law of 28 November 2012 n emission allowance trading and amending the second law § 1 Subject of the Act regulates trading in greenhouse gas emission allowances in the Slovak Republic, between persons registered in the Slovak Republic and in the European Union and persons registered in the countries listed in Annex B of the Kyoto Protocol, which supports the reduction of greenhouse gas emissions in an

[22] ENVIRO.SK. 2018, *Obchodovanie s emisnými kvótami AEA a požitie výnosov.* [online]. [2019-14-01]. Available at: <https://www.enviro.sk/33/obchodovanie-s-emisnymi-kvotami-aea-a-pouzitie-vynosov-uniqueiduchxzASYZNbdCMBzlaYfeCuYOjOOmJkblCLOpBX5O-U/?cookies>

economically advantageous manner (hereinafter referred to as the "trading scheme"),"[23]

§ 10 Allocation of greenhouse gas quotas

For an eight-year trading period starting on 1 January 2013 and for each subsequent tradable period, the national administrator shall enter in the obligatory participants of the trading scheme free quotas in the amount calculated according to a special regulation.

4.3.2 Slovak emission trading case in 2008

Robert Fico's first government had the opportunity to sell surplus allowances to foreign customers in the country. Quotas were state assets and the government was obliged to sell them at the highest price. In 2008, Japanese companies paid 142.5 mil. €, but we've got only 75.75 mil. €. Suspension of prosecution of actors of this sale for suspicion of abuse of power of a public official and breach of obligations in the management of foreign assets. Minister J. Chrbet, head of section P. Tehlár and head of the department of P. Solčanský, excluded specialists from the sale of emission allowances who were well informed about how similar sales were realized by neighboring states and what possibilities the Slovak Republic has to sell.

Specialists also had information on what conditions and for what price the Czech Ministry (10 euros per tonne) sells emission quotas. They knew a reliable source of information on current emissions prices because they attended international conferences where renowned experts reported on prizes (at a conference in Poznan, Poland, where the ten euros per tonne of emissions were discussed, there were also leaders of the ministry who reserved exclusive rights) Slovak quotas). Ministry staff discussed with NEDO, Japan's state agency, which was buying emission limits in the region under standard conditions. Enviromental representatives have stopped negotiating with NEDO because "the Japanese side has made further negotiations conditional on the submission of a so-called emission scenario for the investment of funds raised from the transaction". This procedure is quite common in any trade in other countries. Three Japanese companies

[23] SLOV-LEX.SK, 2018. *Zákon o obchodovaní s emisními kvótami a o zmene a dopnení niektorých zákonov.* [online]. [2019-14-01]. Available at: < https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2012/414/20180101.html>

(Tokyo Electric Power, Kansai Electric Power and Tohoku Electric Power) have asked Mizi's Institute of Information and Research to conduct a survey of potential emission allowance dealers. Neither of these companies was chosen for unexplained reasons. According to a representative of Asuka Green Investment, in September 2008 the official official of the Ministry announced that "Slovak emission quotas will be sold through Interblue Group LLC., which was not mentioned in any official materials of the Ministry of Environment, with the effective help of the Minister and his two co-workers, and with the participation of an unofficial advisor to the Minister, implemented its own intention. It bought 15 million tons of emissions units from the state for € 5.05 per tonne, and in total it paid € 75.75 million to the Slovak Republic. However, Asuka Green Investment, which received emission allowances at a price of € 8.20 per tonne, sent an amount of € 127 million to Interblue. For the sake of completeness, it should be added that the Japanese power plants eventually received Slovak emission allowances of EUR 9.50 per tonne. The Slovak Republic could sell them for so much if it were sold to the Japanese state agency NEDO as the Czech Republic did. Robert Fico's action in the issue case deserves special attention in this regard. This case of emission allowance trading explains the potential confusion and opacity that arises in this case. Of course, in the case of carbon taxation, corruption and similar machinations could be the same, but much more difficult. Indeed, in the carbon tax, there is a clear percentage to be paid, which does not create a space for speculation.

4.3.4 Carbon tax system in Slovak republic

There are plenty of different opinions about carbon tax. Should or shouldn't be carbon tax applied in Slovakia? Building emissions account for up to 36% of carbon dioxide production in Europe. A large part of the European Building Fund consists of publicly-owned buildings and rented public buildings. The public sector must be an example. The European Commission should take chances and set the highest possible standards for reconstruction. Not only do they offer the opportunity to significantly reduce CO2 emissions but also bring significant gains to the public treasury through huge energy costs savings and also create a number of jobs in the sustainable construction sector. Slovak republic, as a part of the advanced community, is prepared to implement the Paris

climate agreement and reduce the greenhouse gas emissions by 40 percents by 2030 compared to 2005, to adapt to climate change and to mobilize "climate" finance.

On 28 November, the European Commission in Brussels voted on a new climate strategy. Based on European long-term strategy (EU LTS) which should be adopted by 2050. This will provide a way to meet the commitments of the Paris Agreement. The main element will be carbon neutrality. But the question is, in which year should the EU achieve it.

NECP, the national energy and climate plan, has a tightly defined structure and areas to cover. By the end of this year, Member States should send their NECP proposals and by 31 December 2019 their final version. However, all the areas covered by the EU regulation, ie energy, industry, transport, buildings, agriculture and so on, should be covered in the NECP proposal itself.

Views of individual political parties on cabon tax

"*The aim should be to reorient on alternative fuels and activities with a lower ecological footprint, but also with regard to the functioning of the economy. However, this will also require an intensive information campaign. This tax must also be introduced on a flat basis, at least in all EU Member States, in order to avoid a small cross-border "shopping tourism."* SAS

"*Yes. Because it would at least avoid speculative trade and corruption."* SNS

"*We support the introduction of new low-carbon technologies, but not the headless implementation of systems and tools that will aggravate the competitiveness of our business entities and create room for abuse of set up systems. In this respect, it is important to work together with the EU to tackle all aid schemes and tax burdens in a comprehensive manner so that this is not liquid and discriminatory only for a certain group of subjects."* MOST-HÍD

"SIEŤ the introduction of carbon tax in Slovakia definitely does not support.

Although we perceive its possible positive impacts on the possible financing of environmental projects, the introduction of carbon tax would be just another tax with a wide impact. With current high electricity prices in Slovakia, the introduction of such a type of tax would further reduce the competitiveness of Slovak firms. In addition, we have no guarantees in the current government's management that the funds collected would not be misused for entirely different purposes." SIEŤ

"*The costs of decarbonisation should be borne by the firms themselves, but also by the state through targeted support or by paying taxes. Under the EU Emissions Trading Scheme (ETS), the polluter-pays principle applies, and this principle is gradually being applied in Slovak environmental legislation. The state should also propose supporting schemes and mechanisms under its policies and measures to motivate and facilitate the transition to a low-carbon economy. Consumers and citizens also ultimately bear these costs, whether through product prices or through energy prices. The introduction of the carbon tax, which would serve as a supplement to the ETS and would set the carbon price, is one of the options that we are analyzing, and which is proposed as one of the measures in our new Environmental Strategy*." NORBERT KURILLA, State Secretary for the Enviro Resort[24]

[24] ENERGIEPREVAS.SK, 2018. *Zavedenie uhlíkovej dane v SR.* [online]. [2019-14-01]. Available at: < https://energieprevas.sk/volby16.php?id=7>

4.3.5 Why we should or shouldn't apply carbon tax?

The objective of a carbon tax is to reduce carbon dioxide emissions, slow climate change, and improve the health of both the planet and people. A large incorporate of emission trading is covering about half of the CO2 producers only from large eminent countries. This means that if I want to avoid this system, I will divide it into two smaller plants so that the regulations do not apply to me. Unless the system moves all those who emit in a certain amount of CO2 into the air, there will always be a way to avoid payment. Another factor is that if we knew that the carbon tax would continue to apply in the future, it would be much easier to plan. Currently, half-emissions trading is planned for 5 years. After this period, other conditions are likely to be re-established, with the need for individual firms to adjust again. For example, if I want to turn a big plant's logistics into a low-energy, greener and profitable one, I can't count on a short-term horizon.

Jiří Svoboda- physicist from the Institute of Materials in the Czech Republic proposes an interesting way of applying carbon tax and in such a way that the tax would move to all. This means, for example, that the cost of the roots would be increased by the amount of the fee and by the amount of CO2 produced in its production and distribution. However, this tax should not have an impact on the final consumer. Also, the amount of this tax would eventually return to the final consumer, for example, in the form that he would not deduct 300 but 700 euros from taxes. Thus, each year, it would be necessary to calculate how much money was collected for carbon tax and that would eventually be returned to people. Finally, the carbon tax will cause money not to go into the pockets of fossil fuel producers or government officials (as was the case in the Emissions Trading Scheme in 2008) but would get back to people. Also a carbon tax would address a number of social problems, both local and global. A flow of money from rich countries with high CO2 production to poor countries with low CO2 production would emerge. If 80% of the carbon tax would be distributed according to the amount of CO2 emissions in the country and 20% by population, anyone who needs less than 80% of the national average of CO2 emissions in a carbon-rich state would earn carbon. Since most of the population in the state can be expected to live less than 80% of the national average of CO2 emissions, such a model may be politically viable. Then, the flow of money to poor countries will go mainly from people associated with high CO2 production, such as the owners of glass villas, heated swimming pools and strong cars. This principle of applying carbon tax was

fully supported by Al Gore at the Nobel Prize or by James Hansen, a NASA scientist.

"*Above all, it is necessary to set a price for carbon - transfer the tax burden from work to pollution by using a carbon tax to return to people under the laws of each state. This is by far the most effective and easiest way to speed up this crisis*." Al Gore, Nobel Peace Prize winner for 2007

"*If we want to do something against climate change, we have to do it with a clear concept and fight all inefficiencies*." Jiří Svoboda

4.3.5 Positive and negative effects of a carbon tax

The emission allowance system will increasingly resemble a carbon tax. It will always be more complicated, hence less transparent. Neither small entities nor individual voters will be directly affected, which is good for politicians. In addition, allowance policymakers can accommodate large and politically influential CO2 emitters, such as energy groups. The system will allow a number of manipulations, especially in transactions with developing countries. Apparently, it is not enough for politicians to create an environment for spontaneous operation of effectively functioning mechanisms. They want to influence matters in a directive way, which is lobbying and corruption. So far, the carbon tax has not been properly explained to ordinary people. They consider it a scarecrow, because it means more energy. The fact that other strategies have a substantially worse indirect impact on people is silent. A carbon tax is considered politically impassable, and no political party puts it on its agenda. In addition, this tax is recording the development of nuclear technology, which is a challenge for certain "green" politicians.

CARBON TAX EFFECTS:

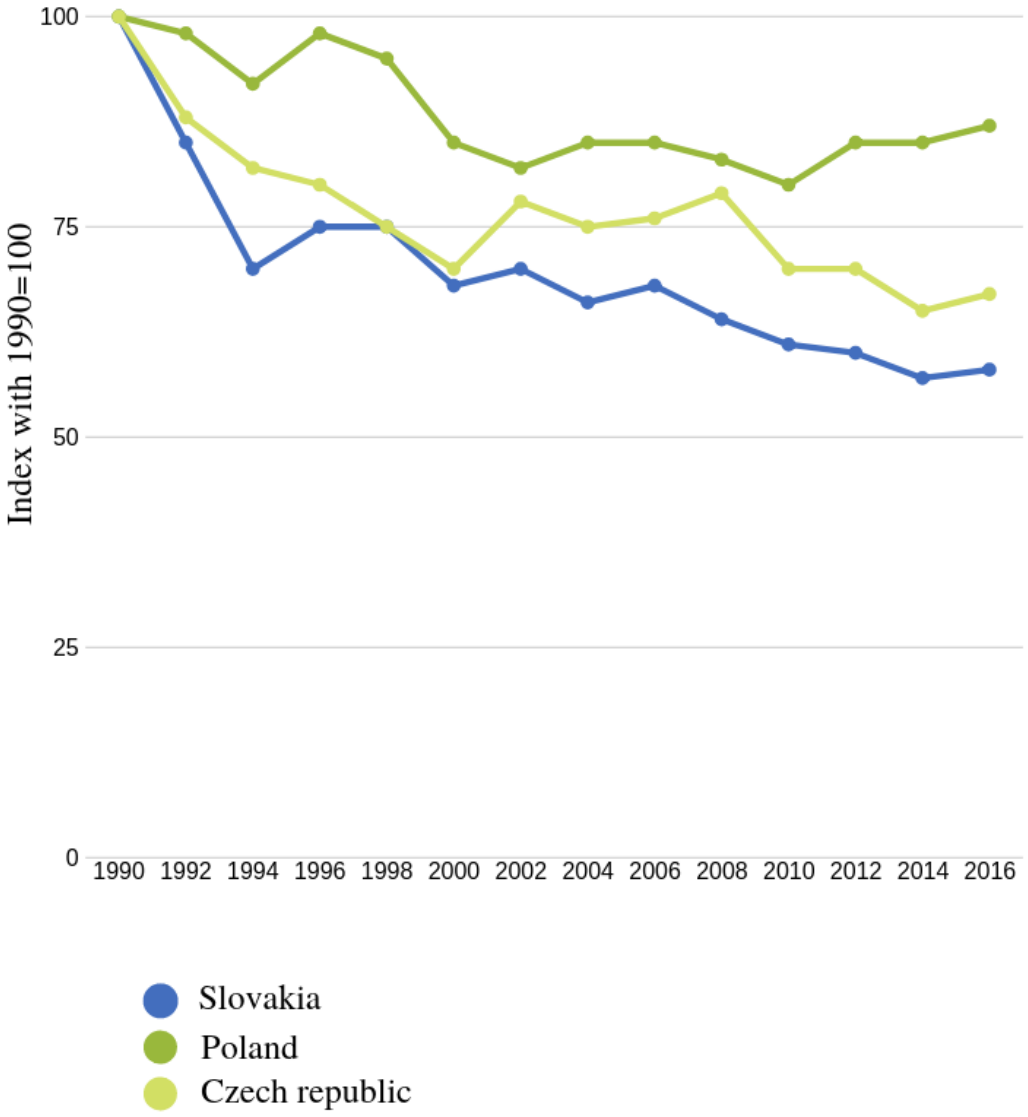
1. saving energy and reducing CO2 emissions,
2. profitability of renewable energy sources and austerity measures
3. development of nuclear energy,
4. solving social problems in the world
5. reducing the dependence of states on imports of fossil fuels,
6. preserving more resources for future generations,

7. less bureaucracy

The scale of revenues raised by the instruments and their use varies significantly across the countries**.** In some cases, revenues are allocated to the general budget (e.g. Hungary, Spain), while in others, revenues are used to support environmental projects and activities (e.g. Czech Republic, Poland, Slovakia) or reimbursed to regulated entities (e.g. Sweden which has helped reduce potential negative impacts of the tax on competitiveness and helped increase acceptance of the tax among industry).

The effectiveness of the instruments has varied significantly depending on a number of factors including the level of fees applied, the wider policy mix and the administrative burden. For example, the low level of air pollution fees in Slovakia, Poland and the Czech Republic (until 2012) provided little incentive for companies to decrease their emissions and other policies (e.g. legal emission limits and penalties), a decline in production in heavy industry and changes in production processes/technologies are considered more important factors in the improvement of air quality in these countries since the early 1990s. It is difficult to assess the effectiveness of some instruments due to a lack of data (e.g. Spain), limited capacity to analyse available data (e.g. Hungary) and challenges related to assessing the effectiveness of these instruments in isolation from the impacts of the wider air quality regulatory framework (e.g. air quality legislation and permits).

Graph 5: CO2 decrease in Slovakia compared to other countries



Source: MINZP.SK. 2018, *A low carbon growth path for Slovakia*. [online]. [2019-07-01]. Available at: <http://ec.europa.eu/environment/eir/pdf/ETR_and_Civil_Society_Background_Report_Final.pdf>

The effects of a carbon tax on the U.S. economy would depend on how the revenues from the tax were used. Options include using the revenues to reduce budget deficits, to decrease existing marginal tax rates (the rates on an additional dollar of income), or to offset the costs that a carbon tax would impose on certain groups of people

NEGATIVE EFFECTS OF A CARBON TAX

By raising the cost of using fossil fuels, a carbon tax would tend to increase the cost of producing goods and services—especially things, such as electricity or transportation, that involve relatively large amounts of CO2 emissions. Those cost increases would provide an incentive for companies to manufacture their products in ways that resulted in fewer CO2 emissions. Higher production costs would also lead to higher prices for emission-intensive goods and services, which would encourage households to use less of them and more of other goods and services.

Without accounting for how the revenues from a carbon tax would be used, such a tax would have a negative effect on the economy. The higher prices it caused would diminish the purchasing power of people's earnings, effectively reducing their real (inflation-adjusted) wages. Lower real wages would have the net effect of reducing the amount that people worked, thus decreasing the overall supply of labor. Investment would also decline, further reducing the economy's total output.

1. Burdens on Certain Groups.
   The burden of a carbon tax—that is, the hardship caused by price increases for fossil fuels and emission-intensive goods and services and by the reduction in wages and returns on investment—would fall disproportionately on several groups
2. Low-income households
3. Workers and investors in emission-intensive industries, and
4. People in regions of the country that rely on emission-intensive industries for their livelihood or that use the most emission-intensive fuels to produce power.
5. The higher prices resulting from a carbon tax would tend to be regressive—that is, they would impose a larger burden (relative to income) on low-income households than on high-income households. The reason is that low-income households spend a larger share of their income on goods and services whose prices would increase the most, such as electricity and transportation.

POSITIVE EFFECTS OF A CARBON TAX

Lawmakers' choices about how to use the revenues from a carbon tax would help determine the tax's ultimate impact on the economy. Some uses of those revenues could substantially offset the total economic costs resulting from the tax itself, whereas other uses would not.

Lawmakers could also offset some of the negative economic effects of a carbon tax by using the revenues to reduce the existing marginal rates of income or payroll taxes—a policy known as a tax swap. Existing taxes on individual and corporate income decrease people's incentives to work and invest by lowering the after-tax returns they receive from those activities. Consequently, reducing those marginal tax rates would have positive effects on the economy.

Workers and investors in fossil-fuel industries (such as coal mining and oil extraction) and in energy-intensive industries (such as chemicals, metals, and transportation) would tend to experience comparatively large losses in income under a carbon tax because demand for their products would decline. Specifically, CBO previously concluded that setting a price on CO2 emissions would have the following effects on industries:

1. Coal mining would be likely to experience the largest percentage decline in employment.
2. Employment in oil and gas extraction and natural gas utilities would probably also decline—though to a smaller extent, in percentage terms, than employment in coal mining.
3. Other types of mining, construction, transportation, and the industries that produce metals, nonmetallic mineral products (such as glass), and chemicals—all of which use relatively large amounts of energy directly or indirectly—would probably also see their employment decrease, although the percentage declines would be relatively small.
4. Declines in such industries would be offset, over time, by increases in employment in industries and sectors (such as services) whose products are less emission-intensive to produce and result in fewer emissions when used. Employment would also increase in industries that manufacture equipment to

produce energy from low-emission sources, such as nuclear, solar, and wind power.

The effects of a carbon tax would vary by region as well. Parts of the country that rely on fossil fuels or energy-intensive production for income would experience larger losses than other regions. Likewise, households in places where electricity is generated from coal would probably see larger increases in electricity prices than their counterparts in other regions.

DISCUSSION

Environmental policy is no longer just about environmental activists. The growing number of sustainability conferences and responsible entrepreneurship not only from a financial perspective but also from the perspective of access to our planet is an integral part of today's lives. Companies that disregard these factors should be responsible for the consequences of their actions for future generations. Proper application of tools and incentives can greatly influence the impact of these companies on society.

Over the past few years, we have been involved in several world summits and conventions that discussed the urgency of addressing environmental issues. Climate change, more acid rain, increasing number of dry days, increasing hurricanes. Natural disasters are just a reaction to people's behavior on our planet. Thanks to the rapid technological advancement, people think especially about their personal needs. We suddenly got to a time when there is a product or tool for every single problem, every little thing that can solve it very quickly. Today's studies show that if all people behaved like the average modern european, we would need up to 4 planets in a few years to carry that behavior. Profit-driven businesses have forgotten the impact they cause on our planet. The ecological principles inside companies initially appeared as whims and the pursuit of higher social status. We now understand that responsible entrepreneurship is not just about honestly paying income taxes, but is also thinking about individual steps in production processes that pollute the environment.

Emissions trading has brought to the national economies a market mechanism that everyone has regulated themselves. The question is whether in times of corruption, nepotism and financial fraud we will let these people decide about our country. Finland, for example, decided to introduce a carbon tax first in 1990. In several articles we find praise that applies to the application of this tax to Finland. But many people don't see the other side. In particular, the carbon tax was introduced because of the fall of the Soviet Union, thereby trying to fill the state treasury. Although it was not primarily a noble goal, we can certainly advise him. Both sides can win when the tax systems are set up correctly. Proper allocation of selected money to sectors that help ecologically-minded people and a system that does not burden the final consumer is real. We see this in a number of European countries that set an example.Which method is suitable for Slovakia? Is it

realistic that the state, developers and users are able to set themselves up for the next tax burden on the current construction of buildings?

CONCLUSION AND RECOMMENDATION

Slovakia's emissions trading system, which accounts for about 50% of total annual greenhouse gas emissions, will continue to be a key tool for cost-effective reductions in greenhouse gas emissions in industry, energy and air transport. The EU ETS is based on the aforementioned cap-and-trade system with a set of constantly decreasing annual ceilings for the volume of emissions emitted. The scheme aims to reduce greenhouse gas emissions by 43% by 2030 compared to 2005. Slovakia has the possibility to sell about 55% of its annual EU ETS emission ceiling while allocating surpluses in non-ETS sectors annually to allocate emissions generated by in these sectors. The proceeds from the sale of all allowances will be used to meet the climate change environmental objectives and to ensure the reduction of greenhouse gas emissions in the national economy or to support climate projects and measures in developing countries. The European Union will allocate approximately 25 million tonnes of AEA emissions annually to Slovakia. They serve to cover the transport, agriculture and waste sectors as well as individual household heating. Of this allocated amount, Slovakia uses approximately 21 million annually. The Ministry of Environment of the Slovak Republic has therefore prepared an amendment to the Emissions Trading Act, which sets out a clear system of trading with annual allocated allowances, determines how revenues from their sales are used and introduces greenhouse gas emissions reporting through an electronic system. However, in some cases, well-designed regulations will not help when their human factor does not respect them. Such a case was clearly the case of the first government of the former Prime Minister of the Slovak Republic, Róbert Fico, who had the opportunity to sell surplus quotas to foreign customers in the country. Quotas were state assets and the government was obliged to sell them at the highest price. In 2008, Japanese companies paid 142.5 mil. €, but only 75.75 mil. €. Machinations in choosing a foreign company, concealing important data, and bribing in the top are proof that the market mechanism can only function properly if responsible and decent people sit in top positions. Several analysts see a solution to this carbon tax problem, which would apply equally to all, while the amount of money collected would be transparent and properly allocated.

But there are also many different opinions about carbon tax. Building emissions account for up to 36% of Europe's carbon dioxide production. Much of the European Building Fund consists of publicly owned buildings and leased public buildings. An

example must be clearly the public sector. The European Commission should use the possibilities and set the highest possible standards for recovery. Not only do they offer the opportunity to significantly reduce CO2 emissions, but they also bring substantial profits to the Treasury through huge energy cost savings and also create jobs in the sustainable construction sector. As part of the developed community, the Slovak Republic is ready to implement the Paris Climate Agreement and cut 40 percent greenhouse gas emissions by 2030 compared to 2005, adapting to climate change and mobilizing climate finance.

The aim of the carbon tax is to reduce carbon dioxide emissions, slow down climate change and improve planet and human health. Much of the emissions trading covers about half of the CO2 producers only from major countries. This means that if I want to avoid this system, I will divide it into two smaller operations so that the rules do not apply to me. If the system does not affect all who emit a certain amount of CO2 to the air, there will always be a way to avoid paying. Another factor is that it would be much easier to plan if the carbon tax would continue to apply in the future. Emissions trading is currently planned for 5 years. Further conditions are likely to recover after this period, with the need for individual firms to adjust again. For example, if I want to turn the logistics of a large plant into a low-energy, greener and more profitable one, I cannot count on the short term. There are a number of suggestions that translate concrete ways of applying a carbon tax so that it does not ultimately affect the final consumer and thus ordinary people. This means, for example, that the cost of goods would be increased by the amount of the charge and the amount of CO2 generated by its production and distribution. However, this tax should not affect the final consumer. The amount of that tax would ultimately be returned to the final consumer, for example, in the form that he would not deduct 300 but 700 euros from taxes. Thus, each year it would be necessary to calculate how much money was spent on carbon tax and which would eventually be returned to people. Finally, the carbon tax will cause money not to go into the pockets of fossil fuel producers or government.

The biggest problem is that the carbon tax has not yet been properly explained to the public. With the right explanation, this tax can become popular. Goods and services would be increased by a proportional amount that would be calculated based on the amount of CO2 discharged in its production. Thus, for purchases, people would automatically prefer goods and services that were produced at a lower energy intensity,

such as the purchase of a high-consumption car or eco-friendly building materials. We will not lose money with carbon tax. Ultimately, we will only change the structure of the consumer basket. At the same time, the amount by which the prices of goods and services would be increased would be returned to final consumers, for example in the case of income tax deduction, thus creating no irregularities in salary. Of course, when introducing new laws for a certain period of time, the administrative burden will increase, but ultimately everyone would be satisfied. People would not feel the difference in their wallets, the state would not lose money and at the same time we would leave our country in a better condition for future generations.

However, the success of a carbon tax will only be realistic when the income from this tax is redistributed for environmental and environmental purposes. This means that a law needs to be prepared to define the allocation of the total amount of money collected on the carbon tax to precisely defined areas. One of the options is also subsidies for passive houses, support for green certificates, which increase state-imposed minimum values or support for ecological and environmental projects of young firms. In Finland, four people out of five are willing to change their living habits as a result of the need to move towards more environmentally responsible ways of living. Slovakia is far away from this statistics, but it all depends on us, on our priorities and topics discussed in society.

RESUME

Začiatok sedemdesiatych rokov 20. storočia bol neúnosný v dôsledku častých prírodných katastrof, nadmerného používania prírodných zdrojov a rapídne narastajúcej priepasti medzi ľuďmi pod hranicou chudoby a enormne bohatou spoločnosťou. Našťastie, nie všetkým bola naša budúcnosť ľahostajná, čo sa potvrdilo na prvej konferencii OSN v roku 1972 v Stockholme, ktorá začala rozoberať túto problematiku a zároveň vytvorila plán trvalo udržateľného rozvoja pre jednotlivé krajiny. Táto konferencia bola iba začiatkom všetkých summitov, ktorých podstata spočívala v rozširovaní povedomia o tom, že si našu planétu ničíme sami. Bohužiaľ, ak sme ako ľudia neschopní uvedomiť si následky našich činnov, ktoré sú poháňané vidinou zisku, prichádzajú na rad štátne inštitúcie a jednotlivé mimovládne organizácie, ktoré vytvárajú pravidlá. Práve tieto návrhy opatrení vznikajú na dôležitých svetových konferenciách analyzujúcich trvalo udržateľný rozvoj pri zosúlaďovaní hospodárskych a environmentálnych cieľov globálneho spoločenstva. Takouto konferenciou bola určite Konferencia OSN o trvalo udržateľnom rozvoji, známa tiež ako Rio + 20. Rio + 20 bolo 20-ročným pokračovaním konferencie OSN o životnom prostredí a rozvoji, ktorá sa konala v roku 1992. Konferencia Rio + 20 bola vytvorená s cieľom spojiť summity, ktoré boli jej predchodcami, a zároveň prebudiť ľudstvo, aby pracovalo v environmentálnom, ekonomickom a sociálnom svete. Rio + 20 ponúka príležitosť podniknúť kroky pri prijímaní správneho prístupu, ktorý v konečnom dôsledku zníži chudobu vo svete a zabráni škodám na životnom prostredí.

Samostatnú tému týchto summitov tvorila aj výstavba budov v dôsledku narastajúcej urbanizácie, prechodu ekonomiky smerom k službám a starnúcej populácie. Väčšina budov bola na Slovensku postavená podľa noriem platných na začiatu 20. storočia. Vplyvom zmeny klímy a zvyšujúcich sa požiadaviek energetických náročností už tieto budovy nespĺňajú status, ktorý poskytuje užívateľom tepelný, svetelný a zdravotný komfort. Rovnako tak tieto budovy vo veľkom zvyšujú množstvo CO2 vypusteného do ovzdušia. Táto téma sa však netýka iba budov, ktoré sú už postavené. Práve naopak, najväčší podiel na množstve CO2 vypusteného do ovzdušia patrí práve výstavbe nových budov, ktorá dokáže ovplyvniť dopyt po materiáloch firiem, ktoré sú environmetálne zodpovedné. Taktiež následné užívanie budovy dokáže zabrániť vypúšťaniu CO2.

Téma zodpovednej výstavby zelených budov je dôležitá hneď z niekoľkých dôvodov. V roku 2030 budeme mať o 390 000 seniorov (tj. ľudí nad 65 rokov) viac, ako dnes a v roku 2050 to bude až 30 %. Z tejto štatistiky logicky vyplýva, že starší ľudia prirodzene potrebujú viac tepla počas zimných mesiacov, čo zvyšuje požiadavky na vykurovanie a naopak v lete horšie znášajú vysoké teploty. Okrem toho sa jedná aj o čisto ekonomický dôvod. Dôchodky seniorov sú neúmerné klasickým platom a preto ani fondy na opravy a rekonštrukcie nedisponujú veľkými sumami, ktoré budú potrebné predovšetkým po roku 2019, kedy končia dotácie z Európskej Únie na zatepľovanie budov. Keď si k tomuto faktu pripočítame, že dnešní ľudia trávia až 90% svojho času vo vnútri budov, podstata kvalitného vnútorného prostredia, ktoré zahŕňa napríklad kvalitu ovzdušia, kvalitu denného a umelého osvetlenia alebo dobrú akustiku, prispieva nielen k dôležitosti, ale aj náhlej potrebe riešiť tento problém. Alarmujúce je napríklad aj to, že približná pätina slovenských domácností trpí nezatesnenými strechami alebo plesňami.

Kvalitnú výstavbu budov na Slovensku upravuje zákon č. 555/2005 Z. z. o energetickej hospodárnosti budov, ktorý stanovuje postupy a opatrenia na zlepšenie energetickej hospodárnosti budov a právomoci verejných orgánov. Od ústredných orgánov štátnej správy sa vyžaduje, aby prevádzkovateľovi monitorovacieho systému elektronicky poskytli údaje za účelom monitorovania energetickej hospodárnosti verejných budov, v predchádzajúcom kalendárnom roku. Tieto povinnosti sa nevzťahujú na budovy štátnej obrany a štátnej bezpečnosti, okrem obytných budov a administratívnych budov, na priemyselné budovy a sklady, cisterny a elektrárne (hospodárske budovy, sklady, pozemky a stožiare) alebo na budovy chránené osobitným predpisom.

Verejná politika má pri sledovaní verejného záujmu v oblasti výstavby a obnovy budov v zásade tri úlohy. Definovať podrobné a jasné požiadavky na stavby. De facto ide o technické parametre stavby, ktoré sú podmienkou vydania stavebného povolenia a kolaudačného rozhodnutia. Požiadavky musia byť dostatočne podrobné, ale aj jednoznačné a jasné, s minimom výnimiek a zároveň realistické a dostatočne ambiciózne. Druhou úlohou je vytváranie a implementovanie systémov, ktoré zabezpečujú plnenie požiadaviek na stavby. Špecializované profesie, ako sú stavební inžinieri, architekti alebo energetickí certifikátori, ktorí vykonávajú činnosti v oblasti návrhu a realizácie stavieb, na

ktoré vlastníci budov, resp. investori pochopiteľne nemajú potrebnú odbornosť, nevedia ani zodpovedne zhodnotiť kvalitu práce týchto profesií. Ich odbornosť a dôsledný výkon práce je však predpokladom naplnenia základných požiadaviek na stavby, preto je vo verejnom záujme nastaviť a aktívne vykonávať systémy kontroly ich odbornosti a práce, spolu so sankciami za nedodržiavanie štandardov a zabezpečiť efektívny a nekompromisný priebeh stavebného konania. Poslednou úlohou je zavádzanie nástrojov na prekonanie zlyhaní trhových mechanizmov od podporných, kontrolných a sankčných až po regulačné. Ide napríklad o podporu vlastníkov budov, aby včas investovali do obnovy a aby ju realizovali na takej úrovni, ktorá je vo verejnom záujme. Tiež sem patrí napríklad dôsledná a transparentná cenová regulácia monopolných dodávateľov tepla a iných energií, keďže ich cenová politika ovplyvňuje návratnosť investície do budov. Okrem štátom stanovených systémov a certifikácií poznáme však aj komerčné certifikáty, ktoré sa už vo veľkom používajú aj na Slovensku. Konkrétne sa jedná o anglický certifikačný systém BREEAM, americký LEED, nemecký DGNB alebo najnovší systém používaný v Spojených Arabských Emirátoch- Estidama. Každý z týchto certifikačných systémov je zameraný na jemne odlišné faktory a skupiny, podľa ktorých daná budova získava hodnotenie. Spoločným menovateľom je ale určite nielen kvalita vnútorného prostredia, ale rovnako tak aj okolia výstavby budovy, energetickej náročnosti alebo vodného hospodárstva. Princípom je zachovanie udržateľnosti a to od miesta výroby používaných materiálov, ktoré sa používajú pri výstavbe, až po konečnú kolaudáciu. Z tohto dôvodu začína znižovanie emisií skleníkových plynov už pri samotnom projektovaní stavby, kedže sa využívajú materiály a systémy, ktoré sú energeticky nenáročné a ekologické. Následne je princíp udržateľnosti aplikovaný pri výstavbe a končí vo fáze samotného užívania budovy. Hlavnou nevýhodou komerčných certifikácií je, že im štát neposkytuje žiadnu podporu a je teda iba na developerovi, či sa rozhodne dobrovoľne certifikáciu zaplatiť alebo nie.

Spoločnosť EY vytvorila základ, ktorý poskytuje prehľad neviditeľných oblastí daňovej politiky, ktoré môžu pomôcť verejnoprospešným spoločnostiam alebo energetickému manažérovi prejsť morom zmien okolitého životného prostredia v otázke udržateľnosti. Daňové a obchodné stimuly súviasiace s udržateľnosťou krajiny a miestnej jurisdickie čoraz viac ponúkajú stimuly na podporu organizácií, aby investovali do projektov a technológií, ktoré prispejú k zníženiu uhlíkovej náročnosti. Identifikácia a zabezpečenie daňových a iných podnikateľských stimulov môže často pomôcť

spoločnosti naplniť alebo zlešiť prah návratnosti investícií, ktoré sú potrebné pre tieto projekty. Ďalším spôsobom sú environmnentálne a energetické dane. Vlády na celom svete naďalej rozvíjajú svoje environmentálne politiky a súbežne hľadajú nové zdroje príjmov, čo v posledných rokoch viedlo k zvýšeniu tvorby enrvironmentálnych a energetických daní, vrátane nových právnych predpisov a vývoja nariadení o existujúcich daniach. Tieto dane pokrývajú činnosti vrátane emisií, výroby určitých výrobkov, dopravy, výroby energie, využívania zdrojov a iných negatívnych vonkajších vplyvov na životné prostredie. Jednou z možností je aj obchodovanie s emisiami z dane z uhlíka, kedže sa globálne hospodárstvo naďalej spolieha na fosílne palivá. Obavy z obmedzenia uvolňovania emisií oxidu uhličitého, spojeného so spaľovaním týchto palív sa zintenzívnili. Vlády sa čoraz viac obracajú na uhlíkové režimy, ako sú uhlíkové dane a tzv. "cap and trade" systémy určovania uhlíkových stropov, ako na účinný spôsob obmedzenia týchto emisií.

Systém obchodovania s emisiami na Slovensku, ktorý predstavuje približne 50% celkových ročných emisií skleníkových plynov, bude aj naďalej kľúčovým nástrojom nákladovo efektívneho znižovania emisií skleníkových plynov v priemysle, energetike a leteckej doprave. Systém EU ETS je založený na spomínanom systéme „cap-and-trade" so súborom neustále sa znižujúcich ročných stropov pre objem emitovaných emisií. Cieľom schémy je znížiť emisie skleníkových plynov o 43% do roku 2030 v porovnaní s rokom 2005. Slovensko má možnosť predať približne 55% svojho ročného emisného stropu v rámci systému EÚ ETS a zároveň prebytku v sektoroch mimo ETS alokuje každoročne pridelené kvóty na pokrytie emisií vytvorených v týchto sektoroch. Výnosy z predaja všetkých emisných kvót sa použijú na splnenie environmentálnych cieľov v oblasti zmeny klímy a na zabezpečenie zníženia emisií skleníkových plynov v národnom hospodárstve alebo na podporu klimatických projektov a opatrení v rozvojových krajinách. Európska únia vyčlení ročne približne 25 miliónov ton emisií AEA na Slovensko. Slúžia na pokrytie sektorov dopravy, poľnohospodárstva a odpadov, ako aj individuálneho vykurovania domácností. Z tejto alokovanej sumy Slovensko využíva približne 21 miliónov ročne. Ministerstvo životného prostredia SR preto pripravilo novelu zákona o obchodovaní s emisiami, ktorá stanovuje jasný systém obchodovania s ročnými pridelenými emisnými kvótami, určuje spôsob využitia výnosov z ich predaja a zavádza vykazovanie emisií skleníkových plynov prostredníctvom elektronického systému. V niektorých prípadoch však ani kvalitne vytvorené nariadenia nepomôžu , keď ich ľudský

faktor nerešpektuje. Takýmto prípadom bola jednoznačne kauza prvej vlády bývalého premiéra Slovenskej republiky, Róberta Fica , ktorá mala možnosť predať prebytočné kvóty zahraničným zákazníkom v krajine. Kvóty boli štátne aktíva a vláda ich bola povinná predávať za najvyššiu cenu. V roku 2008 zaplatili japonské spoločnosti 142,5 mil. €, ale reálne na Slovensko prišlo len 75,75 mil. €. Machinácie pri výbere zahraničnej spoločnosti, zatajovanie dôležitých údajov a podplácanie na najvyšších miestach je dôkazom toho, že trhový mechanizmus dokáže správne fungovať iba v prípade, že na najvyšších funkciách sedia zodpovední a slušní ľudia. Viacerí analytici vidia riešenie tohto problému v uhlíkovej dani, ktorá by platila pre všetkých rovnako, pričom by bolo množstvo vybratých peňazí transparetné a správne alokované.

O uhlíkovej dani však taktiež existuje veľa rôznych názorov. Emisie budov predstavujú až 36% výroby oxidu uhličitého v Európe. Veľká časť Európskeho stavebného fondu pozostáva z budov vo verejnom vlastníctve a prenajatých verejných budovách. Príkladom musí byť jednoznačne verejný sektor. Európska komisia by mala využiť možnosti a stanoviť najvyššie možné štandardy pre obnovu. Nielen, že ponúkajú možnosť výrazne znížiť emisie CO2, ale prinášajú aj značné zisky pre štátnu pokladnicu prostredníctvom obrovských úspor nákladov na energiu a tiež vytvárajú množstvo pracovných miest v sektore trvalo udržateľnej výstavby. Slovenská republika ako súčasť vyspelej komunity je pripravená implementovať Parížsku dohodu o klíme a znížiť emisie skleníkových plynov o 40 % do roku 2030 v porovnaní s rokom 2005, prispôsobiť sa klimatickým zmenám a mobilizovať "klimatické" financie.

Cieľom dane z uhlíka je znížiť emisie oxidu uhličitého, spomaliť zmenu klímy a zlepšiť zdravie planéty aj ľudí. Veľká časť obchodovania s emisiami pokrýva približne polovicu výrobcov CO2 len z veľkých významných krajín. To znamená, že ak sa chcem tomuto systému vyhnúť, rozdelím spoločnosť na dve menšie prevádzky, aby sa na mňa nevzťahovali predpisy. Ak systém nepostihne všetkých, ktorí emitujú určité množstvo CO2 do ovzdušia, vždy bude existovať spôsob, ako sa vyhnúť plateniu. Ďalším faktorom je, že ak by sme vedeli, že uhlíková daň bude platiť aj v budúcnosti, bolo by oveľa jednoduchšie plánovať. Obchodovanie s emisiami sa aktuálne plánuje na 5 rokov. Po tomto období sa pravdepodobne obnovia ďalšie podmienky, pričom je potrebné, aby sa jednotlivé firmy opäť prispôsobili. Napríklad, ak chcem premeniť logistiku veľkého závodu na nízkoenergetický, ekologickejší a ziskovejší, nemôžeme počítať v

krátkodobom horizonte.

Existuje viacero návrhov, ktoré prekladajú konkrétne spôsoby uplatňovania uhlíkovej dane tak, aby vo výsledku nepostihla konečného spotrebiteľa a teda obyčajných ľudí. Znamená to napríklad, že náklady na tovary by sa zvýšili o výšku poplatku a množstvo CO2, ktoré vzniklo pri jeho výrobe a distribúcii. Táto daň by však nemala mať vplyv na konečného spotrebiteľa. Výška tejto dane by sa nakoniec vrátila konečnému spotrebiteľovi, napríklad vo forme, že by si neodpočítal 300, ale 700 eur z daní. Každý rok by teda bolo potrebné vypočítať, koľko peňazí sa vybralo na daň z uhlíka a ktoré by sa nakoniec vrátili ľuďom. A nakoniec, daň z uhlíka spôsobí, že peniaze sa nedostanú do fondov výrobcov fosílnych palív alebo vládnych úradníkov (ako tomu bolo v prípade systému obchodovania s emisiami v roku 2008), ale vrátili by sa ľuďom. Daň z uhlíka by riešila celý rad sociálnych problémov, či už miestnych alebo globálnych. Vznikol by tok peňazí z bohatých krajín s vysokou produkciou CO2 do chudobných krajín s nízkou produkciou CO2. Ak by sa 80 % dane z uhlíka rozdelilo podľa množstva emisií CO2 v krajine na 20 % obyvateľstva, každý, kto potrebuje menej ako 80 % národného priemeru emisií CO2 v štáte bohatom na uhlík, by zarobil. Keďže sa dá očakávať, že väčšina obyvateľstva v štáte bude produkovať menej ako 80 % národného priemeru emisií CO2, takýto model môže byť politicky životaschopný. Potom tok peňazí do chudobných krajín pôjde hlavne od ľudí spojených s vysokou produkciou CO2. Jedná sa predovšetkým o ľudí, ktorí nakupujú luxusné statky, ako sú napríklad vyhrievané bazény alebo autá s veľkýmobjemom motora. Túto zásadu uplatňovania uhlíkovej dane plne podporili Al Gore, držiteľ Nobelovej ceny alebo James Hansen, vedec v NASA. Systém emisných kvót sa bude čoraz viac podobať uhlíkovej dani. Bude to vždy zložitejšie, a teda menej transparentné. Ani malé subjekty, ani jednotliví voliči nebudú priamo ovplyvnení.

Najväčší problém je v tom, že daň z uhlíka zatiaľ nebola riadne vysvetlená širokej verejnosti. Pri jej správnej aplikácii do daňového systému Slovenskej republiky, by sa táto daň mohla stať všeobecne prijateľnou. Statky a služby by sa zvýšili o pomernú sumu, ktorá by bola vypočítaná na základe množstva C02 vypusteného pri jej výrobe. Pri nákupoch by tak ľudia automaticky uprednostňovali statky a služby, ktoré boli vyrábané pri nižšej energetickej náročnosti, ako je napríklad spomínaná kúpa auta s vysokou spotrebou alebo ekologické materiály pri výstavbe budov. Ak sa budeme chovať

zodpovedne a rozumne, pri vhodnom zavedení uhlíkovej dane neprerobíme. V konečnom dôsledku iba zmeníme štruktúru spotrebného koša, ktorá nám z dlhodobého hľadiska môže priniesť väčší úžitok. Zároveň by sa suma o ktorú by sa zvýšili ceny statkov a služieb vrátila konečným spotrebiteľom, napríklad pri odpočte dane z príjmu , čím by tento systém nevytvoril žiadne nezrovnalosti v disponibilných dôchodkoch. Samozrejme, že sa pri zavedení nových zákonov na určité obdobie zvýši administratívna náročnosť, avšak v konečnom dôsledku by boli všetci spokojní. Ľudia by vo svojich peňaženkách nepocítili rozdiel, štát by neprišiel o peniaze a zároveň by sme našu krajinu zanechali v lepšom stave pre budúce generácie.

Úspech uhlíkovej dane bude však reálny až vtedy, keď príjmy z tejto dane budú naspäť prerozdeľované na ekologické a enviromentálne účely. To znamená, že je potrebné pripraviť zákon, ktorý by definoval alokáciu celkového množstva peňazí vybratého na uhlíkovej dani, do presne stanovených oblastí. Jednými z možností sú aj dotácie do pasívnych domov, podpora zelených certifikátov, ktoré zvyšujú štátom stanovené minimálne hodnoty alebo podpora ekologických a environmentálnych projektov mladých firiem. Vo Fínsku sú štyria ľudia z piatich ochotní zmeniť svoje životné návyky v dôsledku uvodomenia si potreby prechodu na ekologickejšie a zodpovednejšie spôsoby fungovania. Slovensko má od tejto štatistiky ešte ďaleko, avšak všetko to záleží iba na nás, na našich prioritách a témach rozoberaných v spoločnosti.

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