

"Green Europe" Plan versus Claiming of the Plan by V4 Counties

Ivana Čermáková

ORCID: 0000-0003-3208-6374

VSb – TECHNICAL UNIVERSITY OF OSTRAVA, FACULTY OF ECONOMICS, DEPARTMENT OF APPLIED INFORMATICS, IVANA.CERMAKOVA@VSB.CZ

Jiří Slezák

ORCID: 0000-0003-2188-8881

VSb – TECHNICAL UNIVERSITY OF OSTRAVA, FACULTY OF ECONOMICS, DEPARTMENT OF ACCOUNTING, JIRI.SLEZAK@VSB.CZ

Abstract

For economic and environmental reasons, the present and future of the environment is not sustainable. While European countries agreed on a "Green Europe Plan" to address those issues, each country has a different method how to apply it. The main goal of this text is to evaluate the preparedness of each country and the projects implemented which should increase the attainability of "Green Europe" Plan. The article is focused on V4 countries (Czechia, Slovakia, Hungary and Poland) as they have strong relationships. The European Green Deal serves as the European Union's climate and climate neutrality plan that covers all areas of the economy. Climate change, adverse weather conditions, high ocean temperatures can have a very dire impact on nature and people, leading to higher costs not only for the European Union's economy. However, these climate threats can be combated or at least mitigated, for example by reducing greenhouse gas emissions and thus achieving climate neutrality, which is precisely the aim of the European Green Deal.

Keywords: green Europa; sustainable development, climate, European Union

JEL Classification: Q53, Q54, Q56

Introduction

In 2019, the European Union (EU) presented a strategy called "Green Europe" at the United Nations Summit. The document states that the EU's main goal is to become climate-neutral by 2050 and to reduce carbon dioxide emissions by at least 55% by 2030 compared to 1990. According to Tutak, Brodny and Bindzar (2021), this applies to the whole economy, including transport, construction, and agriculture, i.e. areas not covered by the European Union Emissions Trading Scheme. While some countries, especially in Central and Eastern Europe, are opposed to these goals, others, such as Sweden and the Netherlands, consider the European Union's target for 2030 to be not ambitious enough (Aune, Golombek 2021).

According to Nikas et al. (2021), the goal of reducing carbon emissions by 2030 is not very realistic at present and requires further efforts. This is refuted by Soergel et al. (2021), who claim that it is possible to achieve these goals, but requires introduction of certain policy interventions in various areas and changes

in lifestyles. Giannakis, Zittis (2021) stress that in the absence of policy interventions, greenhouse gas emissions would increase by 89% by 2030 with energy and agriculture sectors as the biggest contributors. Trincado, Sanchez-Bayon, Vindel (2021) argue that the goals of the Green Europe strategy may be jeopardized by the Jevons paradox due to increasing demand for resources. Sompolska-Rzechula and Kurdys-Kujawska (2021) argue that low climate protection efforts may exacerbate the incidence of infectious diseases (similarly to the COVID-19 pandemic), thereby increasing the health impacts associated with environmental risks.

“Green europe” strategy

“Green Europe” plan is the strategy that aims to bring the following benefits for Europe (Evropská komise 2021):

- Clean air, safe water, healthy soil and biodiversity;
- Renovation of buildings for energy efficiency;
- Healthy and affordable food;
- Expansion of public transport;
- Greener energy and innovation thanks to cutting-edge clean technologies;
- Longer product life as it will be possible to repair, recycle and reuse;
- Jobs resilient to future changes in the labour market and education in areas that will be needed for the future transformation of society;
- Globally competitive and resilient industry.

Figure 1 presents the timeframe for implementing the Green Agreement for Europe.

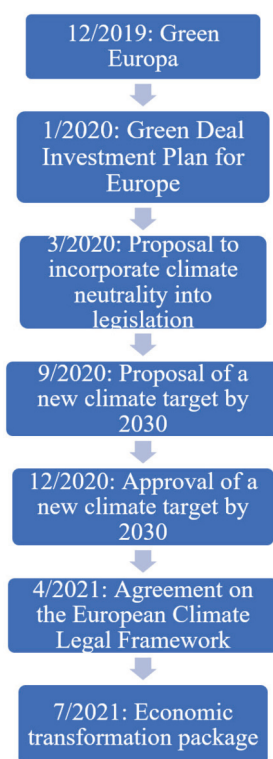


Figure 1. Timeframe for implementing the Green Agreement for Europe

In terms of **climate**, the main goal is to gain climate neutrality by 2050, i.e. achieving net zero greenhouse gas emissions in all economic areas. This objective is part of the proposal for the European legal framework for climate. To this end, a new climate target has been set, namely, to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 (Evropská komise 2021). The European climate legal framework also includes:

- Recognition of the need to promote carbon reduction through the Land Use, Land-Use Change and Forestry (LULUCF) Regulations 2021;
- Setting a procedure for setting a climate target by 2040;
- Establishment of an independent European Scientific Advisory Group;
- Commitment to negative emissions after 2050 and beyond.

The European Union is progressing on climate issues, in particular regarding the United Nations Framework Convention on Climate Change and the Paris Agreement.

From an **energy** perspective, the priority is to decarbonise the EU's energy system in order to meet the climate goals. This is true for 2030 and now 2050 in terms of the EU's carbon neutrality. The goal of reducing greenhouse gas emissions is divided into three sub-goals (Evropská komise 2021):

- Ensure a secure and affordable energy supply in the EU;
- Create a fully integrated, interconnected and digitized EU energy market;
- Reducing the energy intensity of buildings and promoting renewable energy sources.

The European Commission wants to achieve these goals, for example, through a better integrated network to support renewable energy sources, innovation, decarbonisation of the gas sector and the promotion of smart integration across sectors or the development of offshore.

From an **agricultural** point of view, the transition to a sustainable food system is a priority. According to the European Commission (2021), this priority can be achieved by meeting the following objectives:

- ensure a reliable food supply in the face of climate change and biodiversity loss;
- reduce the environmental and climate footprint of the food system;
- increase the resilience of the EU food system;
- o steer the global transformation towards competitive sustainability from farmer to consumer.

From an **industrial** perspective (Evropská komise 2021), a competitive, green, and digital Europe is a priority for the EU. The European Commission supports efforts in various movements and projects, such as GAIA - X. Related to this is the EU's drive towards technological sovereignty, which has been increasingly emphasized in recent years. Importance is also placed on the elaboration of scientific studies on this topic.

From the point of view of **environmental and ocean protection**, the main goal is to preserve natural and economic wealth in the future. This goal is divided into the following sub-goals (Evropská komise 2021): protect ecosystems;

- reduce air, water and soil pollution;
- convert the traditional economy into a circular economy;
- improve waste management;
- ensure the sustainability of water management and fisheries.

In terms of **transport**, the main goal is to reduce greenhouse gas emissions from transport by 90% by 2050. The tools for this goal are sustainable and intelligent mobility and the promotion of European trains as express throughout Europe. Other tools to achieve this goal are expected in the future (Evropská komise 2021).

In terms of **finance**, the emphasis is on sustainable investment. More than €1 trillion is expected to be used to meet this target over the next decade. Support for these investments will also be provided through post-pandemic recovery funds. Public and private investment will be mobilized as part of sustainable financing. Under the Green Agreement, the EU will encourage the private sector to invest in green and sustainable projects (Evropská komise 2021).

In terms of **research and innovation**, the goal is to become the world's first climate-neutral continent. This goal has the following sub-goals (Evropská komise 2021):

- taking the necessary steps;
- elimination and minimization of risks;
- implementing social innovation with the help of citizens.

To meet not only these sub-objectives, the Horizon fund has been created within the EU. Its current priorities are pure hydrogen, low carbon steel, the circular bio-industry, the support of environment and biodiversity. The combined research effort is already helping to reach the goals. The European Commission's website contains full list of such projects like E-FERRY (100% electric battery ferry), IoF 2020 (IoT connection and the agricultural sector), HYDRALAB-PLUS (data collection for flood risk reduction and prevention), Urban GreenUP (involvement of citizens in green solutions of urban areas).

If we look at the application of the above-mentioned strategies and plans in the case of individual member states, we will see significant differences.

V4 countries and “Green Europe” plan

Even before the “Green Europe” plan, each country tried to be more ecological as confirmed by Eurostat data (see Table 1) on key parts of ecological objectives.

Table 1 informs about some indicators monitored by the EU as an important part of “Green Europe” Plan: Average CO₂ emission per km for new passenger cars, Primary energy consumption, Share of fossil fuels in gross available energy, and Final energy consumption in road transport. Presented data points to a clear improvement in the care of environments – as the emissions, share of fossil fuels and other indicators decreased – even before the “Green Europe” Plan. However, one of the reasons for creation of the Plan was that the changes within each country were too slow and the implementation of the Plan in each state, mainly via projects, will increase the speed of transformation. Each V4 state is characterized below.

The Czech Republic is participating in the Horizon project. Within that framework, the Resilient Water Innovation for Smart Economy (REWAISE) project is being implemented at VŠB – Technical University of Ostrava. The project duration was five years and it finished in 2020 (VŠB 2021). It focused on ensuring safe and sustainable water resources. The Masaryk University has several projects within the same framework (Recetox 2021) which focus, for example, on reducing dust particles in cities (ICARUS project) or monitoring the planet in order to study change (ERA-PLANET project).

Czechia also lists the funds of individual ministries for the implementation of a “green and sustainable” future. The Ministry of the Environment supports the following five research organizations: the Czech Environmental Information Agency (CENIA), the Czech Geological Survey, the Czech Hydrometeorological Institute, the T.G.M., v.v.i Research Institute of Water Management and the Silva Tarouca Research Institute for Landscape and Ornamental Horticulture, v.v.i. In the case of the Czech Hydrometeorological Institute, the research focuses on the assessment of hazards and risks of natural phenomena and their impacts in terms of improving preparedness and strengthening the resilience of society and ecosystems, and devel-

Table 1. V4 countries indicators regarding ecological objectives in 2019 and 2020.

Indicator/ year	Average CO ₂ emissions per km from new passenger cars		Primary energy consumption		Share of fossil fuels in gross available energy		Final energy consumption in road transport	
	2019	2020	2019	2020	2019	2020	2019	2020
Czechia	128,7	120,9	39,8	37,5	73,5	70,7	6 474,6	6 084,7
Hungary	129,7	116,7	24,6	23,9	69,9	69,3	4 851,0	4 268,7
Poland	130,4	125,0	100,2	96,5	87,2	86,3	21 998,4	21 079,3
Slovakia	130,4	121,8	16,0	15,2	62,4	62,1	2 526,4	2 329,6

Source: (Eurostat 2021)

opment and application of air quality monitoring methods with emphasis on dust particles and related substances (Ministerstvo životního prostředí 2021). The Ministry of Industry and Trade provides support in various areas through so-called calls. In terms of a "green and sustainable" future, the current topics include circular economics, installation of photovoltaic installations on company buildings to reduce the energy burden on the public grid, and the use of hydrogen and hydrogen technologies as the main tools for reducing emissions (Ministerstvo průmyslu a obchodu 2021).

Czech universities and research institutes are also involved in research projects founded through international programs. Projects are often financed through various channels, as is the case, for example, with the SMART And Green District Strategy (SMARAGD). SMARAGD is a comprehensive solution to a company's challenges in the field of materials, energy, environment, and IT. It consists of several mutually synergistic projects with planned multi-source financing (SMARAGD 2021). Another project to use similar strategy is called REFRESH, which consists of interconnected living laboratories in a shared sandwich infrastructure: Industry 4.0 & Automotive Lab, Energy Lab, Materials & Environment Lab. The project is divided into three parts: project preparation and submission of a grant application, the establishment of research teams and professional implementation of the plan and construction work and the purchase of equipment and facilities. The project will run from 2022 to 2027. Support should still be provided for the next few years after the end of the project. The key areas of the project are:

- Sustainable energy with the support of low carbon technologies;
- Environmental technologies;
- Smart material technologies;
- Nanotechnology;
- Digitization and Industry 4.0;
- Autonomous mobility and e-mobility;
- Additive production;
- Artificial Intelligence.

The main researcher of the project is VŠB - TU Ostrava. The project has another 20 cooperating institutions such as Siemens, Ltd., ČEZ, a.s. (the biggest Czech energetic company), and ŠKODA AUTO, Ltd.

The **Slovak Republic** also participates in European projects (e.g. Horizon 2020, Partnership for Cohesion Policy 2020+). Moreover, the funds allocated by the EU to the Slovak Republic within the Partnership for Cohesion Policy 2020+ for the period 2021-2027 are divided into six key areas: Ecological Slovakia for future generations, Mobility, Transport and Communication, Quality of Life in the Regions, Innovative Slovakia, Social, Justice and Educated Slovakia, the sixth section was established in December 2021 (CKO 2021). Furthermore, projects are also supported at the national level, as is the case with the project Improving air quality (LIFE-UP), which was supported by the EU under the LIFE program and by the Slovak Ministry of the Environment. The LIFE-UP project, scheduled for the period 2020 to 2027, focuses on the improvement of the quality of air, reduction of the exposure of the population to harmful substances, and educational, communication and monitoring activities of partners in order to create effective management of air quality through involvement of experts in the national network of air quality managers. Within the framework of green and sustainable future, the Comenius University in Bratislava is implementing with help of international partners a project called Completing the Center of Excellence in Green Chemistry Methods and Processes, focused on the development of chemical methods that are more environmentally friendly (e.g. by minimizing waste generation, reducing energy consumption in the manufacturing sector) and will help to reduce pollution (Univerzita Komenského v Bratislavě 2021).

In **Poland**, the National Environmental Policy 2030 was adopted in 2019. The aim of this policy is to ensure environmental security in Poland while ensuring a high quality of life for all the country's inhabitants. The document also provides framework for national co-funding for the EU founded projects and establishes the path to meet the Polish commitments to the EU goals in the field of climate and energy until 2030 and the goals of sustainable development (Ministry of Climate and Environment 2021). Poland is one of the 18

countries in the world to receive a grant from the European Economic Area and Norway for funding environmental programs. One of such programs is the Environment, Energy and Climate Change, which addresses global warming and aims at actions to protect and raise awareness of climate change and climate change, air pollution monitoring activities, activities in the field of circular economy. In the field of energy efficiency, the program aims to: increase energy efficiency in schools, industry and urban heating systems, focusing production on renewable energy, especially geothermal hydropower (*Ibidem*). Part of the sustainable development policy is a project of wooden buildings, the aim of which is to increase the number of wooden houses built on the Polish territory. The purpose of this project is to reduce carbon dioxide emissions and reduce energy consumption used to service homes (Gov.pl, 2020). GreenEvo – Green Technology Accelerator is used to support green technologies. Another initiative of Poland to improve the quality of life of all inhabitants and transform cities into climate-neutral places is the Climate-friendly cities project. The essence of this initiative was a series of lectures, the aim of which is a plan of activities in the field of greening cities and various other measures (Ministry of Climate and Environment 2021). Environmental Technology Verification is a tool that serves to support eco-innovation in the market. It aims to provide a process for determining the value of these technologies through an independent technology assessment (Ministry of Climate and Environment 2021). In 2021, a Partnership for Transatlantic Energy and Climate Cooperation meeting was held in Poland. The aim of the meeting was to discuss various topics such as energy policy, technological innovation, climate, etc. The project focused on developing cooperation between the US and Central and Eastern European countries on these topics (*Ibidem*).

In 2020, **Hungary** defined its strategic goals in the field of climate and environmental protection giving priority to reduction carbon emissions, for example by promoting solar and nuclear energy. It also launched targeted discussions on the implementation of climate and environmental protection activities (Magyarország Komárnaya 2021). Since 2019, Hungary has been involved in an afforestation program aimed at increasing the afforestation of its territory (Kormany.hu 2021). In 2020, a law on climate protection was adopted, which aims to achieve climate neutrality by 2050. Hungary is also the recipient of a grant from the European Economic Area and Norway. In terms of climate change, attention is paid to the following areas (Iceland Lichtenstein Norway grants – Norway grants 2021): Climate Change Mitigation and Adaptation, Renewable Energy, Energy Efficiency, Energy Security. Hungary uses two models for projection in the National Clean Development Strategy:

- Green economies – support for macroeconomic estimates of decarbonisation results and assessment of environmental externalities;
- HU-TIMES – energy sector simulation and analysis of energy flows within the energy sector.

Three scenarios for greenhouse gas emissions have been developed in Hungary: a business-as-usual scenario, which analyses the situation in the economy if there are no political or other changes; a late-action climate neutrality scenario aimed at achieving Hungary's neutrality by 2050; the climate neutrality early action scenario serves to analyse environmental externalities. To ensure climate neutrality, efforts have been made to increase the energy efficiency of the whole economy and electrify it; to support research on hydrogen utilization and bioenergy; and to support research in education. These activities should focus on support for energy savings of households and other entities; investment in energy efficiency in various sectors of the economy and in other technologies (ITM 2020).

Conclusions

The article focuses on the issue of sustainable Europe in economic and environmental terms. The article explains the key agreement – the Green Europe Plan – which is divided into the following sections: climate, energy, agriculture, environmental and ocean protection, transport, finance and research and innovation. Those sections are further divided according to individual objectives. The main goal of the article is to present the application of ideas for a sustainable future by V4 countries which were chosen due to their close ties and frequent cooperation.

We found that the V4 countries are trying to apply the Green Europe agreement, as well as other environmental and sustainable agreements mainly through funds, by issuing calls financed through international, e.g. Horizon, or national, e.g. SMARAGD, funds. The composition of those funds varies from country to country, but the following set up is typical. The calls financed through international funds, usually include cooperation of several countries, while the calls financed through national funds, usually involve only local research organizations and companies, although this is not necessary in terms of the conditions for drawing funds. In the future, it would be appropriate for national projects to involve companies or research organizations from other countries, e.g. the Czech SMARAGD project, which focuses on the Moravian-Silesian region, which is directly adjacent to Poland, would be suitable for establishing cooperation. The question for the future is therefore whether the individual regions, especially in the border areas, will also cooperate internationally as there is a large, often untapped potential. While this connection is already happening in the area of international funds, within the national funds only an emerging trend can be seen and just in some areas.

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