

## RENEWABLE ENERGY, AN INFLUENTIAL FACTOR IN THE DEVELOPMENT OF THE DANUBE TRANSPORT CORRIDORS ROMANIA - BULGARIA AND A SUPPORT MECHANISM IN INTERMODAL CONNECTIONS

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### *Abstract*

*The paper aims to present the need and the importance of using efficiently the energy and finding new ways to improve the transport based on renewable energy. The paper is based on a large number of official information sources which are structured and presented in the author's opinion. The main results emphasize that the Danube region is a large river basin and ecological corridor requiring a regional approach to nature conservation, spatial planning and water management. The environmental impact of transport links, tourist constructions or new energy production facilities must also be considered. Transport policy has been given a new direction: achieving a 'sustainable through flexibility' system, which means organizing transport in such a way as to optimize energy consumption. The development of the national transmission system shall be carried out in accordance with the requirements of conservation and environmental protection and the rational use of energy. The protection of human life and the environment is a priority in all transport-related relations.*

**Key words:** renewable energy, Danube, transport, cross-border, cable project

### INTRODUCTION

The European Green Deal regarding the Danube Region has the purpose to strengthen and join the efforts for assuring the sustainability of the economic development preserving environment and mitigating the impact of climate change by sustaining the connectivity and involving research and innovation [8].

On 12 of February 2015 was launched Interreg 2014 – 2020, a project of cooperation between Romania and Bulgaria, a project financed by the European Union from the European Regional Development Fund having the main purpose “developing the border area between the two countries through joint projects”. (University of Craiova, ”The Ecological Initiative and Sustainable Development Group” Foundation, 2016-2018) [11].

Interreg is built around three areas of cooperation: cross-border (Interreg A), transnational (Interreg B) and interregional (Interreg C). European cross-border

cooperation, known as Interreg A, supports cooperation between regions from at least two different Member States, regions which are located on or near each other's borders. It aims to address common challenges identified in the border region and to develop untapped growth potential in border areas, while strengthening the cooperation process for the harmonious development of the European Union.

The programme document jointly developed by Romania and Bulgaria was approved by the European Commission on 10 February 2015.

The Programme brings an extraordinary perspective for regional development based on concrete results with the capacity for the two countries, Romania and Bulgaria, to offer the most modern land, river, sea and energy infrastructure in the next 25 years (The Interreg V-A Romania- Bulgaria Programme, 2016) [12].

In this context, the purpose of the paper is to present the objectives and achievements of the Project developed within The Interreg V-A

Romania- Bulgaria Programme, pointing out the importance of using efficiently the energy and finding new ways to improve the transport based on renewable energy.

## MATERIALS AND METHODS

For attaining the purpose of the paper, there were studied numerous official information sources from European Union Council and Parliament, Ministry of Foreign Affairs of Romania, research articles published on the topic and the documents of the Project The Interreg V-A Romania- Bulgaria Programme. The project addressed problems of accessibility, efficiency, ecology and safety of secondary/tertiary nodes connection to TEN-T infrastructure in the cross-border region.

The main objective of the proposed action is to significantly improve the planning, development and coordination of cross-border transport systems for better connections with TEN-T network in the CBC area. This is done through investment in the study, planning and adoption of strategic documents on optimizing of the transport system through enhanced intermodal transport connections in the cross-border region.

The Danube region is a large river basin and ecological corridor, requiring a regional approach to nature conservation, spatial planning, and water management. Pollution does not respect national borders. Sustainable water management is needed, with a joint effort to reduce pollution from organic substances, nutrients, and hazardous substances.

The environmental impact of transport links, tourist developments and new energy production facilities must also be considered.

## RESULTS AND DISCUSSIONS

The multinational within the implementation of the EU strategy for the development of the Danube region is destined to create permanent direct and strong links between the involved countries, regions, and communities to join their efforts for the sustainable economic, social and environment development [1, 2, 3].

A major accent is put on the creation of a corridor where the renewable energy to connect the Black Sea and the countries along the Danube River [10, 13].

The energy hub on the Danube - Black Sea corridor has become the transmission belt for renewable energy as well as transportable energy from countries agreed in the Danube - Black Sea energy cluster.

Thus, the President of the European Commission, Ursula von der Leyen, participated together with the President of Romania, Klaus Iohannis, in the signing of the Agreement between the Governments of Romania, Hungary, Georgia and Azerbaijan on the strategic partnership in the field of green energy transport.

The Agreement will provide the financial and technical framework for the implementation of the project of the submarine cable for the transport of electricity from renewable sources between Romania and Azerbaijan, via Georgia and the Black Sea, and, subsequently, for the transport of this energy to Hungary and the rest of Europe, through the European transport system.



Map 1. The Black Sea Submarine Cable Project  
Source: [10, 13].

The Black Sea Submarine Cable Project [10] is part of the agreements in the energy field between the European Union, represented by the European Commission and Azerbaijan, also being a flagship project for Georgia, as part of the EU Global Gateway strategy (Map 1).

The Strategic Partnership in the field of green energy development and transmission is an ambitious project aimed at the development of the submarine electricity transmission cable in

the Black Sea (to be completed in September 2023). The cable will take six years to complete and will be 1,195 kilometres long.

The Green Partnership on energy confirms the concern of all countries bordering the Danube and Black Sea to cooperate in ensuring the supply of renewable electricity [6].

Countries that connect to such a project, such as Georgia, clearly show that the geopolitical problems and the war in Ukraine have brought to the attention of the European Union the need to diversify and adapt to rapid methods in the energy field.

Georgia has become a member of the Danube-Black Sea energy cluster, a bridge between the West and Central Asia.

All countries involved in the Danube-Black Sea energy hub see a tremendous opportunity to invest in expanding and upgrading their energy and communications infrastructure in line with European standards.

The submarine cable project presents an extraordinary perspective for the energy independence of the countries in the Danube and Black Sea basins, becoming a transport bridge in the critical energy infrastructure of the EU and beyond.

The agreement in Romania - Hungary, Georgia, Azerbaijan launched the strategic partnership in the field of green energy development and transport, responds as vision and implementation to an urgent need to increase the share of green energy and energy security. Romania is committed to investing in energy production and energy infrastructure.

The agreement to increase the share of green energy and energy security in the Black Sea basin and the Danube corridor strengthens the perspective of EU projects for the future of green energy by 2030.

Our potential and resources are essential, stressed senior Romanian representatives for a sustainable Danube-Black Sea energy future.

Romania is committed to investing in energy production and energy infrastructure and in cooperation with partners to help us promote energy security for ourselves and for the whole region. Romania will play an important role as a transit country, as an energy hub, offering alternatives to our neighbours and

partners in the European Union, but also to two other countries bordering the Danube and the Black Sea, Moldova and Ukraine.

According to the Ministry of Foreign Affairs of Romania, the EU strategy for the Danube Region (SUERD) is destined to develop the interconnection in the Danube region, the environment protection, the growth of prosperity in the area, and the consolidation of the region. The benefits for Romania are the improvement of life quality and the attractiveness of the localities, economic business partnerships in the public and private sectors, investments in transport infrastructure, environment and energy, expertise and competence transfer by transnational cooperation, an increased absorbing capacity of structural funds [4, 7].

The bilateral cooperation between Romania and Bulgaria and the project developed by "The Ecological Initiative and Sustainable Development Group" Foundation and the Association of Danube Municipalities in Bulgaria, has undertaken extensive research based on the total budget of the Interreg VA Romania - Bulgaria Programme of 258.504.126,00 euro, of which 215.745.513,00 euro from the European Regional Development Fund.

The area involved in the Border Cooperation Programme between Romania and Bulgaria is shown on the Map 2.



Map 2. Area of the Border Cooperation Programme between Romania and Bulgaria  
Source: [9].

The Programme activated five priority axes and technical assistance as follows:

- A well-connected region
- A green region (renewable energy infrastructure)
- A secure region

- A skilled and inclusive region
- An efficient region
- Technical assistance.

Investigating opportunities to reduce the use of the TEN-T network in the Romania-Bulgaria cross-border region by optimising freight and passenger transport and developing a common mechanism to support intermodal connection is an objective we aim to achieve in the period 2021-2025 by continuing the project or succeeding in significantly improving the process of planning, development and coordination of transport systems for better connection to the TEN-T network in the cross-border region, using the capacity of intermodal nodes.

The aim of TEN-T is to build a transport network that facilitates the flow of goods as well as the transport of renewable energy between the countries of the European Union. The aim is for the green energy hub to progressively provide the majority of Europe's citizens and businesses with green energy at the right and sustainable price for future generations by 2050.

The initiatives of , "The Ecological Initiative and Sustainable Development Group" Foundation and the Association of Danube Municipalities in Bulgaria achieved a better planned transport infrastructure; address the missing parts in infrastructure in the cross – border cooperation region (road, rails, inland), decarbonization of infrastructure and services. The initiatives lead to enhancing the use of Danube (core TEN-T infrastructure) and intermodal terminals (inland ports) in secondary/ tertiary nodes on Danube.

The Green Energy Hub signed as an agreement in Bucharest on December 17, 2022, in the presence of European Commission President Ursula von der Leyen, brings the green energy component into the trans-European transmission grid.

The strategic partnership in the field of green energy development and transport will follow the trajectory of the trans-European transport network that has developed and is to develop through nine other transport corridors:

- Baltic-Adriatic Corridor;
- North Sea-Baltic Sea Corridor;

- the Mediterranean Corridor;
- the East-East-Med Corridor;
- Scandinavian-Mediterranean Corridor;
- Rhine-Alpine Corridor;
- Atlantic Corridor;
- North Sea-Mediterranean Corridor;
- Rhine-Danube corridor (Map 3).



Map 3. Main transport corridors

Source: [5]

Two of the nine transport corridors cross the Romania-Bulgaria cross-border area, namely:

-The East/East-Med Corridor, linking the North Sea, the Baltic Sea, the Black Sea and the Mediterranean Sea, thus optimising the use of the relevant ports and motorways of the sea;

-The Rhine-Danube Corridor, with the Main and Danube waterway as its backbone, linking the central regions around Strasbourg and Frankfurt with Vienna, Bratislava, Budapest and finally the Black Sea, with an important branch through southern Germany.

The core network will connect:

- 94 major European ports with rail and road connections;
- 38 key airports with rail connections to major cities;
- 15,000 km of upgraded high-speed railway lines;
- 35 cross-border projects to reduce bottlenecks

## CONCLUSIONS

The Romanian Danube cross-border area along the Danube is one where the investments are left to be expected, the economic situation not being too good.

The project Interreg V-a is a very well-articulated guide that will continue the documentation that will also help to start the necessary work to build an economic interconnection platform that will ensure the coherence of the 12 countries located between the Adriatic Sea, the Baltic Sea and the Black Sea with what the Danube Corridor means.

The partnership will increase the focus on delivering a reformed carbon market platform from 2027 onwards. Reducing carbon emissions will greatly increase the emphasis on reforms to change polluting industries in the European Union.

A new carbon market will be launched from 2027 covering suppliers of CO<sub>2</sub> emitting fuels used in the car manufacturing industry as well as other industries.

From the damage caused by climate changes to environmental disasters, the whole planet is mobilizing. We need a green planet that provides a secure life for future generations. Sustainability is not a concept, but an obligation of all citizens on the planet.

Will the Green Deal, the UN Climate Change Conference (COP26) (the most important summit after the 2015 Paris climate change summit), the 2020-2030 Agenda and many other globally recognised actions succeed in reducing pollution and carbon emissions by 2030?

It's up to all of us to lend a hand in the big change!

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Project INTERREG V-A Romania-Bulgaria Programme 2014-2020, "Investigation of

opportunities for reducing the TEN-T network use within the cross-border region Romania-Bulgaria through optimization of the freight and passenger transport and the development of a joint mechanism for support of the intermodal connections, Intermodal cross-border cooperation had the specific object to improve the planning, development and coordination of cross-border transport systems for better connections to TEN-T transport networks.

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