DANUBE REGION strategy
Energy

Powering Europe



Towards an integrated and sustainable energy market in the ***Danube Region***

OVERVIEW

The Danube Region represents one fifth of the European Union's total area and is home to more than 100 million inhabitants. The region is comprised of 9 EU (Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Romania, Slovakia and Slovenia) and 5 non-EU countries (Bosnia and Herzegovina, Moldova, Montenegro, Serbia and Ukraine). The countries show significant regional disparities in economic and social development. In order to increase growth and strengthen cooperation at a macro-regional level, the European Union established the Danube Region Strategy with eleven priority areas, among them one focusing on energy.

Creating an integrated and sustainable energy market is one of the key challenges the region has to face. To address the issue, the Sustainable Energy Priority Area of the Danube Region Strategy (PA2) has chosen a threefold approach in its work:

I. **Coordinating regional energy policies;**

II. **Enhancing the energy market integration of non-EU countries;**

III. **Facilitating cutting edge technology developments.**

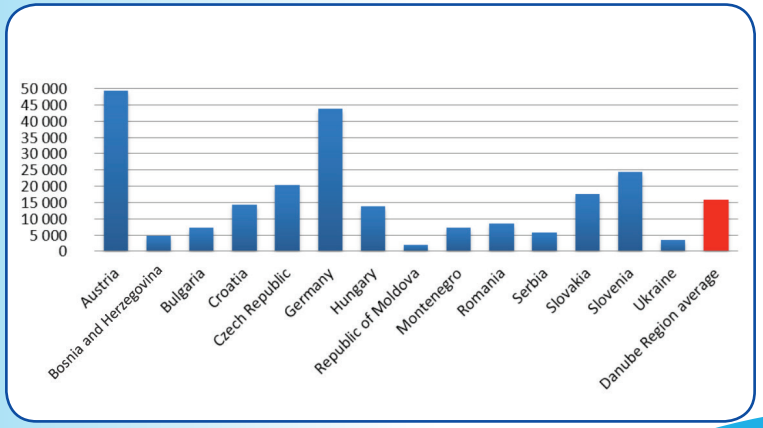
The Energy Priority Area is jointly coordinated by Hungary and the Czech Republic. The main decision making body is the Steering Group, comprised of representatives from all Danube Region countries.

DANUBE REGION strategy Energy *Powering Europe*

The countries of the Danube Region Strategy (EUSDR)

Source: www.danube-region.eu

GDP per capita in the Danube Region (PPP*, 2011) (USD)



*PPP: purchasing power parity

Source: PA2 compilation based on World Bank data

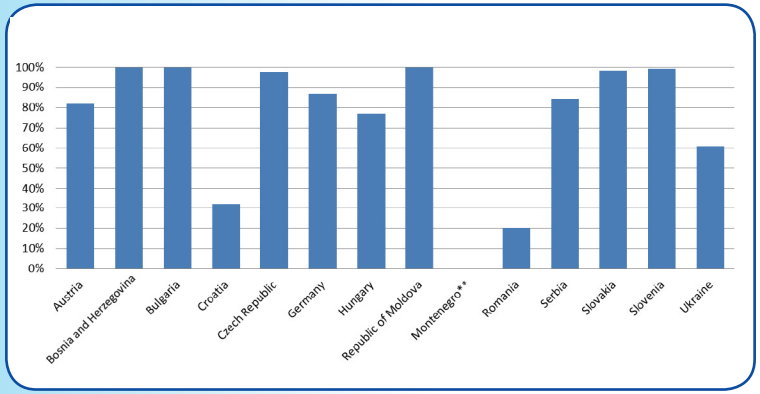
ENERGY CHARACTERISTICS OF THE DANUBE REGION

Energy prices are high in the Danube Region compared to other parts of Europe. Primary energy is mainly imported, its transport is costly, the markets are fragmented and energy infrastructures are not well interconnected. In addition, the Danube Region is specifically vulnerable regarding security of supply, as it was demonstrated in January 2009 when gas supplies were cut. Energy production and consumption are also significant sources of pollution.

A greater diversity of supply at national level through interconnections and the establishment of a genuine regional market will inevitably increase energy security. Cooperation among Danube Region countries is the only possible way to ensure security of supply, to create a functioning energy market and to realise economies of scale on investments. Regarding energy efficiency and renewable energy, there is a significant potential still untapped. Reducing energy needs and increasing the share of energy produced at local level (including small scale energy production) would be beneficial for all consumers in the region.

Concerning energy infrastructure, the aim is to coordinate the long-term energy policies as well as the national investment strategies to create win-win situations for all countries.

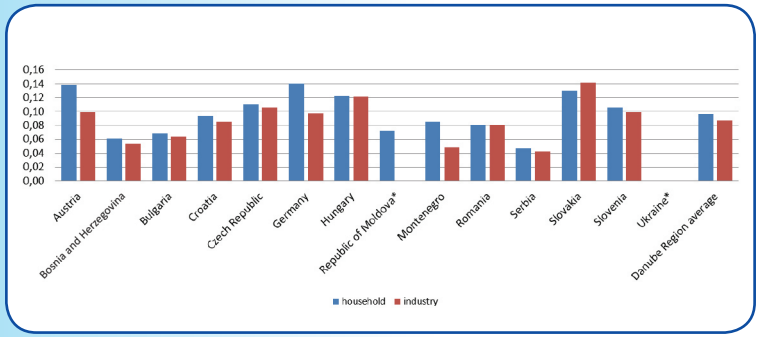
Gas dependence* of the Danube Region countries as of 2010



* consumption not covered by domestic production
** no access to pipelines

Source: PA2 compilation based on EUROSTAT and Energy Community data

Electricity prices for households and industrial consumers 2009 (EUR/kwh)

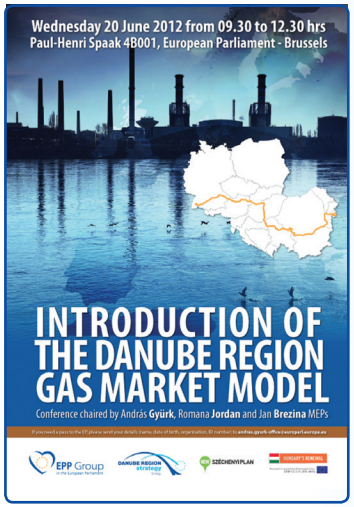


* data not available

Source: PA2 compilation based on EUROSTAT and Energy Community data

I. COORDINATING REGIONAL ENERGY POLICIES

The Danube Region Gas Market Model

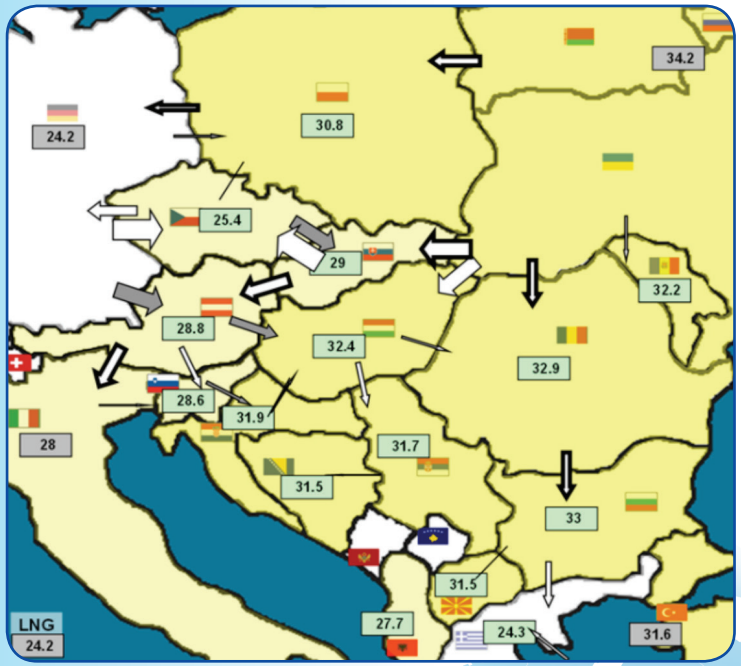


The Danube Region Gas Market Model is the first tangible result of the Energy Priority Area implementing the Danube Region Strategy. This tool is designed to measure the transnational spill-over effects of gas infrastructure projects and project packages on gas prices. The model identified the six most decisive gas-related investments of the Danube Region. The estimated financing need of EUR 560 million into these interconnectors would result in an EUR 1600 million annual saving on gas bills.

The enhanced version of this tool was used for the evaluation of the Energy Community's PECI (Projects of Energy Community Interest) projects. The importance of the model is highlighted and echoed by the European Commission in the report (COM(2013)181) to the Council and theParliament on the progress of the Danube Region Strategy.

Besides events in Budapest and in the European Parliament, the model was also introduced at several other occasions, such as the 7th Gas Forum of the Energy Community.

Illustration of the Model's mechanism



Source: Regional Centre for Energy Policy Research presentation (20 June 2012, European Parliament)

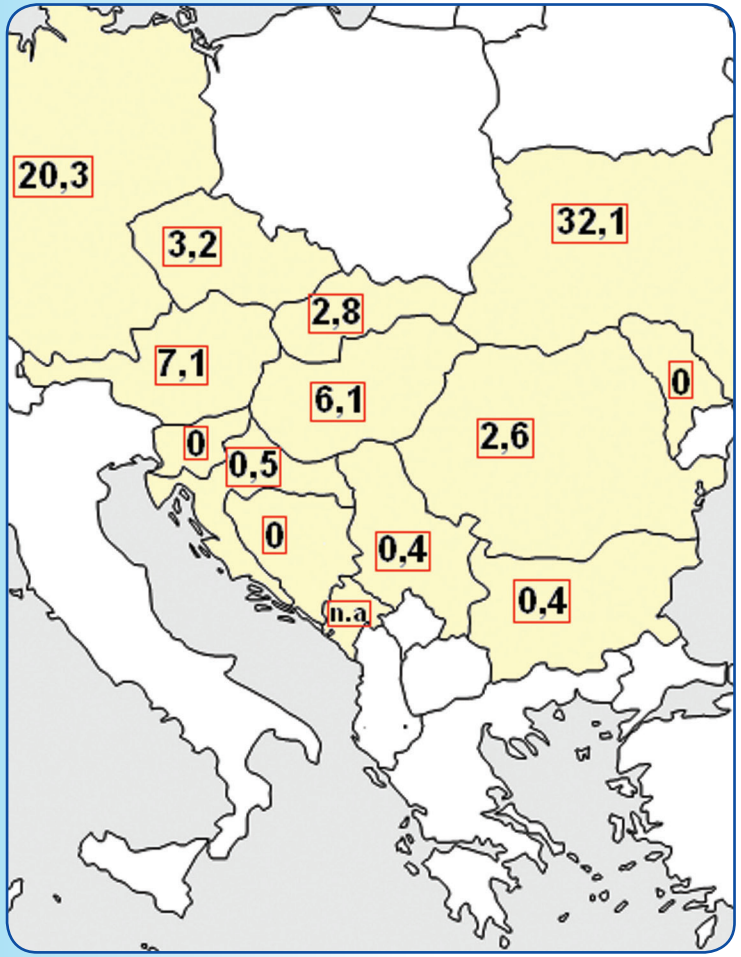
The Danube Region Gas Storage Analysis

Based on the conclusions of the Danube Region Gas Market Model, a Danube Region Gas Storage analysis was developed and completed by April 2013 in order to enhance the optimal use of the available gas storage capacities in the Danube countries. The analysis attempted to find answers for two research questions. Firstly, whether there is sufficient natural gas storage capacity in the region as a whole to provide security of supply and necessary flexibility for national markets. Secondly, whether the storage infrastructure missing at national level (if there is any) can be supplemented on a regional basis.

The analysis provided a clear picture on the current state of play, stressing that the region has sufficient, but currently substantially underexploited storage capacities. However, the existing storages are unevenly distributed across countries.

The importance of the first-of-its kind analysis was recognized by the European Commission, thus, the PA2 was invited to introduce the results of the modelling exercise in several Gas Working Groups of the EU assisting them in the Project of Common Interest (PCI) identification process. Final results of the analysis were presented at the 6th Steering Group meeting of the Energy Priority Area in Budapest on 13 June 2013. Based on the findings, the Steering Group accepted a joint declaration stressing the importance of regional approach when considering the development of any gas storage capacities.

Map of existing storage capacity volume as of 2010 (billion m^3)



Source: PA2 compilation based on EUROSTAT and Energy Community data

The Danube Region Biomass Action Plan

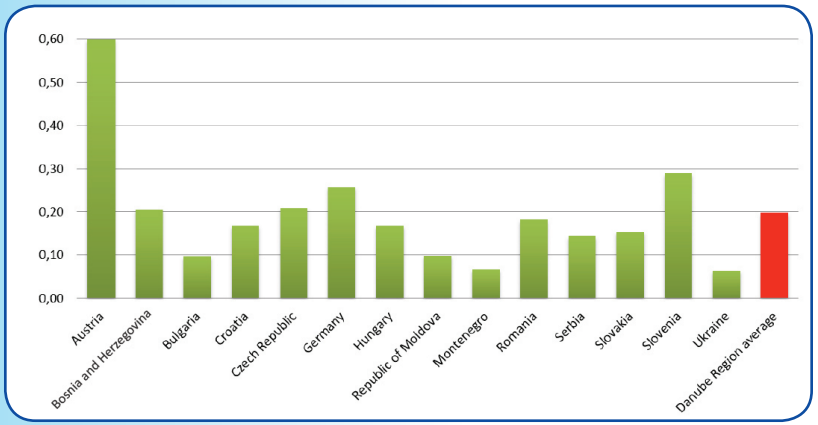
Energy from solid and gaseous biomass has great importance in the Danube Region as most of the countries have significant potential to increase production from this renewable source of energy. Furthermore the use of biomass helps addressing climate change, improves security of supply by reducing the amount of imported energy and contributes to economic growth and job creation, particularly in rural areas.

The Danube Region Biomass Action Plan provides a comprehensive analysis on the biomass potential, legal framework and regulatory environment of biomass utilization in the countries of the EUSDR. The Action Plan also lists policy recommendations formulated to extend the use of biomass in the Danube Region.

Based on the results, the aim is to create synergies and coordination between existing policies and initiatives of the countries in the region in order to extend the sustainable use of biomass. The Action Plan builds on already existing practices and success stories, which could serve as guidelines for future development.

Besides the Action Plan, a demo project website is constantly being developed with the aim to collect biomass projects which are considered as best practices from the countries of the Danube Region.

Biomass consumption per capita 2009 (toe/cap)



Source: PA2 compilation based on EUROSTAT and Energy Community data

The Danube Region Geothermal Concept

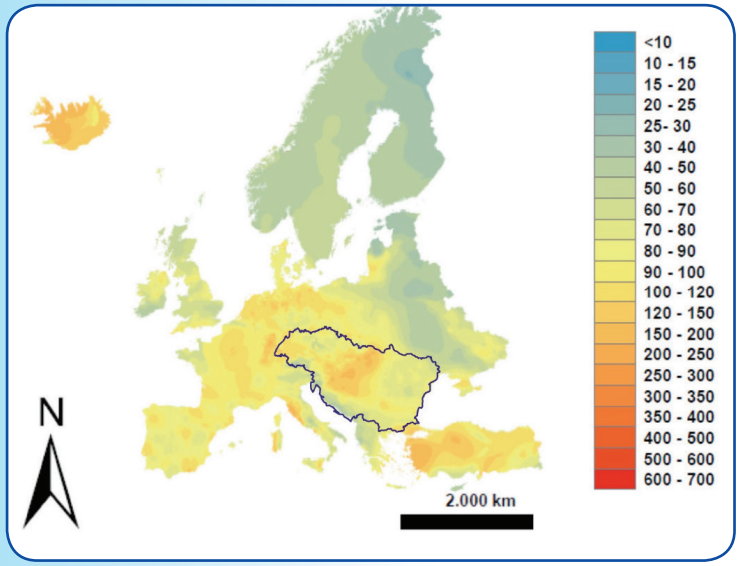
The general objective of this project is to enhance the sustainable utilization of geothermal energy in the Danube Region by providing systematic and harmonized information about the geothermal potential and the non-technical barriers hindering exploitation. In order to achieve these, the project has three main targets:

1) Provide an assessment of geothermal potential in the studied region based on geoscientific models and a systematic review of the current utilization. A special attention is paid to transboundary issues, as large-scale geothermal reservoirs being strongly linked to geological- hydrogeological structures are often shared by neighboring countries.

2) Project activities also include the systematic evaluation of non-technical barriers that prevent the region from being more attractive for investors of geothermal energy.

3) The collected and evaluated information on the geothermal potential and on the non-technical issues will be systematically organized into a geothermal information platform. Non-EU member states with high geothermal potential (such as Serbia and Bosnia and Herzegovina) will benefit by a knowledge transfer on the implementation of the related EU policies.

Temperature at 3 km depth in the Danube Region (°C)



Source: Geological and Geophysical Institute of Hungary

The Danube Region Energy Efficiency Concept for Public Buildings

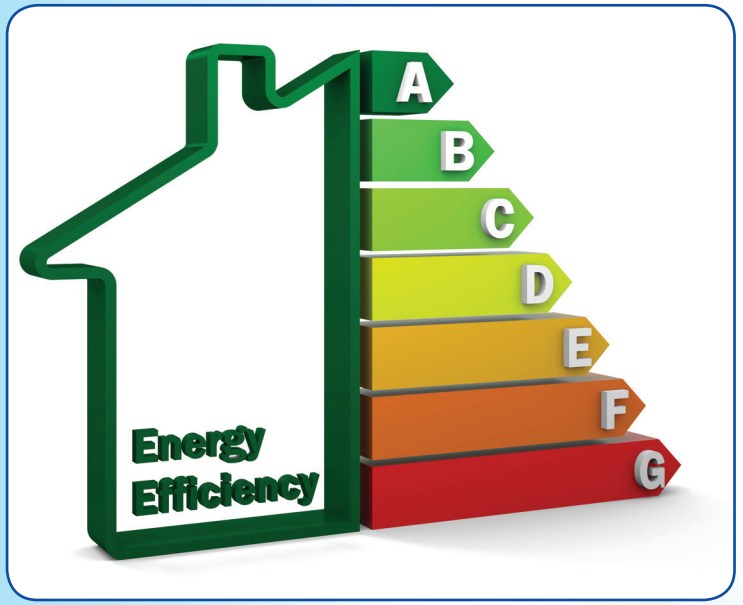
The Europe 2020 Strategy targeted to save 20% (368 Mtoe) of the European Union's primary energy consumption by 2020 compared to projections made about such consumption back in 2007. However, the continent is not on track to reach this energy efficiency goal set for 2020.

The Danube Region Energy Efficiency Concept for Public Buildings is to investigate the current practice of financing energy efficiency investments in public buildings of the Danube Region countries. The concept is to focus on sharing best practices and based on this, to formulate policy recommendations in order to create a more attractive environment for public building renovation projects.

A consultation paper of the European Commission dated February 2012 has listed some well-known obstacles to investments in energy efficiency projects in the European Union in general. The main barriers to initiating such projects are of market, financial and/or regulatory in nature.

The Energy Priority Area believes that many of these obstacles could be eliminated more effectively at regional level. The concept is to result in a retrospective analysis and state-of-play study dealing with energy-efficiency investments of public buildings in the region by analysing the energy efficiency potential, existing investments and financial sources of public buildings.

European Union energy labelling for buildings



Source: http://www.movehut.co.uk/

II. ENHANCING THE ENERGY MARKET INTEGRATION OF NON-EU COUNTRIES S

Training Program of the Energy Priority Area in the Republic of Moldova

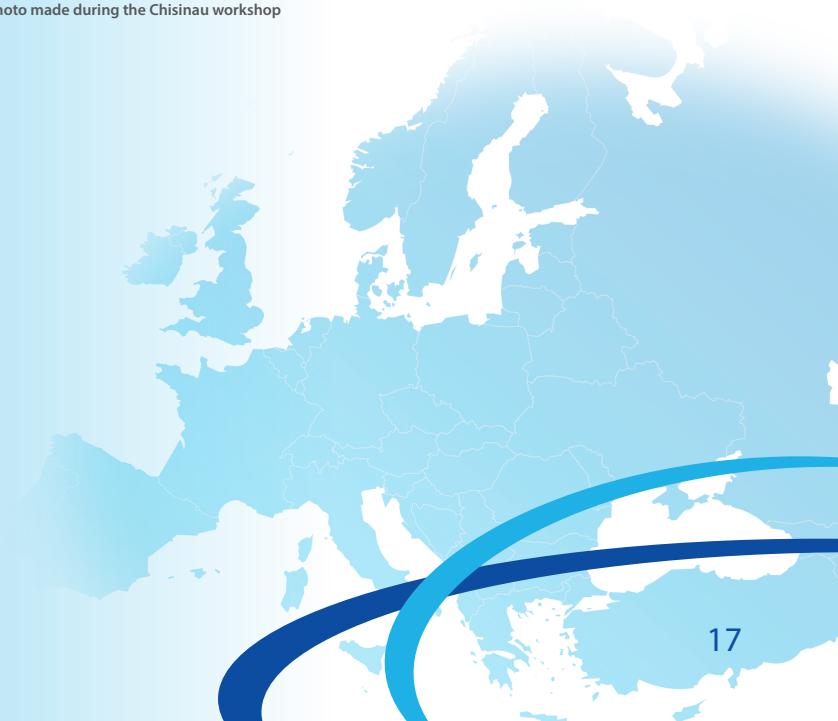
The involvement of non-EU countries in the Danube Region Strategy is a key priority to the macro-regional cooperation. The Energy Priority Area plays an instrumental role in connecting the energy markets of the EU and non-EU countries by supporting the latter in the implementation of the EU energy acquis. As a result, PA2 has launched a tailor-made knowledge transfer training program to facilitate the implementation of the Second and Third Energy Packages of the EU, which aim for a competitive and integrated energy market.

Taking into consideration its specific situation, the Republic of Moldova was chosen as the first beneficiary of the program. Following a Fact Finding Mission in Chisinau in January 2013, four on-the-spot workshops took place in the Republic of Moldova until July 2013 with the active participation of decision and policy makers, as well as lead experts of the relevant public bodies and players in the energy sector of the country. The concept proved to be a great success involving 18 experts from several European countries covering a large number of topics regarding the practical implementation of the relevant EU law.

In cooperation with the government of Moldova and the European Commission, PA2 is committed to launch the 2nd phase of the concept in Moldova, as well as to implement the initiative in other EUSDR countries.

Knowledge transfer workshop in Chisinau (28 March 2013)

PA2 own photo made during the Chisinau workshop



III. FACILITATING CUTTING-EDGE TECHNOLOGY DEVELOPMENTS

The Danube Region Smart Grid Concept

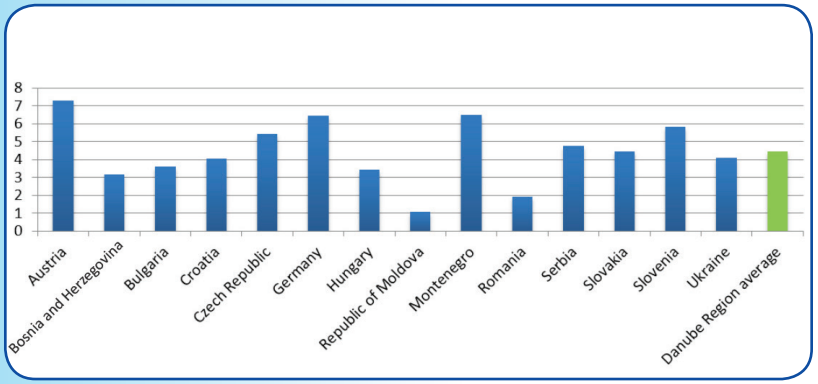
The aim of the Danube Region Smart Grid Concept is to facilitate a common understanding on "smart grids" and assist the countries of the Danube Region to take the first steps towards the development of smart grid policies and action plans.

The electricity systems and markets of the Danube Region countries are heterogeneous and their electricity networks are facing very different challenges due to specific production and consumption patterns. The goal of the Danube Region Smart Grid Concept is to discover the bottlenecks of smart grid developments in the Danube Region to eliminate infrastructural barriers, foster the integration of the increased renewable supply into the grid and decrease the ratio of non-payment.

The project is based on a series of workshops with key stakeholders (Transmission System Operators, Distribution System Operators, big consumers and suppliers), desktop research and regional survey.

As a result of the project, Danube countries will be expected to have a clear understanding of their own demand for smart grid solutions and the areas for policy and regulatory interventions will be identified.

Electricity consumption per capita in the Danube Region in 2010 (MWh/cap)



Source: PA2 compilation based on EU Energy in Figures 2012 data

DANUBE REGION strategy
Energy

Powering Europe

Contact information:

Danube Region Strategy, Priority Area 2
"To encourage more sustainable energy"

Ministry of Foreign Affairs of Hungary
Ministry of Industry and Trade, Czech Republic

e-mail: danube-energy@mfa.gov.hu

for more information, please visit:
www.danube-energy.eu

The project is financed
by the European Union