

# MANAGEMENT OF RENEWABLE ENERGY AND REGIONAL DEVELOPMENT: EUROPEAN EXPERIENCES AND STEPS FORWARD

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## **Abstract**

The issues of the renewable energy and regional development have become major priorities for public policy makers across the globe. Therefore, this study explores some European experiences and steps forward in the field of the management of renewable energy and regional development. Firstly, an overview of renewable energy issues in European regions is revealed, and secondly, some measures and actions for managing regional development of renewable energy in Romania taking into account the financial allocations through the Cohesion Policy are disclosed. The results of this study may be used for upcoming research in the area of implementing renewable energy projects for urban and rural development of the regions.

**Keywords:** management, renewable energy, regional development, European Cohesion Policy, Romania

## **1. INTRODUCTION**

This study investigates the issues of the management of renewable energy and regional development with an eye to reveal some of the European experiences and further developments. Therefore, an overview of renewable energy issues in European regions is revealed firstly, and some measures and actions for managing regional development of renewable energy in Romania taking into account the financial allocations through the Cohesion Policy are disclosed secondly.

The research was conducted using a large variety of sources, such as research reports and articles. The research question was answered by analyzing published sources, evaluating and interpreting evidence.

## **2. OVERVIEW OF RENEWABLE ENERGY ISSUES IN EUROPEAN REGIONS**

The issues of renewable energy and regional development have gained a global dimension, as well as the concerns about the economic growth. Nowadays all European regions are interdependent in terms of guaranteeing energy supplies, creating stable economic conditions and effectively combating climate change. All actors are playing an essential role in managing this change, at local, regional, national and

European level. They have to embrace a new perspective and commit themselves to a sustainable energy policy (Frant and Minica, 2008: 2).

Sustainable development is possible only when it is based on the real type of economic progress in harmony with the limitations in nature, especially the amount of natural sources and the regeneration and neutralization capabilities of the biosphere combined with human-made emissions (Pozeb and Krope, 2007). Therefore, the main research and development priorities are the development of renewable electricity, cost reduction and research on environment issues, as well as the need to adapt the electricity networks to new technological, economic, environmental and political realities (Kjaer, 2006).

The development of renewable energy sources is increasingly planned at a regional and local level where needs and opportunities can more easily be taken into account, due to the decentralisation of energy supply which enables local and regional factors to play a more important role (Applica & Ismeri Europa, 2011: 10).

Renewable energy sources are currently unevenly and insufficiently exploited in the European Union. Although many of them are abundantly available, and have real economic potential, renewable energy sources make a disappointingly small contribution to the European Union's overall gross electricity generation. Member States of the European Union start from very different positions as regards the use of renewable energy for electricity generation (figure 1).

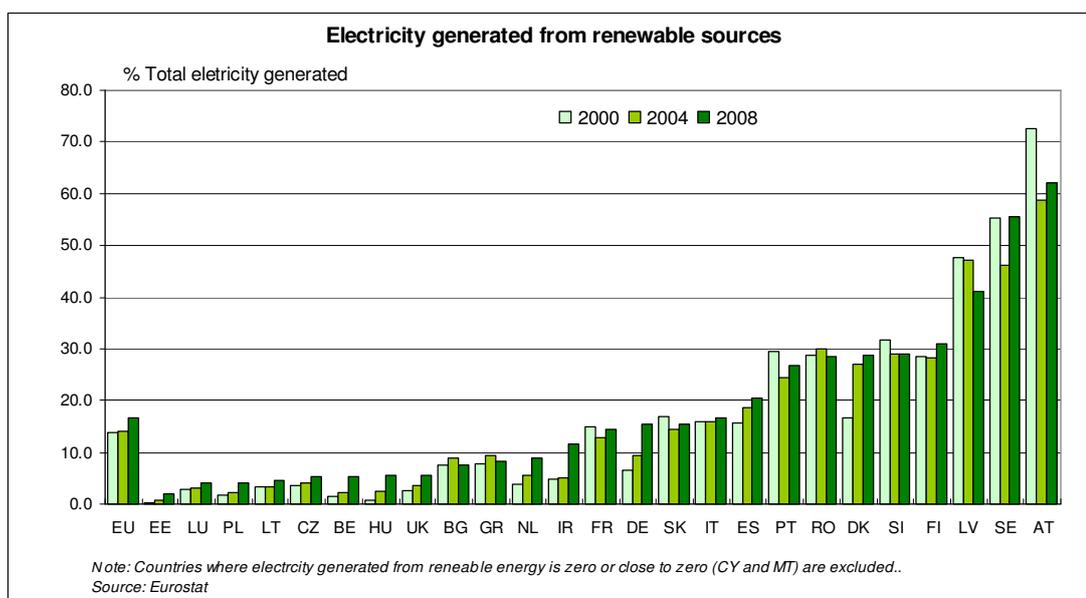


FIGURE 1 - ELECTRICITY GENERATED FROM RENEWABLE SOURCES IN THE EUROPEAN UNION  
Source: Applica & Ismeri Europa, 2011: 11

There are some investment funds at the European Union’s level, of which some may be used in order to develop the field of renewable energy. Through the European Regional Development Fund (ERDF) and the European Social Fund (ESF), otherwise known as the Structural Funds, as well as the Cohesion Fund, investments can be made in thousands of projects across all Europe’s regions, with the aim to promote economic and social cohesion by reducing the disparities between Member States and regions. With a budget of €347 billion for 2007-2013, Cohesion Policy represents the single largest source of financial support at the European Union’s level for investment in growth and jobs, designed to enable all regions to compete effectively in the internal market. However, as the challenges faced by Europe’s regions have changed over time, so has changed the policy. Against a background of momentous change in the Union as a result of enlargement and of increasing globalisation, concerns about energy supplies, demographic decline, climate change and more recently, world recession, the policy has evolved, as a key part of the response to meet these new realities (European Commission, 2009: 1). The financial allocations through the Cohesion Policy for energy efficiency and renewable energy in the European Union are illustrated in figure 2.

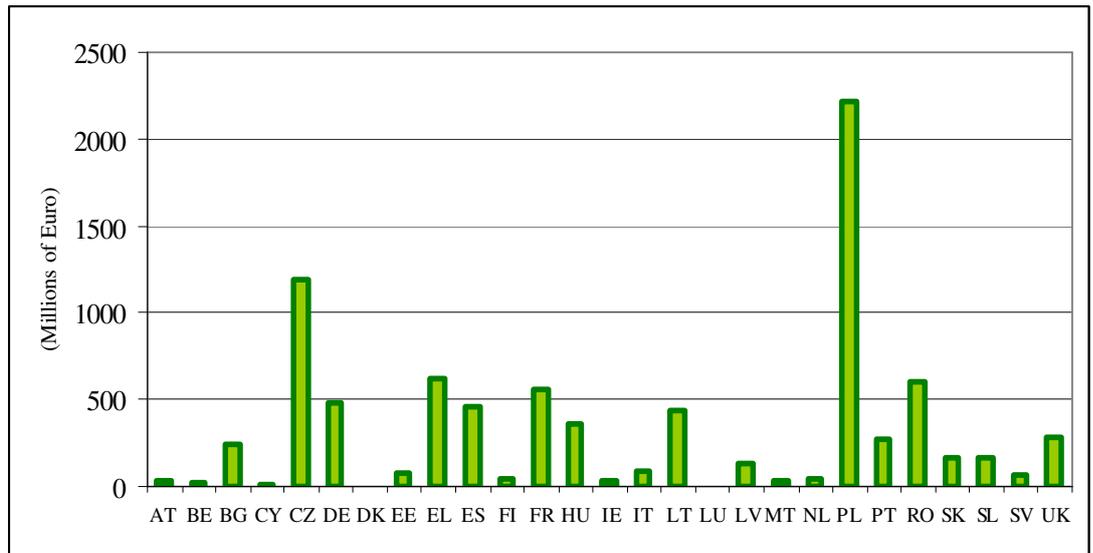


FIGURE 2 - FINANCIAL ALLOCATIONS FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY IN THE EUROPEAN UNION

Source: Adapted from European Commission, 2007

The renewable energy sources available at regional level can make a major contribution to regional economic development. Furthermore, important progress in energy efficiency can be made at regional and local level. In addition, the investment in energy efficiency can often give a major boost to local industries (for instance, the restoration of buildings). While regional energy strategies are implemented in the context of European integration, the role of regions as economic players is also becoming

increasingly important and therefore, regions must work to create an overall framework which is conducive to action (Frant and Minica, 2008: 2).

The European Union's Member States are differentially placed to expand supply of energy from renewable sources and have different costs of production and, accordingly, stand to gain to different extents. Therefore, national governments could engage in cross-border cooperation to support their development (Applica & Ismeri Europa, 2011: 10).

### 3. MANAGING REGIONAL DEVELOPMENT OF RENEWABLE ENERGY IN ROMANIA

The integration of renewable energy projects into regional development process may create external positive effects concerning increased energy security and other regional development goals, such as the reduction of unemployment and the decrease of environmental impact (Klevas et al., 2009: 155).

Policies to support renewable energy and energy efficiency need to be adapted to the features of different regions, the circumstances prevailing there and the potential for the development of new energy sources (Applica & Ismeri Europa, 2011: 10). There are eight convergence regions in Romania (figure 3), eligible for investments from European funds.

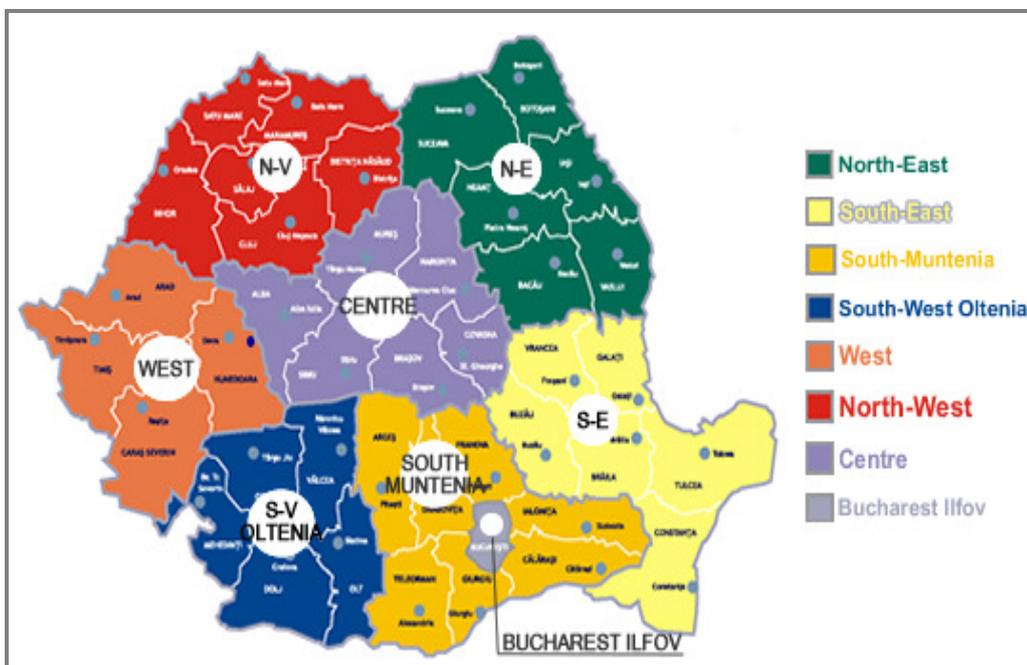


FIGURE 3 - DEVELOPMENT REGIONS IN ROMANIA  
Source: Ministry of Regional Development and Tourism, 2010

Through the Cohesion Policy may be financed investments responding to the challenges of sustainable development, climate change and renewable energy in Romania (figure 4 and figure 5).

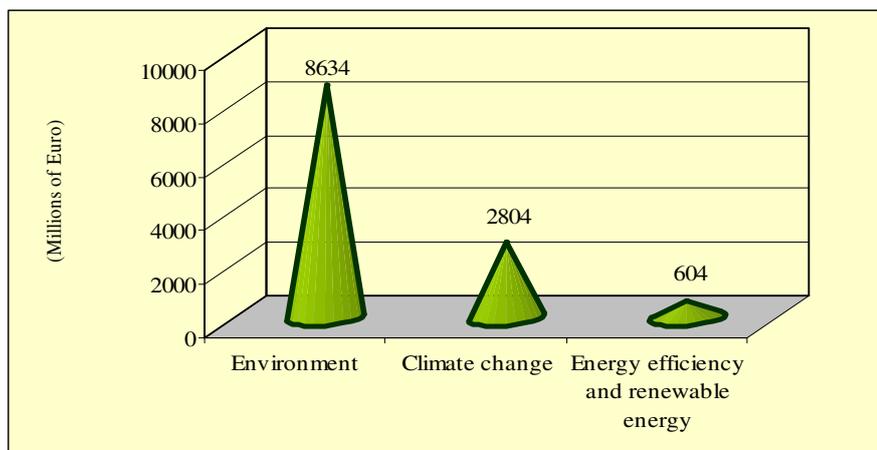


FIGURE 4 - FINANCIAL ALLOCATIONS RESPONDING TO THE CHALLENGES OF SUSTAINABLE DEVELOPMENT, CLIMATE CHANGE AND ENERGY IN ROMANIA  
 Source: Adapted from European Commission, 2007

In Romania, the total allocation for investments directly contributing to improving the environment (including water treatment) is €8.6 billion (almost 45% of total allocations, and representing the highest proportion in relative terms of any Member State) (European Commission, 2009).

Investments in the environment will concentrate on implementing the environmental acquis, especially in the area of water treatment, and facilitating access to water services for citizens, an issue that received particular attention during the negotiations (European Commission, 2007: 3).

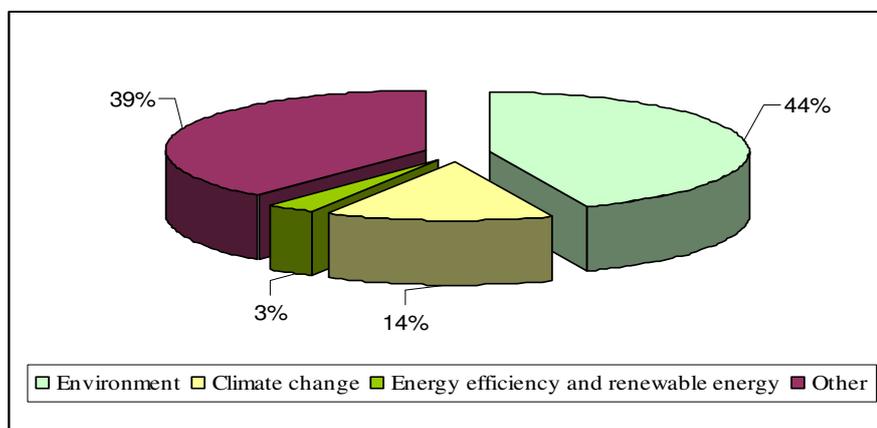


FIGURE 5 - STRUCTURE OF THE FINANCIAL ALLOCATIONS IN ROMANIA  
 Source: Adapted from European Commission, 2007

Environment objectives associated with urban regeneration programs are intended to find innovative solutions for reducing the pollution of the environment and improving the living conditions, with the awareness of society's preferences and values (Corbos and Popescu, 2011: 20). A higher degree of solar, wind or biomass use as sources for heating, cooling and electricity production could change the buildings' design concept. The architecture of the new or revamped buildings could take into account

different new elements (solar panels, photovoltaic walls and roofs, wind generators, etc.) integration in buildings' envelope and resistance structure (Musatescu and Comanescu, 2009: 198). It is expected that Cohesion Policy interventions will help improve management of the water sector and develop the capacities of municipalities in managing water projects (European Commission, 2007: 3). This is extremely important nowadays, as urban areas are considered crucial engines of local socio-economic development, but at the same time are concentration points of environmental decay (Alpopi et al., 2011: 79).

Extensive discussions during negotiations on the extent to which improvements in the energy sector should be financed by Structural Funds, resulted in a clarified and more focused approach that takes into account the need to combat climate change and secure energy supplies (European Commission, 2007: 3). Some €2.8 billion (14.6% of the total Community contribution) can be invested in areas directly contributing to climate change mitigation, with projects on energy efficiency and renewable energy set to benefit from €604 million (European Commission, 2009).

The production of energy from renewable sources often depends on local or regional small and medium-sized enterprises. For instance, biomass power plants have become familiar for local authorities after the implementation of the Sawdust 2000 program where 5 power plants in the towns Vatra Dornei, Gheorghieni, Intorsura Buzaului, Huedin and Vlahita were converted on biomass fuel. Wind energy seems to be an option for future development even that until now only few wind turbines are operating (Tihuta in Bistrita, Ploiesti in Prahova, Baia in Tulcea and Corbu in Constanta). Solar energy is also becoming attractive for small and medium-sized companies and private use. A good example is in Mangalia where a private company is producing 210MWh/year with solar panels. Also, a new technology for Romania is represented by the usage of geothermal energy for district heating in Oradea and Beius (Ministry of Environment and Water Management, 2007: 38).

The investments in renewable energy projects may play a role within the regional policies and they should be part of an integral development policy because the benefits of renewable energy may increase regional cohesion, and this may lead to a positive synergy between renewable energy support and local development policies (Del Río & Burguillo, 2009: 1325). The investment in regional and local production of energy from renewable sources may enhance the opportunities for growth and employment in the Member States and their regions. Therefore, national and regional development measures in those areas may be supported, the exchange of best practices in production of energy from renewable sources between local and regional development initiatives may be encouraged, and the use of structural funding in this area may be better promoted (The European Parliament and the

Council of the European Union, 2009: 16). Moreover, extending the cooperation between the public and the private sectors may bring the advantages of a low opportunity cost for learning from the collaborators' experience and for using their resources (Popescu and Corbos, 2011: 34).

#### 4. CONCLUSIONS

This study has revealed that the development of renewable energy sources is increasingly planned at a regional and local level, but renewable energy sources are currently unevenly and insufficiently exploited in the European Union. A possible solution to solve this problem may be to use the financial funds allocated through the Cohesion Policy for energy efficiency and renewable energy in the European Union. Particularly, in Romania, may be financed investments responding to the challenges of sustainable development, climate change and renewable energy through the Cohesion Policy. Moreover, the total allocation for investments directly contributing to improving the environment in Romania is €8.6 billion, almost 45% of total allocations, and representing the highest proportion in relative terms of any Member State.

The production of energy from renewable sources often depends on local or regional small and medium-sized enterprises. While regional energy strategies are implemented in the context of European integration, the role of regions as economic players is also becoming increasingly important. The investment in regional and local production of energy from renewable sources may enhance the opportunities for growth and employment in the Member States and their regions.

The results of this study may be used for upcoming research in the area of implementing renewable energy projects for urban and rural development of the regions.

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