

## Public-private partnership in the context of regional development – a solution for renewable energy projects?

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**Abstract.** *The public-private partnership (PPP) is the latest trend and it represents a real concern for both the authorities and investors. It is believed that the public-private partnership is a concrete solution for regional development that the European countries want to promote lately.*

*Romania wants to expand in this system of regional development and this research aims to emphasize the connection between the concept of sustainable regional development and green energy at level of public authorities, private companies and individuals who compose the society.*

*This study aims to show that Romania is a country with great potential for development in renewable energy and, at the same time, attractive for creating the PPPs. In this research, it shall be pointed out that Romania is a favorable environment for creating the PPPs in green energy domain and this can be a starting point for identifying specific projects in the context of sustainable regional development.*

*Given that the authorities and private sector companies will work together to accelerate the development of renewable energy projects, regional development phenomenon can operate normally facilitating investments in this area.*

**Keywords:** Public-private Partnership; Renewable Energy; Sustainable Development; Regional Development; Investment.

**JEL Classification:** F18, O13.

**REL Classification:** 16H, 18G.

## Introduction

Although countries in the world go through a difficult economic period, opportunities can be created to foster growth for both public authorities and private companies. Renewable energy is a solution in this regard proposing various actors to use renewable energy in an intelligent way to bring gains for all the involved parts.

In terms of public authorities, if they would take into account urban and educational institutions, we could observe that there are high costs for their operation and discounts are necessary to cut expenses. In this case, the use of renewable energy is a solution, as the costs for unconventional sources is smaller. The problem occurs in this area because of the initial costs that a customer has when installing a system using renewable energy. The public authority needs a considerable investment to cover expenses and budgets are not a solution in this matter. Thus, representatives of public authorities are obliged to seek solutions to solve these problems, and the hardest part to solve is represented by the financial domain.

A solution to these issues is represented by public-private partnerships that can bring funding for such investments, but if such an association is taken into account, there should be presented both the advantages and disadvantages for all the parties involved. Globally, both public environmental components, as well as those of the private sector want and support the development of renewable energies. Our society is using now conventional sources of energy that are exhaustible and affect the environment. A solution proposed in recent years is to reduce the use of energy from conventional sources and emphasizing the use of renewable energy sources and also balancing the costs between the two forms. Considering the continuous economic crisis, the fact that energy policy and strategies need to be correlated with economic growth should be taken into account. There are three ways that ensure the success of using renewable energy sources, namely:

1. Concern of existing fuel reserves;
2. Protecting the environment;
3. Government support through financial incentives and adequate programs.

As the use of renewable energy are introduced in all the environments, the sustainable development shall be ensured. This matter can have positive effects on regional development provided if it finds sources of funding to ensure investment in projects aimed to develop renewable energy sources. The positive aspects that would result from the combination of regional development and green energy sources integrate as a result for the public policy of a state that wants to create jobs, reduce unemployment, promote activities with low environmental impact, support wellbeing of its citizens.

This research is studying public-private partnership in Romania as a solution to regional development. This article highlights the link between regional sustainable development, green energy and their effects on public, private environment and on citizens. This paper also presents development potential of renewable energy in Romania and investment opportunities in unconventional energy.

### 1. The analysis of the connection between the concepts of sustainable regional development and renewable energy under law aspects

In order to analyze whether a link between the concepts regional sustainable development and renewable energy is or can be created, one has to follow their definition and highlighting their characteristics. In the following, an analysis of the two concepts related to public environment under the aspects of public policy will be presented.

**Regional sustainable development** can be defined as a concept that is based on promoting economic activity, attracting investment, reducing unemployment, population welfare promoting, reducing environmental impacts. For Romania, this concept has assumed the appearance of regional development through the establishment of eight regions: North East, South East, South Muntenia, South West, North West, Centre, Bucharest-Ilfov.

After their appearance together with the term regional development there was introduced the concept of sustainable, which represents *„all forms and methods of socio-economic development whose foundation was to ensure balance between the socio-economic and natural potential within each development region”* (<http://www.mmediu.ro/beta/domenii/dezvoltare-durabila/concepte-si-principii-de-dezvoltare-durabila/>). The basis for this definition is pointed out in the Brundtland Report according to which *„sustainable development is the development that follows the needs of the present without compromising the ability of future generations to meet their own needs”* (The Brundtland Report, 1987). These definitions were applied as they sound without customizing their object in the regions using the concept of regional sustainable development.

In order to create the regional sustainable development at the level of public authorities, the regional development policy was created and it contains *„all the measures planned and promoted by local and central public administration authorities, in partnership with various stakeholders (private, public, voluntary) in order to ensure economic growth, dynamic and sustainable, through the effective use of local and regional potential in order to improve living conditions”* (<http://www.mdrt.ro/en/dezvoltare-regionala/politica-de-dezvoltare-regionala>).

The main areas of interest for regional development policy in Romania are:

1. Development of SMEs;
2. Attracting investments;
3. Environmental Quality;
4. Labor Market;
5. Technology Transfer;
6. Development of infrastructure;
7. Health, education, education, research, culture;
8. Rural Development (<http://www.mdrt.ro/en/dezvoltare-regionala/politica-de-dezvoltare-regionala>).

Sustainable regional development policy works in three main directions which want to develop the areas mentioned above:

1. To reduce regional imbalance favoring remodernization and stimulating development and disadvantaged areas; preventing new imbalances;
2. To fulfill the integration criteria of European Union structures and assure access to financial assistance instruments for member countries (structural and cohesion funds, other funds);
3. To create a correlation with government sectoral development policies, to stimulate interregional, international and domestic cooperation, which contribute to economic development and which is in accordance with the law and international agreements concluded by Romania (<http://www.mdrt.ro/en/dezvoltare-regionala/politica-de-dezvoltare-regionala>).

**Table 1.** Principles of sustainable regional development policies

Principles	Methods of implementing
1. Decentralization	Decisions are taken at the central level and they are applied to each region.
2. Partnership	It aims to create partnerships between the public, private, individuals involved in a particular field.
3. Planning	It creates specific programs and projects to achieve the indicators assumed by the main objectives.
4. Cofinancing	It is focused on providing financial contributions of the partners involved in the implementation of specific programs.

**Source:** processing the information provided by the online address <http://www.mdrt.ro/en/dezvoltare-regionala/politica-de-dezvoltare-regionala>, accessed on 3rd of October 2013.

Given these aspects of sustainable regional development, the renewable energy shall be analyzed pointing the same structure as for the concept previous presented.

Therefore, **renewable energy** is „the energy from natural processes that are repeated constantly. In its various forms, it comes directly or indirectly from the sun or from heat generated in the earth's crust” (Reports from International Energy Agency, <http://www.iea.org/>). This includes many forms such as: wind energy, solar energy, biomass, geothermal, biofuels, hydrogen obtained from unconventional sources, hydraulic, tidal, osmotic potential energy.

The energy policy plays an important role for EU institutions and Member States, and it always has been a priority for the community due to the scale and particular issues. So far, we can observe as a common feature of energy policy, that all the states have involved in this sector as a normal operating pattern. The energy domain is a controversial area by the fact that any state depends on it and it can have a great influence towards national economies. Regardless of the nature of energy set, this is a sensitive issue which concerns the governments very much. Basically, we can state a pattern, in the relationship between public authorities, energy agencies operators and consumers of energy, that consists of the government control on this segment that influences all stakeholders, especially consumers.

The measures that are intended to be adopted through 2020 Strategy aim the trend that this area will be focused on. There are five directions to be followed, such as:

1. Energy saving;
2. Free circulation of energy;
3. Security of supply and fair prices;
4. Technological innovations;
5. International agreements on energy ([http://europa.eu/pol/ener/index\\_ro.htm](http://europa.eu/pol/ener/index_ro.htm)).

Renewable energy has become a goal for the European Union member states. It is considered that the renewable energy represents the future as it seeks to reduce the use of conventional sources of energy and to promote the use and production of energy from unconventional sources. The issue of safe energy was born from this idea and has generated a major controversy in recent years together with the establishment of national targets for renewable energy production.

The issue of renewable energy has had fluctuations on the European agenda because over time, the Member States were not able to break away from conventional energy and preferred to exploit it further. Currently, the focus is on sustainable development as a global goal that supports environmental protection for the future welfare of mankind. However, not all Member States succeeded to adopt the set out measures in directives due to financial reasons. A plan of measures to encourage renewable energy production must include: fiscal decisions, investment in research, state aids, loans, specific programs.

At the national level, the strategy for promoting the use of renewable contains the following objectives:

1. The inclusion of renewable energy in the national energy system structure;
2. Reducing barriers to the use of renewable energy;
3. Promoting private sector investment;
4. Facilitating access to foreign investment on renewable energy market;
5. Ensuring the independence of the internal energy;
6. Security of energy supplies for isolated communities;

7. Creating conditions for Romania's participation on the European market of green certificates for renewable energy ([http://www.minind.ro/pnaer/pnaer\\_29%20iunie\\_2010\\_final\\_alx.pdf](http://www.minind.ro/pnaer/pnaer_29%20iunie_2010_final_alx.pdf)).

In addition to finance energy programs, it is necessary to identify fiscal measures to support the development of unconventional domain which is considered to be a trend for our country and that is characterized by a high potential in terms of renewable energy. These measures consist of tax exemptions or tax refunds, creating a single VAT rate for certain types of non-conventional energy, tax relief on investments in renewable area and special taxes to encourage investment in areas of renewable energy.

We can conclude that the two concepts are strongly connected and they can affect both the public and private sectors. Moreover, the way the two concepts are supported in the legislation, shows that they have common interests and goals to accomplish in order to create a stable economic environment.

Regarding the issue of regional sustainable development, the strategic objectives are aimed for increasing energy efficiency, promoting energy production based on renewable resources, promoting the production of electricity and heat cogeneration plants, especially in high-efficiency cogeneration plants, supporting research development and dissemination of research results, reducing the negative impact of the energy sector on the environment and the rational and efficient use of primary energy resources, pointing out the close relationship with public authorities.

Concerning the competitiveness in the private sector, the main objectives consisted of the development of competitive markets for electricity, natural gas, oil, uranium, green certificates, emission allowances for greenhouse gas and energy services, liberalization of energy transit and ensuring equal and continuous access of market participants to transmission, distribution and international interconnections, further restructuring and privatization in the electricity, heat and gas, further restructuring of the coal, in order to increase profitability and access capital market.

## 2. Romania's potential in renewable energy field

Diminishing the negative effects of energy process production on climate requires concrete and efficient actions. In this context, Romania must act consistently to support and to align with European actions that promote the Lisbon objectives.

In order to limit the global temperature increase that is expected, the emission of greenhouse gases, Romania will act specifically on energy efficiency and renewable sources of energy.

Actions to promote energy efficiency and renewable energy will contribute to the reduction of negative environmental impact and also increasing food security, reducing the dependence on energy imports of Romania.

Potential national energy savings, reducing energy losses is estimated at 27-35% of primary energy (industry 20 to 25%, buildings 40-50%, transport 35-40%). On an annual consumption of primary energy resources of about 36 million toe/year, the potential savings is about 10 million toe/year, respectively savings of around 3 billion/year (Resolution no. 1069/2007 approving the Romanian Energy Strategy for 2007-2020). To support the production of electricity from renewable energy sources, from 2005 it was established a mechanism to be promoted, based on green certificates by purchasing certified providers mandatory quotas in proportion to the volume of electricity sold to consumers.

Measures envisaged to promote renewable energy sources are:

- Increasing recovery, in terms of economic efficiency, renewable energy resources to produce electricity and heat through facilities in the investment stage including facilitating access to the grid;
- Improving green certificates market in order to attract private capital investments in renewable sources;
- Promoting mechanisms to support renewable energy resources in the production of heat and hot water;
- The use of structural funds.

The most suitable renewable resources (depending on operating costs and the amount of resources) and the technologies used to produce electricity are hydroelectric, including small hydropower, wind turbines and CHP plants using biomass and heat production that are biomass and solar.

In rural areas there is a great diversity of forms of renewable energy that can be used to supply power to these areas or urban areas:

- Biomass fuel is the main area that is mostly used for space and water heating and cooking. Biomass covers about 7% of primary energy demand and 50% of Romania's renewable resource potential.
- Geothermal energy that can be used for space and water, because of the location, the main potential for use in rural areas – housing, greenhouses, aquaculture, milk pasteurization – the locations at distances up to 35 km from the place of extraction;
- Solar energy, especially hot water, resulting in a reduction in the consumption of fossil fuels used to heat water;
- Micro-hydro can be a basic option for supplying rural areas that are not connected to the electricity network;
- Wind generators can also cover the electricity needs of rural areas that are difficult to access without electricity.

In accordance with the Strategy for the renewable energy investment, the need in the period 2006-2015 is estimated at 1.8 billion Euros (<http://www.enero.ro/doc/STRATEGIA%20ENERGETICA%20A%20ROMANIEI%20PENTRU%20PERIOADA%202007-2020.pdf>). Renewable energy sources in Romania are

considered to have high potential, but at this use it imposes barriers related to technology and innovation.

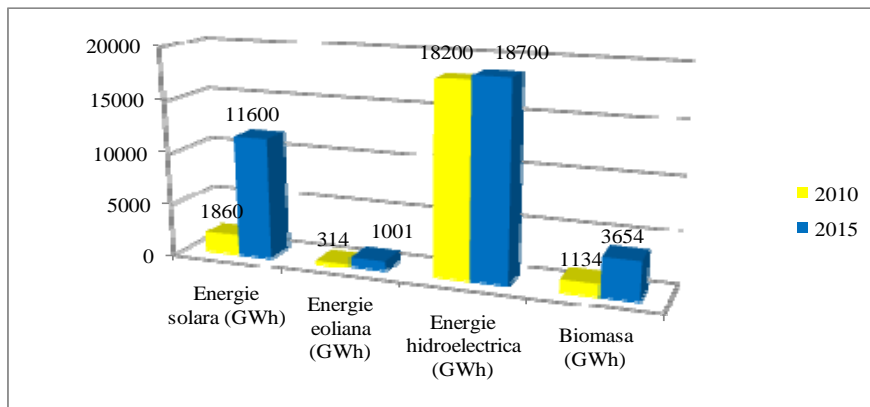
**Table 2.** *Applicability and potential of national renewable energy sources*

Applicability	Renewable energy source	Annual energy potential	Economic equivalent (thousands tep)
Produces heat	Solar thermal energy	60x10 <sup>6</sup> GJ	1433
Produces electricity	Solar photovoltaic energy	1200 GWh	103,2
Produces electricity	Wind energy	23000 GWh	1978
Produces electricity	Hydro energy	40000 GWh	3440
Produces heat	Biomass and Biogas	318x10 <sup>6</sup> GJ	7597
Produces heat	Geothermal energy	7x10 <sup>6</sup> GJ	167

**Source:** Data from the National Action Plan for Renewable Energy available at the online address <http://www.minind.ro/energie/pnaer.pdf>, accessed on 16th of October 2013.

Linked to the production of energy from renewable sources, targets for our country have been modified according to the results obtained in these areas. In terms of weights initially settled as 30% of energy to be from renewable sources in 2010 and 30,4% for 2015. These targets have been changed, reaching a value of 33% for 2010, 35% for 2015 and 38% for 2020, which shows that Romania has made significant progress in this regard and adopted a responsible strategy for development of this area.

**Figure 1.** *Estimating energy production from unconventional sources for 2015 compared to 2010 data*



**Source:** Author's own contribution according to the National Action Plan on Renewable Energy data, available at the online address <http://www.minind.ro/energie/pnaer.pdf>, accessed on 15<sup>th</sup> of November 2013.

It can be seen a significant increase especially at the solar energy chapter, followed by biomass, wind and hydropower, this increase is correlated with the legislation and national efforts to develop energy related to the renewable energy chapter. Romania has a high potential in renewable energy, which provides a point of attraction for investors. There are many challenges for both sections, from the public authorities, who want renewable energy development in developing regions, as well



as from the private sector by investors seeking to maximize profits in relation to compliance with the laws of Romania conditions and investment objectives.

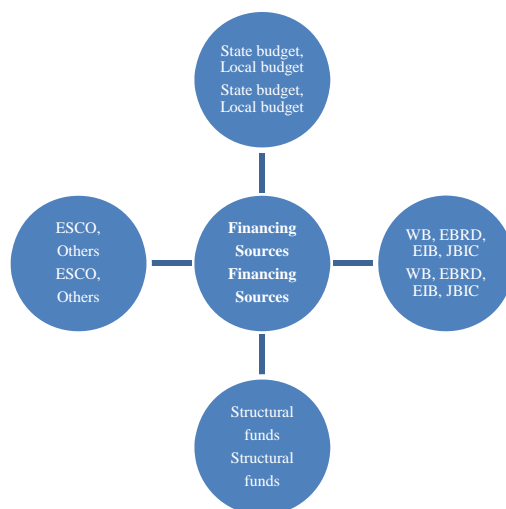
### 3. Romania – adequate environment of Public-Private Partnership

Romania is based on the development of renewable energy projects and efforts to integrate them better and to support and attract investments in this area. Financial mechanisms to support energy efficiency measures mentioned are relatively limited in Romania, which has a negative impact on their promotion. To be successful, the implementation of the measures provided for these areas need financial support materialized in subsidies, tax cuts, aid to private companies engaged in the implementation of these plans and loans on favorable terms from banks. Financial aid will be proposed to support this sector that will be given by law, in compliance with laws on state aid.

Currently, investment financing aimed mainly increasing energy efficiency can be achieved:

- From the state budget and local budgets;
- Based on a performance contract entered into with third parties;
- Based on a performance contract concluded with an energy service company (ESCO);
- Bank loans obtained from external funding bodies (WB, EBRD, EIB, JBIC) or commercial banks;
- Co-financing from structural funds.

**Figure 2.** Sources of funding investments to increase energy efficiency



**Source:** Author's own contribution according to the data from the online address <http://www.mdrt.ro/en/dezvoltare-regionala/politica-de-dezvoltare-regionala>, accessed on 18<sup>th</sup> of October 2013.

In terms of renewable energy projects, they have to take into account the actors from the public or private area, citizens of a region, or country and the assurance of a success from such a project that involves a certain implementation and creating a link between these actors for their operation in relation to the national legal system.

Government has a key role in this situation, because by this organism are awarded funds for investments in renewable energy. Basically the government, along with local authorities, network operators, environmental authorities are involved in this system, because they provide the administrative management of renewable energy projects.

Basically, for each region of Romania, the authorities have their own responsibility regarding the local situation of an area that may hinder or facilitate the investments in green energy, but they are also coordinated by the central authorities. In Romania, the bureaucratic system is a serious problem that discourages investors from the very first contact with the authorities.

A practical example of a renewable energy project is the list of documents and notices required to obtain a financing or a loan for such an investment, as it follows: acts issued by the local public authority, certificate of urbanism, building permits, opinion approving construction sites, documents eliberated from the environmental system, documents issued by the grid operator will be connected to the recipient; documents issued by the National Authority for Energy Regulation; special authorization for the purposes of producing more than 1 MW, licensed manufacturer for the purposes of producing more than 1 MW etc.

Given the necessary documents in the first phase, it is more effective to promote public-private partnerships, in order to facilitate the obtaining of documents and communication energy efficiency on these projects and minimize bureaucracy. Public-private partnerships are supported at European level and identify the following strengths related to: reducing costs for public sector infrastructure, fast delivery, high efficiency, stability and sustainability, responsibility assumed, private management, risk elimination, improved quality of services (Hodge and Greve, 2007, pp. 545-558).

To summarize, the steps that can be adapted to implement renewable energy projects in areas of national development by creating public-private partnerships are: encouraging research and innovation, supporting local initiatives, promotion of renewable energy and attracting investors in this field (Directive 2009/28/CE of the European Parliament and of the Council from 23 April 2009 on the promotion of energy from renewable sources and amending and subsequently repealing Directives 2001/77/CE and 2003/30/CE).

## Conclusions

Of the above-stated, it can be concluded that the two concepts, sustainable regional development and renewable energy are intertwined and affect both the public and private sectors. Moreover, how the two concepts are supported in the legislation shows that the two concepts have common interests and goals to accomplish the creation of a stable economic environment.

Romania is an attractive country in terms of the multitude of renewable energy sources in its possession. To attract investments in this area is needed further work related to the institutional framework for conducting such activities. It is also necessary to find concrete solutions for accessing European funds for the development of non-conventional energy sources and encourage energy producers.

There are many challenges for both sections of the public authorities who want renewable energy development in developing regions, as well as the private sector by investors seeking to maximize profits in relation to compliance with the laws of Romania conditions and also on investment objectives.

In order to achieve investments in this area, eliminating any risk that may further exacerbate the economic crisis we are facing now should be considered. Encouraging investments in renewable energy sources is considered to be a solution that will generate economical growth.

Public-private partnerships are supported at European level and consist of a series of advantages both for the public and the private sector, such as reducing public sector costs, fast delivery infrastructure, high efficiency, stability and sustainability assumed responsibility, private management, elimination risk, more improved quality of services.

Given the foregoing, it can be concluded that Romania is an environment for creating PPP's in green energy field and it has the ability and resources to attract these types of partnerships.

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