A COMPARATIVE ANALYSIS OF THE RELATIONSHIP BETWEEN THE ECONOMY AND ENVIROMENTAL PROTECTION IN ROMANIA AND GERMANY

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Abstract

The relationship between the economy and environmental protection is an important challenge for the countries of the world. In this paper, I have conducted an analysis of this relationship and a comparative analysis of this relationship based on the current situation in Romania and Germany and I have found the following: the significance of the state in managing the economy – environment interrelation; the existence of solutions to all the demands arising from the relationship between the economy and the environment; the need for continuous adjustment to the challenges that occur and to preserve the environment unimpaired for future generations.

Keywords: *Economy, environmental protection, business environment, renewable resources*

JEL classification: *O13, O57*

1. Introduction

In the present paper I have conducted an analysis of the relationship between the economy and the environmental protection and a comparative analysis of this relationship based on the current situation in Romania and Germany. After performing a general analysis, I have focused on the situation in the energy sector since it has an important impact as well as on the economy as also on the environment. Using energy from renewable resources (alternative energy) and comply with the rules for environmental protection,

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the economic agents, institutions and population can provide an important input on the environmental protection.

2.1. Analysis of the relationship economy – environmental protection

In the context of the XXI century, the world states have to find a way to have a functional economy with positive results but, at the same time, to use the natural resources rationale and to avoid any type of activity that can affect the environmental protection. If, in the case of the third world countries, which main focus is the valorisation of natural resources, this aspect can be realised only gradually, in the case of the European Union and other performing economies, the balance between a performing economic activity and environmental protection must be assured immediately. Assuring the environmental protection must not be perceived as a barrier or impediment in the economic development, but as a possibility to offer our successors the same chances that we are enjoying today.

A prove that there can be a balance between a performing economic activity and environmental protection and also an example of good practice is the German economy. Besides the fact that in the current state, it is considered to be „Europe's engine" and a balancing factor for the construction of the European Union, the German economy is in an harmonic relationship with the environment, and the environmental protection is respected as well by the economic agents as also by the institutions and not least by the population of this country. Therefore, the German economy sets an example that can be followed by other states, including Romania.

2.2. Comparative analysis of the relationship economy – environmental protection between Romania and Germany

While performing the comparative analysis between Romania and Germany regarding the relationship economy – environmental protection I have concluded that there are both common grounds but also different grounds, both to be analyse as it follows:

Common grounds:

- The European Union law, that represents the legal and common European framework where all the member states perform their activities;
- The purpose of economic growth by respecting the rules of environmental protection;

- The general tendency to increase the prices in the energy sector;
- The dependency on the Russian gas supply respectively on the gas resources from the Russian influential zone on the Asian continent;
- The tendency to replace nuclear electric energy (due to the high risks it implies in case of deficiencies) with energy produced from renewable resources;
- The existence of a subsidy system for the production of renewable (alternative) energy;
- The assumed commitment regarding the achievement of increasing the percentage for the renewable energy weight in the total energy production. Thus, Romania has committed to assure until 2002 a quota of 24% from the necessary energy from renewable (alternative) energy sources, while Germany is already at this quota;
- The intention of becoming independent from the energy point of view.

Different grounds:

- The economic power of the two states and the buying power of the consumer varies significantly;
- The development level of the two economies is not at the same quota. Germany is a country that is highly industrialized and specialized on product export with high grade of machinability. The Romanian industry collapsed during the 1990 and is on the recovery path. An important part of the population is still working in the agricultural sector due to the fact that, in most cases, there is no use of modern technology";
- Labor expenses are much lower in Romania, this evidence guarantees from this perspective, Romania's competitive advantage towards Germany;
- The implementation of the legislation is different and in the case of Romania it constitutes, in some cases, weak points;
- The legislative predictability is different. If in Germany, the legislative changes are rare and are announced in time, in Romania the legislative changes are much more often and in many cases take by surprise both the business environment and the Romanian population;
- The energy consumption of the two economies and implicitly the energy need varies a great deal;

- Different tradition and experience in the renewable (alternative) energy recovery field;
- Differences regarding the available renewable (alternative) resources. As so, Romania has gas and petrol resources that are superior to Germany;
- The annual solar radiation in Romania is superior and is considered to be a competitive advantage for the solar energy projects.

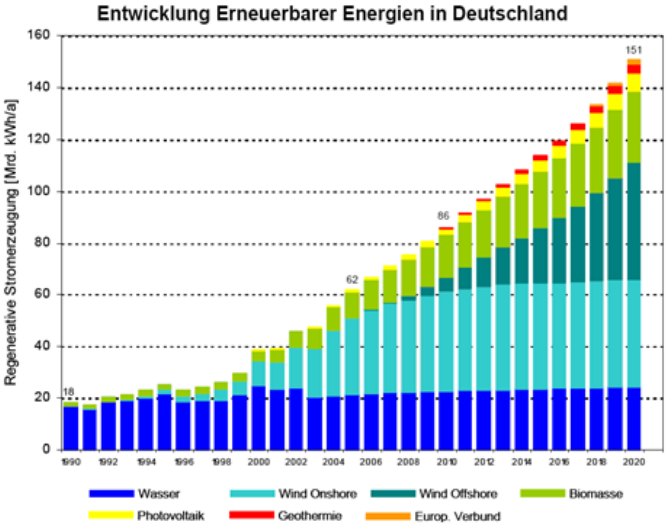
In Germany, since September 1999, there has already been initiated a program for investment subsidisation in renewal energy in particular endorsing the investment in photovoltaic systems, biomass and geothermal energy. (Geitmann, 2005) Gradually, Germany has become the leader of the European Union regarding the replacement of technologies based on fossil resources with the ones based on renewable resources.

2.3. Analysis regarding the implementing stage of the renewal (alternative) energy sources in Germany and Romania

In figure 1, which represents the evolution of production for electrical power from renewable sources on the German territory during 1990 – 2020, the following was found:

- The electrical power from renewable sources has increased from 18 billion KWh in 1990 to 86 billion KWh in 2010, and represents an increase of 4,77 times over a 20 year long period, and the estimation for 2020 reaches 151 billion KWh that represents a growth of 8,38 times over a period of 30 years;
- The hydro energy remained relatively constant and reaches approximately 20 billion KWh per year;
- Also, it has been established that this increase from 18 billion KWh in 1990 to 86 billion KWh in 2010 has mainly been produced due to the substantial contribution of onshore wind power during 2000-2010 and will be produced due to offshore wind power, photovoltaic energy and geothermal energy during the time period 2010-2020;
- The share of energy from biomass has gradually increased, so that it already represents the third renewable energy source in Germany.

Figure 1 Evolution of energy production from renewable sources on German territory between 1990 – 2020



http://www.kwh-preis.de/oekostrom/was-ist-oekostrom

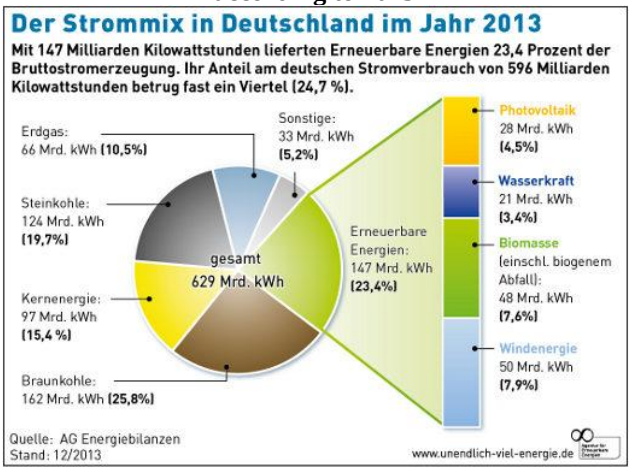
Figure 2 The installed power for the production of electrical energy from renewable sources on the German territory in the time period 2000-2020

www.unendlich-viel-energie.de

In figure 2, that represents the installed power for the production of electrical energy from renewable sources on German territory in the time period 2000-2020, the following was found:

- In 2007 there were 35 GW installed, and for the year 2020 there is an estimation of 111 installed GW , this represents an increase with an ascending rate mainly due to the growth of the photovoltaic energy;
- The power installed in 2020 will consist of 55 GW wind power, 40 GW solar energy, 9 GW energy produced from biomass, 7 GW hydro energy and 1 GW geothermal energy;
- We mention the significant weight of the wind power, that will represent approximately 49% of the installed energy for the electrical energy production from renewable sources on German territory in 2020;
- Also, the photovoltaic energy weight in the installed energy for the electrical energy production from renewable sources on German territory in 2020 will be approximately 36%;
- Energy produced from biomass, hydro energy and geothermal energy have a moderate increase and will represent together approximately 15% of the installed energy for the electrical energy production from renewal sources on German territory in 2020.

Figure 3 Overall electrical energy mix from different sources in Germany according to 2013



http://www.bdew.de/internet.nsf/id/daten-grafik-de

In figure 3, representing the overall electrical energy mix from different sources in Germany according to 2013, it reaches 629 billion KWh and consists of:

- Lignite - 162 billion KWh (approximately 25,8% from the German electric energy production in 2013);
- Renewable energy – 147 billion KWh (approximately 23,4% from the German electric energy production in 2013);
- Black coal – 124 billion KWh (approximately 19,7% from the German electric energy production in 2013);
- Nuclear energy – 97 billion KWh (approximately 15,4% from the German electric energy production in 2013);
- Natural gas – 66 billion KWh (approximately 10,5% from the German electric energy production in 2013);
- Others – 33 billion KWh (approximately 5,2% from the German electric energy production in 2013).

The renewable energy in the amount of 147 billion KWh and representing 23, 4 % of the German electric energy production in 2013 consists of:

- Wind energy – 50 billion KWh (approximately 7,9% from the German electric energy production in 2013);
- Energy from biomass – 48 billion KWh (approximately 7,6% from the German electric energy production in 2013);
- Solar energy – 28 billion KWh (approximately 4,5% from the German electric energy production in 2013);
- Hydro energy – 21 billion KWh (approximately 3,4% from the German electric energy production in 2013).

The electrical energy produced in Romania in 2013 was 42.625,1 billion KWh, decreasing with 2811, 0 KWh (corresponding a decrease of 6, 2%) in comparison with 2012. This electric energy decrease is due mainly to the lower production of the power plants in 2013.

The electrical energy for 2013 was produced from the following sources:

- The thermal power plants have produced 18.489,8 billion KWH, decreasing with 5.812,6 billion KWH in comparison with 2012, representing a decrease of 23,9 %;
- The hydropower plants have produced 11.733,9 billion KWH, increasing with 1.869,3 billion KWH in comparison with 2012, representing an increase of 18,9 %;

- The nuclear-electrical power plants have produced 8.694,0 billion KWH, increasing with 256,1 billion KWH in comparison with 2012, representing an increase of 3,0 %;
- The electrical wind power plants have produced 3.320,4 billion KWH, increasing with 1.571,5 billion KWH in comparison with 2012, representing an increase of 89,8 %.

The final energy consumption in Romania in 2013 was 36.857,6 billion KWh, which represents a decrease of 7% in comparison with 2012.This decrease in consumption is the result of the decrease in consumption for public lighting amounting to 10,3% and the consumption of the population amounting to 1,0%.

The destination of the final electric energy consumption in 2013 and 2012 has been the following:

- 65,3% intended for the consumption in economy in 2013, as compared to 67,1% intended for the consumption in economy in 2012;
- 20,1% intended for the consumption of the population in 2013, as compared to 19,1% intended for the consumption of the population in 2012;
- 11,1% intended for the particular technological consumption in networks and stations in 2013, as compared to 67,1% intended for the particular technological consumption in networks and stations in 2012;
- 2,5% intended for export in 2013, as compared to 2,0% intended for export in 2012;
- 1, 0% intended for street lighting in 2013, as compared to 1, 1% intended for street lighting in 2012.

The energy export was assessed to 1049, 3 billion KWh, which represents an increase of 121, 4 billion KWh in comparison with 2012, amounting to an increase of 13, 1%. The particular technological consumption in networks and stations was 4718, 2 billion KWh, decreasing with 150, 4 billion KWh in comparison to 2012, representing a decrease of 3, 1% (National Institute of Statistics, 2013).

The wind energy is considered to be the leader among renewable energy sources in Romania. Romania's potential in this field has been acknowledge by national and international institutes. There has been concluded that, the majority of the installed capacities are in Dobrogea, but

there exists a high interest also for other areas in our country, such as Nord-East Romania.

„Although the situation in Romania is improving, the condition of the transmission infrastructure and the increasingly lengthy administrative procedures still obstruct the commissioning of new wind farms. On the other hand, the need for intense development and modernization of the energy infrastructure is creating grounds for new investments opportunities." (http://www.cameradicommercio.ro/images/stories/Energia/Energy%20report%202012.pdf)

Regarding the majority of the renewable resources both Germany and Romania have similar possibilities from the point of view of natural conditions. Still, concerning the annual solar radiation, Romania has an advantage towards Germany. Therefore, the annual solar radiation on German territory is 1100 – 1400 kWh/m², whereas the annual solar radiation on Romanian territory consists of 1300 - 1700 kWh/m². As it follows, with the same investment, on Romanian territory there can be superior efficiency achieved by enhancing the advantage given by the natural conditions.

3. Conclusions

Following the comparative analysis of the relationship between the economy and environmental protection in Romania and Germany, we have found the following: the significance of the state in managing the economy – environment interrelation; the existence of solutions to all the demands arising from the relationship between the economy and the environment; the need for continuous adjustment to the challenges that occur; the importance of making people and the economic milieu aware of preserving the environment unimpaired for future generations.

The success of the German economy is mainly, the result of the favourable evolution of the majority of the German companies. This is applicable also for the Romanian economy so that "the future success of the Romanian economy will depend, largely, on the substantial improvement in competitiveness of the Romanian companies". Realizing a balance between economy and environmental protection is only possible with the help of renewable energy sources. As so „Energy generation from renewable sources not only provides fashionable, ecological, low-emission electricity, it also contributes to a growing independence from fossil fuels, which, whatever our opinion of them, are in limited supply and slowly being depleted. And this is

not just a passing trend: the need for renewable energy sources has become clear even to the world's top economic powers." (http://www.cameradicommercio.ro/images/stories/Energia/Energy%20report%202012.pdf)

Romania has a favourable legal framework and has made significant progress in the last decade in terms of the management of the relationship between the economy and environmental protection. Nevertheless, a lot more work is needed in terms of the accuracy and observance of rules, of business actors' mindsets and of public awareness of the importance of environmental protection so as to leave the environment to future generations in as good a state as possible.

Using the energy from renewable sources (alternative) and following the rules for environmental protection, the economic agents, institutions and population can bring substantial addition to the environmental protection.

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