Europe 2020 Strategy vs Global Environment Protection's Challenge

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Abstract: The paper deals with the analysis of the latest events related to the environment protection and clean energy. This analysis is built on two levels. The first one is the analysis of the Europe 2020 Strategy regarding the environment and energy across the EU and points out the great disparities between the Member States. The second level is focus on the environment and energy consumption in Romania. It is followed by forecasting procedures related to the greenhouse gas emissions, the renewable energy in gross final energy consumption, the primary energy consumption and the final energy consumption. The main conclusion of the paper is that EU has to face to great challenges in this domain and the Strategy's goals achieving in 2020 is not sure. On the other hand, Romania has good performance for two from the four above specific indicators. The analysis is based on long term statistical data, pertinent diagrams and is supported by IBM-SPSS software.

Keywords: Environment protection; clean energy; renewable energy; greenhouse gas emission; energy consumption

JEL Classification: Q01; Q2; Q4; Q5; R11

1. Introduction

There is no doubt that the environment protection becomes vital for the future of the humanity. The national decision makers understood that the environment protection' problems don't stop at their national borders. As a result, the global approach is the unique viable solution for a realistic future on the Earth.

Many conferences and bi and multilateral meetings tried to put into an all accepted legal framework the solutions of the environment protection.

The last one covered the 21st annual session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change

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(UNFCCC) and the 11th session of the Conference of the Parties (CMP) to the Kyoto Protocol (xxx, 2015).

According to Article 2 of the conference in Paris Agreement, the decision makers established to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels (United Nations, 2015).

Moreover, during the Conference in Paris, the participants presented national plans able to reduce the pollutant emissions. The states agreed to present their individual contributions every five years and to operate under perfect transparency in achieving their environment protection targets.

On the other hand, the developed countries (including EU Member States) will finance the developing countries in order to protect the environment and to face the challenges related to the climate changes.

According to the above actions, EU defined Europe 2020 Strategy, which covers specific goals, including the environment protection. This document defined four environment headline indicators: greenhouse gas emissions, share of renewable energy in gross final energy consumption, primary energy consumption and final energy consumption (European Commission, 2010).

Unfortunately, the President of USA announced his country's withdrawal from the Paris Agreement regarding climate protection on June 2017. USA is the second world polluter after China. As a result, the above announce is very important for the world future environment protection even that China and Russia decided to respect the Treaty. Only two countries (Nicaragua and Syria) didn't sign this agreement till now.

The other countries of the world support the treaty. This is why, the next world conference on climate will be held in Bonn on November 2017.

In this context, EU has to play an important global role and the Europe 2020 Strategy becomes more and more important.

2. Literature Overview

Environmental pollution is considered as one of the vital present and future challenge for humanity. As a result, the interdisciplinary approach becomes essentially. From this point of view, is interesting to point out the key principles of pollution science and the impact of the pollution on natural element cycles. Pollution has global and local impacts and affects all elements which support life on the planet. The connection between pollution and health is inevitable (Rieuwerts, 2015).

The connection pollution-health represents the main element of a research which describes the measures to be taken to control industrial wastes. The different types of wastes are quantified and analysed on different elements: air, soil and water. Moreover, the analysis covers photochemical air pollution, marine pollution, thermal pollution, noise pollution, and radioactive pollution and their effects on human health. On the other hand, this book offers solutions for managing various types of wastes (Ahluwalia, 2014).

Other research is focused on the evolution of the EU environmental policy during 1970-2015. This analysis is followed by a review of main actors in EU environmental politics. Moreover, the environmental policy and its ecological impacts are quantified within and outside the EU and take into consideration the possibility of EU enlargement (Selin & VanDeveer, 2015).

An interesting point of view is an official one from UK, which considers that EU membership had been positive for the UK environment. Moreover, the environment was not a case for criticisms and Brexit. A distinct part of this approach is that related to the environmental costs and the financial contribution of each Member State. On the other hand, there are significant benefits to solving some environmental problems multilaterally (House of Commons, 2016).

An optimistic approach on EU environmental policies considers that they are the world's most stringent sets. The authors of this approach analysed in their book the interdependence between environment protection trend in the EU and at the global level. Moreover, the same authors focus on the EU as main actor in global environmental governance, especially in relation to climate change. (Delreux & Happaerts, 2016)

Last but not least a recent research focuses on Baltic Sea Region and applies the ecosystem approach to management in order to quantify the impact of different official action plans, directives and other institutional documents. The authors take into consideration HELCOM's Baltic Sea Action Plan, the EU Water Framework Directive, the EU Marine Strategy Framework Directive and the EU Maritime Spatial Planning Directive. A very interesting idea is that Russia is affected in its independence as long as it recognises and implements the EU legislation on Baltic Sea Region. (Söderström & Kern, 2017)

3. Europe 2020 Strategy Goals' Analysis

Europe 2020 Strategy covers five essential goals. One of them is climate change & energy. It is divided into four targets.

First is the level of the greenhouse gas emissions which is quantified as index related to its value of 100% in 1990. The EU target under this indicator is a

decrease of 20% of these emissions in 2020 compared to 1990. The trend of the indicator is presented in Figure 1.

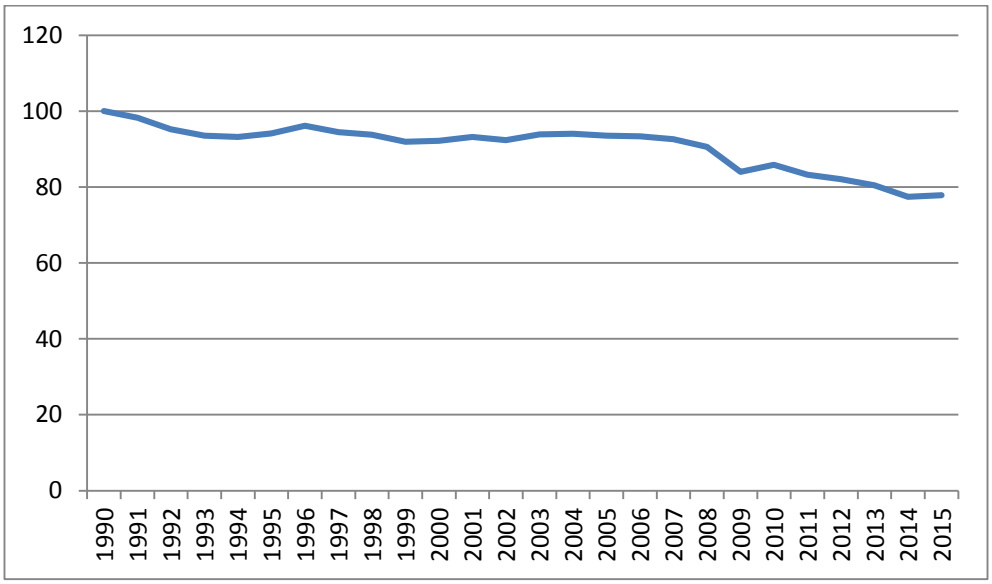

Figure 1. Greenhouse gas emissions (1990=100)

Source: Personal contribution

According to Figure 1, the EU 2020 Strategy's target was achieved in 2014 (European Environment Agency, 2017).

On the other hand, there are great disparities related this indicator between Member States. The gap between the best (Lithuania) and the worst (Cyprus) performances is 1: 3.44.

According to the latest official data, half of the Member States are not still able to achieve the greenhouse gas emissions standard from Europe 2020 Strategy. But the performances in this domain can cover an economic contraction, especially in industry, which is not a good thing.

Unfortunately, UK has good performance in decreasing greenhouse gas emissions, but it is during its exit from EU procedure.

The second specific target is the share of renewable energy in gross final energy consumption which faces to a very ambitious goal for 2020: 20% from whole energy consumption.

EU succeeded to increase permanently the share of renewable energy in total consumption during 2004-2015 (see Figure 2).

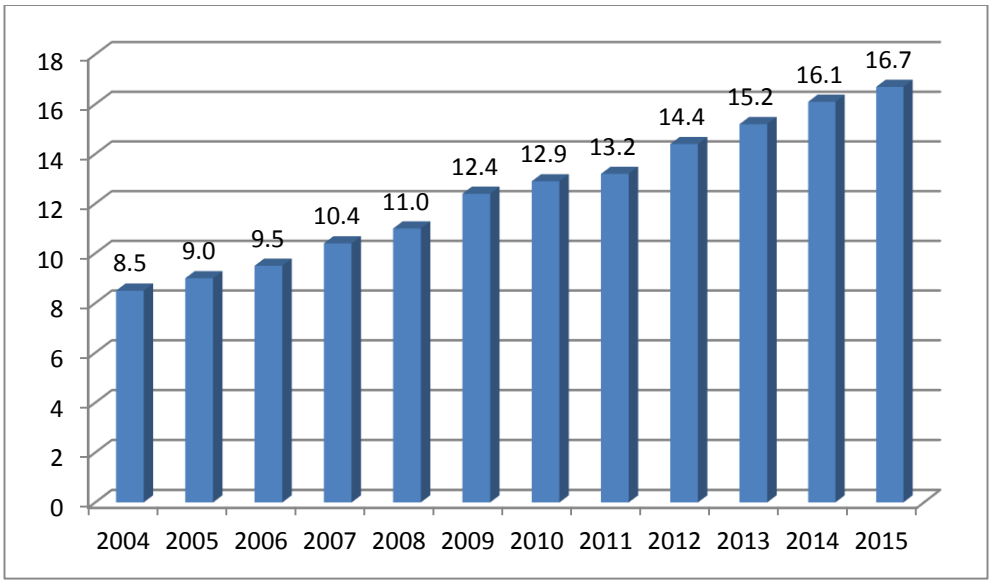

Figure 2. Share of renewable energy in gross final energy consumption

Source: Personal contribution

EU was not able to achieve the goal regarding the share of renewable energy yet (European Environment Agency, 2017b).

There are some contradictions related to this indicator between Member States. Some of them (Denmark, Estonia, Croatia, Latvia, Lithuania, Austria, Portugal, Romania, Slovenia, Finland and Sweden) achieved the target of renewable energy or more than it.

On the other hand, 15 Member States adopted lower national goals than the EU average. By opposite, Denmark, Estonia, France, Latvia, Lithuania, Austria, Portugal, Romania, Slovenia, Finland and Sweden established higher goals than the EU average. As a result, the gap between the worst (Luxembourg, Malta) and the best (Sweden) situations regarding renewable energy is huge 1: 10.78.

EU established a target of 1483 million tonnes of oil equivalent to the primary energy consumption in 2020. This target is far away of being achieved yet (see Figure 3).

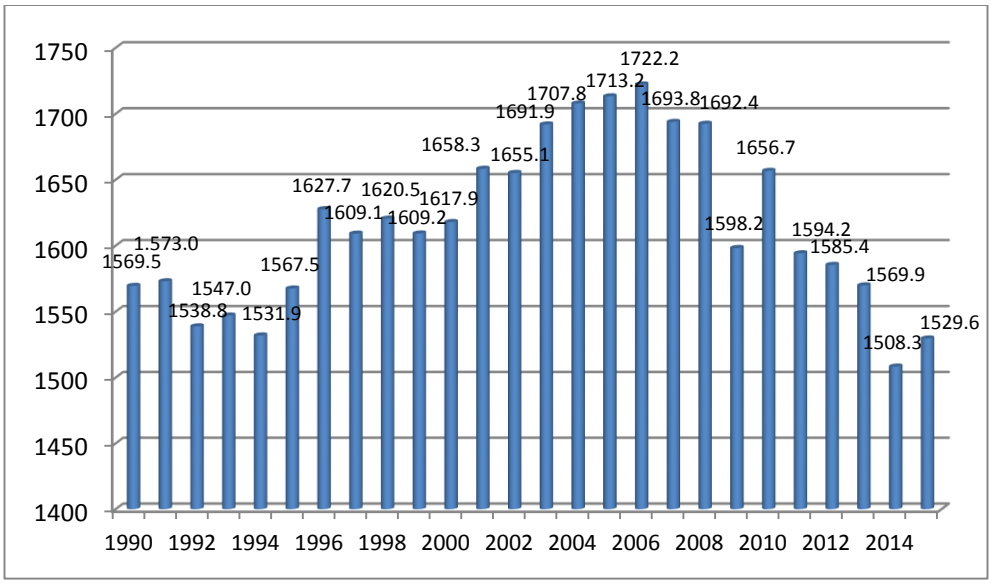

Figure 3. Primary energy consumption (mill. tonnes of oil equivalent-TOE)

Source: Personal contribution

The primary energy consumption levels followed the business cycle. It decreased during 2007-2009 as a result of the economic crisis. The economic recovery in the EU economy caused an increase of the primary energy consumption level in 2010, followed by continuous decreases until 2015 (Eurostat, 2017).

There are national targets regarding the primary energy consumption. Some Member States, as Denmark, Estonia, Greece, Spain, Croatia, Italy, Latvia, Cyprus, Lithuania, Luxembourg, Hungary, Austria, Poland, Portugal, Romania, Slovenia, Slovakia and Finland) succeeded in achieving the national targets in 2015. The greatest economies, as France, Germany and UK were not able to do the same thing. The best situation is in Romania, which decreased its primary energy consumption at 31.3 TOE in 2015 compared to its national target of 43 TOE in 2020. The worst situation is in Germany, which faced to a consumption of 292.9 TOE in 2015 compared to its target of 276.6 TOE in 2020.

The last indicator of the climate change & energy from the Europe 2020 Strategy is the final energy consumption, which has targeted at 1086 TOE in 2020. EU succeeded in achieving this target in 2014. Even that the final energy consumption grew again in 2015, it didn't excess to the target (see Figure 4).

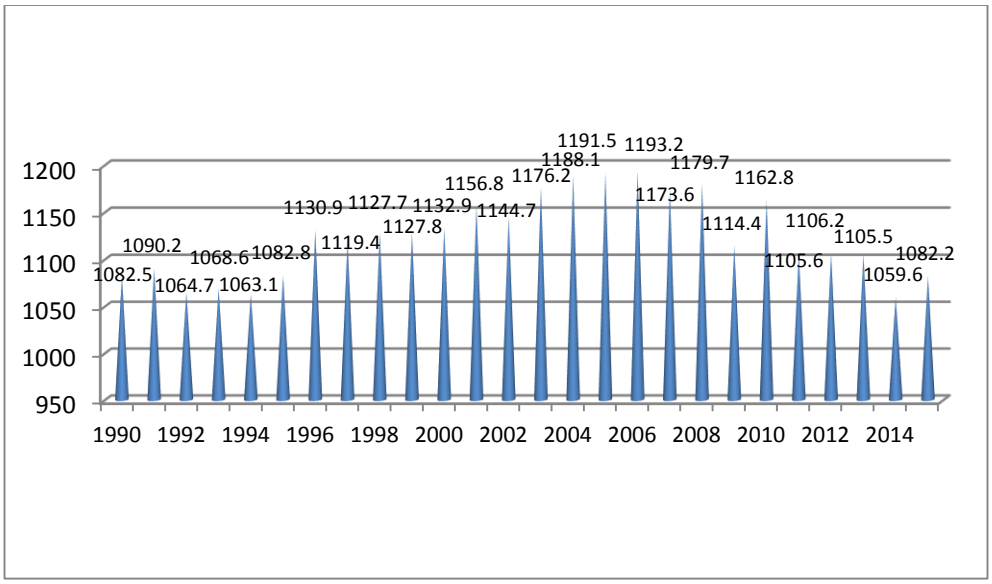

Figure 4. Final energy consumption (mill. tonnes of oil equivalent-TOE)

Source: Personal contribution

According to Figure 4, the evolution of the final energy consumption across the EU was fluctuant during 1990-2015 (Eurostat, 2017b).

In the same manner as for the primary energy consumption, the Member States established national targets for final energy consumption until 2020. Czech Republic, Denmark, Estonia, Ireland, Greece, Croatia, Italy, Cyprus, Latvia, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovenia and Finland succeeded to achieve these targets in 2015. The best performance had Romania and the worst France.

In order to see the progresses realised by the EU in the climate change & energy domains a quadrilateral diagram become useful (see Figure 5).

The red line represents the targets of the climate change & energy chapter according to the Europe 2020 Strategy. The blue lines represent the situation in 2010, when the Strategy was adopted and the black lines represent the progresses made during 2010-2015.

According to the above assumptions, there are some difficulties related to the renewable energy and the primary energy consumption.

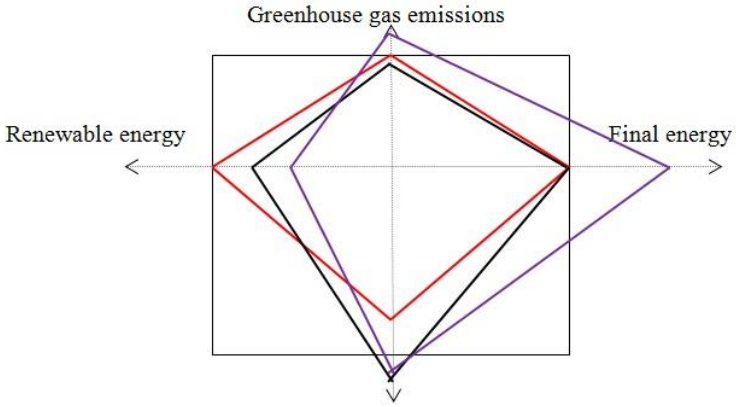

Figure 5. Climate change & energy diagrams

Source: Personal contribution

4. Climate Changes & Energy Challenges for Romania

As member of the EU, Romania applies the same strategy regarding the climate changes & energy. As a result, the greenhouse gas emissions had fluctuant evolution during 1990-2015 (see Figure 6).

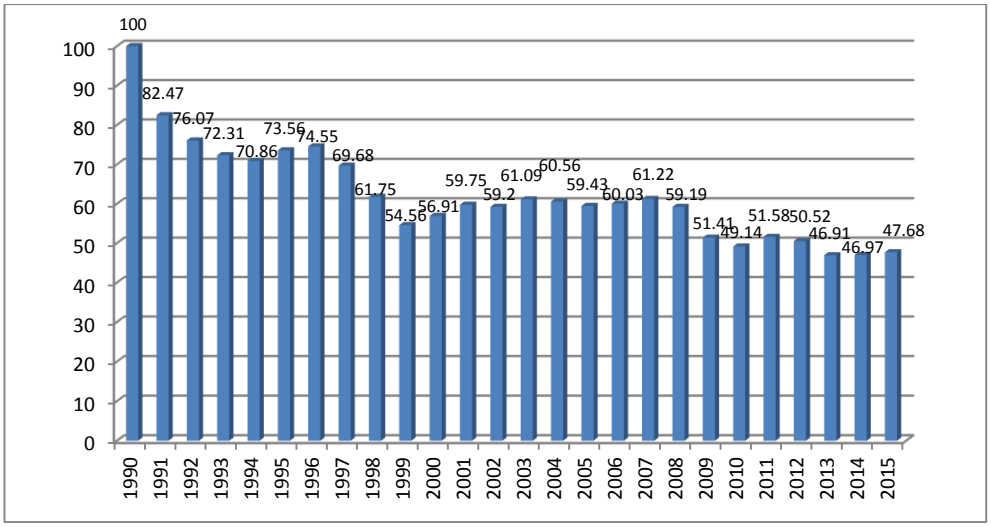

Figure 6. Greenhouse gas emissions in Romania (1990=100)

Source: Personal contribution

It was no problem for Romania to respect the Europe 2020 Strategy's goal for these emissions. Basically, the goal was achieved in 1992. On the other hand, the economic recession and the industry restructuration support a decrease of the greenhouse gas emissions in Romania.

The forecast of this indicator on medium term points out a positive evolution as in Figure 7. The annual values of the emissions represent dependent variables, while time is the independent variable. The forecasting procedure respects Expert Modeler conditions.

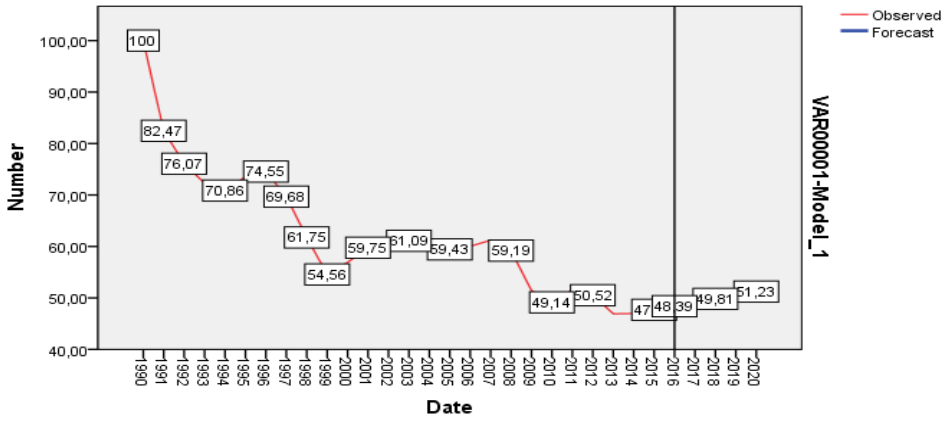

Figure 7. Greenhouse gas emissions' forecast in Romania

Source: Personal contribution using IBM-SPSS software

The forecast from Figure 7 is based on statistical data which cover 21 years. The result of such forecasting is better. Even that the emissions will increase during 2016-2020 due to the industrial recovery, the Strategy's target will be respected.

Romania establisher a higher standard than the EU regarding the share of renewable energy in gross final energy consumption: 24%. This target was achieved at the beginning of 2014 (see Figure 8).

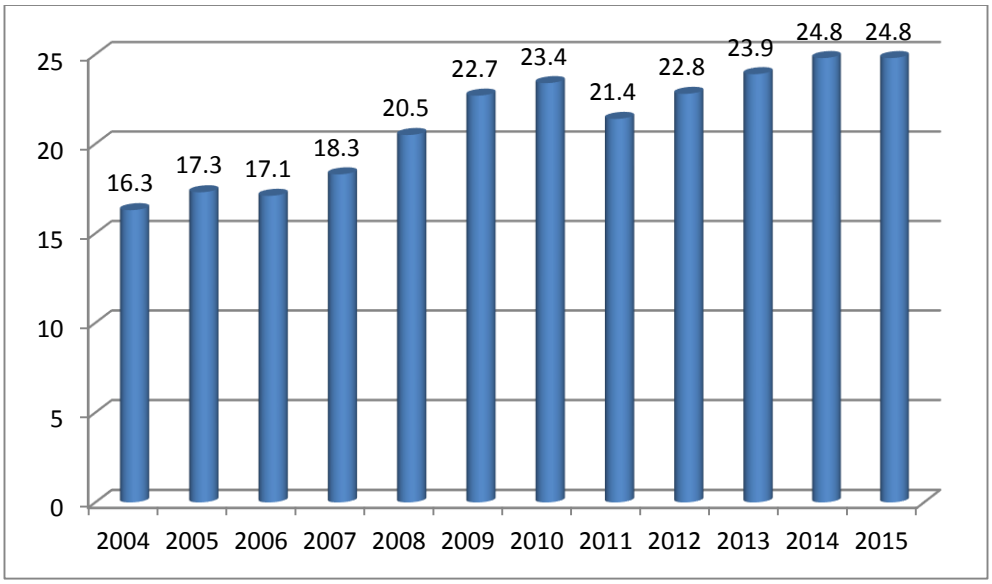

Figure 8. Share of renewable energy in gross final energy consumption in Romania (%)

Source: Personal contribution

The above diagram points out that Romania was able to achieve the specific EU goal in 2008. The forecast on average term leads to positive results (see Figure 9).

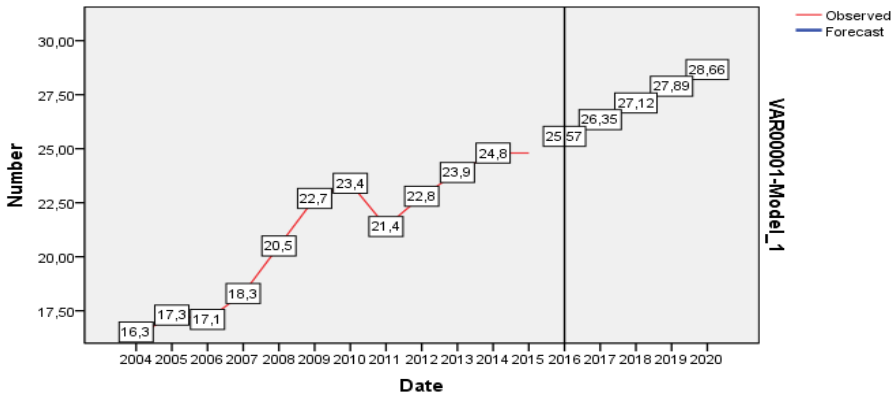

Figure 9. Renewable energy's forecast in Romania

Source: Personal contribution using IBM-SPSS software

According to Figure 9, Romania will continue to improve the share of renewable energy in gross final energy consumption until 2020. Even that the increase is not

spectacular, Romania will fight for the first rank regarding this indicator across the EU.

On the other hand, Romania was able to decrease the primary energy consumption in order to achieve its national goal of 43 MOE since 1998 (see Figure 10).

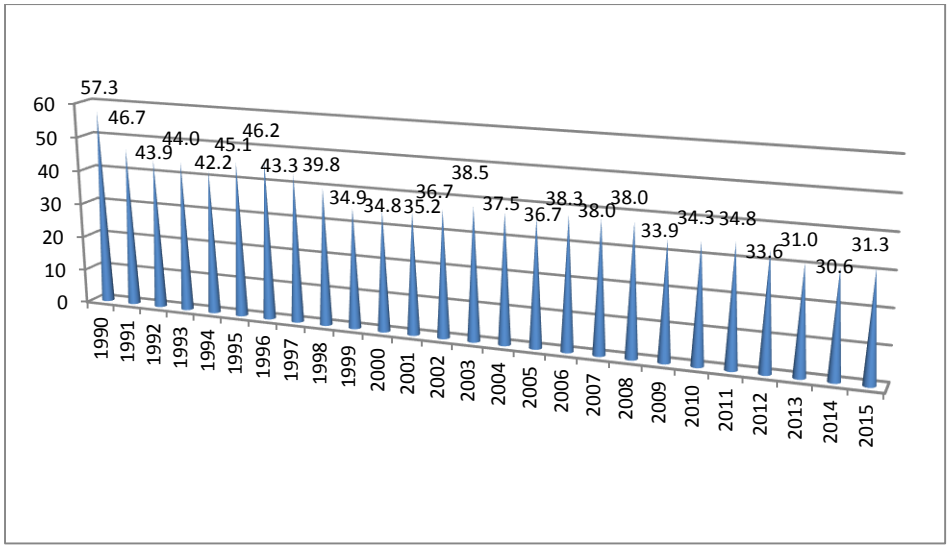

Figure 10. Primary energy consumption in Romania (TOE)

Source: Personal contribution

Under the same conditions, the forecast values of this indicator will decrease during 2016-2020 (see Figure 11).

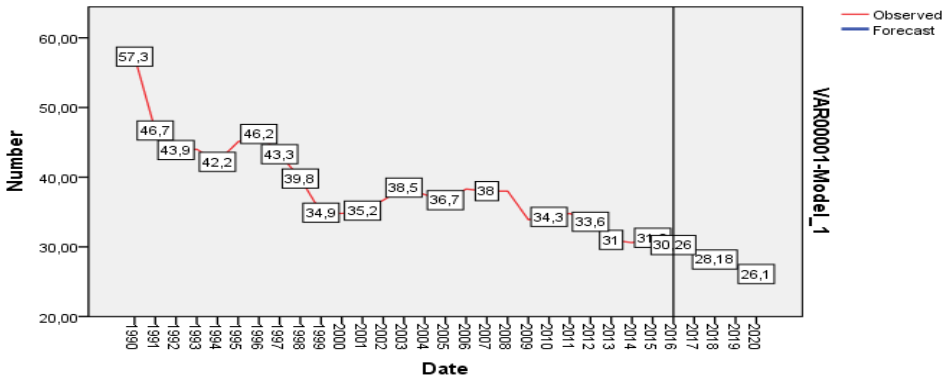

Figure 11. Primary energy consumption's forecast in Romania

Source: Personal contribution using IBM-SPSS software

The last indicator took into consideration is final energy consumption. Romania established a national target of 30.3 TOE, which was achieved in 1992. But the final energy consumption has to be correlated to the economic development. A contraction of the economy leads to a decrease in final energy consumption with negative impact on the socio-economic development (see Figure 12).

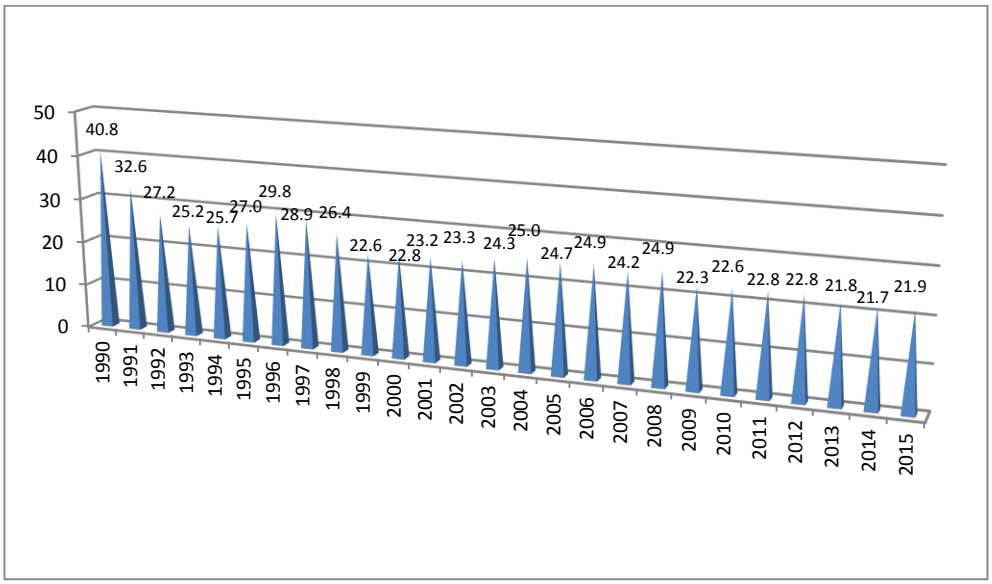

Figure 12. Final energy consumption in Romania (TOE)

Source: Personal contribution

During the last decade the final energy consumption in Romania achieved an average level of 22-23 TOE.

The trend of this indicator until 2020 is presented in Figure 13. Even in 2020, the final energy consumption will be below the national target.

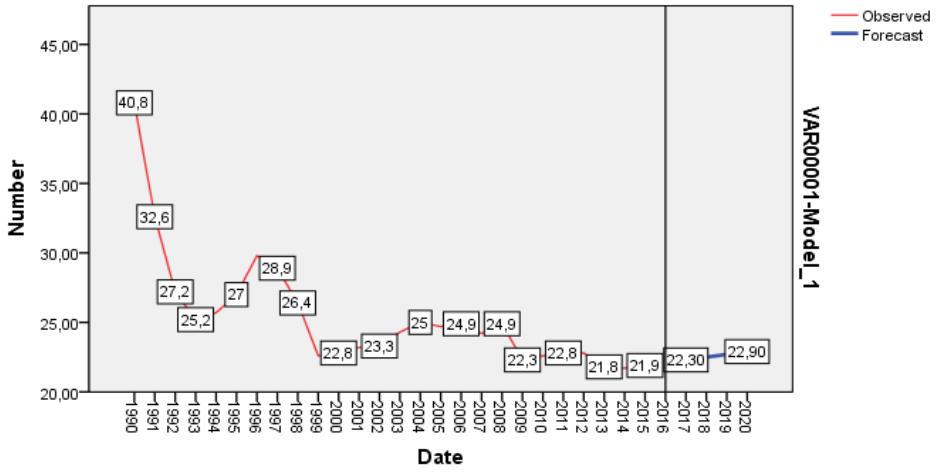

Figure 13. Final energy consumption's forecast in Romania

Source: Personal contribution using IBM-SPSS software

5. Conclusion

Environment protection represents a great challenge for the humanity. The greatest global economic actors have their own interests in managing this problem and adopt contradictory positions.

EU is one of those actors interested in decreasing pollution and finding new energy clean sources. The Europe 2020 Strategy has exact goals regarding climate and energy. Moreover, EU succeeded in achieving some of these goals starting to 2015.

On the other hand, there are great disparities related to climate and energy goals between Member States. This is why the achieving of all Strategy's goals in 2020 is not sure.

Romania has good performances in the environment protection and the clean energy promoting. Unfortunately, the performance of this country has to be put into balance with the economic trend.

The statistical data used in the analysis cover a long enough time period to obtain pertinent forecasts of the four specific indicators regarding climate and energy. Romania will improve its performance until 2020, even that other Member States will face to difficulties in achieving them.

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