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POLICIES FOR ECONOMIC EFFICIENCY. PROVIDING UTILITIES IN PUBLIC ADMINISTRATION

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ABSTRACT

The reality of the contemporary world has shown that there is an increasing interdependent power often turned into political pressure. Today, in Europe 25% of the imports of natural gas come from Russia. Therefore, reducing energy dependence by using all the internal resources of each country becomes a national policy priority. This and the conditions in which alternative energy sources and building envelopment procedures can lead to considerable savings especially in areas where the heating of the public institutions needs to be done for more than half a year. For example, the overall heating costs in schools meaning between 60-90 lei/student/year for about 3.3 million students, it is possible to reduce them with about 20%. In this context, for the 2014-2020 period, the public authorities have at their disposal an important tool in the P.O.R. respectively the measure of "supporting energy efficiency and the use of renewable energy in public infrastructure".

KEYWORDS: energy efficiency, renewable energy, envelope, public expenditure

1. Introduction

Energy consumption has greatly increased with technological development and the diversification of human activities. The limited resources versus the unlimited needs of society led eventually to a series of fractures in the process of ensuring the energy required in its various forms, from raw materials such as gas, oil, coal, uranium consumed in specialized units, to the use at an increasingly wider scale of renewable ones: hydro, wind, solar, etc.

Various energy policies were developed, trying as much as possible to ensure its energy from internal sources, depending on the specificity of the area and the resources available for each country in the world.

However, a substantial pressure is currently maintained by countries holding the resources, pressure that, in some cases, has even apolitical nature, due to the energy production costs involved depending on the available raw material.

A short analysis of the dependence of methane of European countries, the issue "on the agenda", shows that almost a quarter of gas consumption is provided by imports from Russia, 23% from Norway, 20% from various other non-European countries (Algeria, Qatar) and only 33.74% from internal production.

When it comes to Romania, the imports from Russia are around the European average, but we can say that, from this point of view, we are privileged; our internal resources ensuring 75.67% of the national demand [1].

Considering the costs induced by energy prices, the limited resources, the dependence on imports and the emphasized constraints to environmental protection, at EU level, in the Europe 2020 Strategy, a major target was formulated, the 20/20/20 objective, to reduce carbon emissions by 20% while increasing energy efficiency by 20% and providing at least 20% of energy from renewable sources.

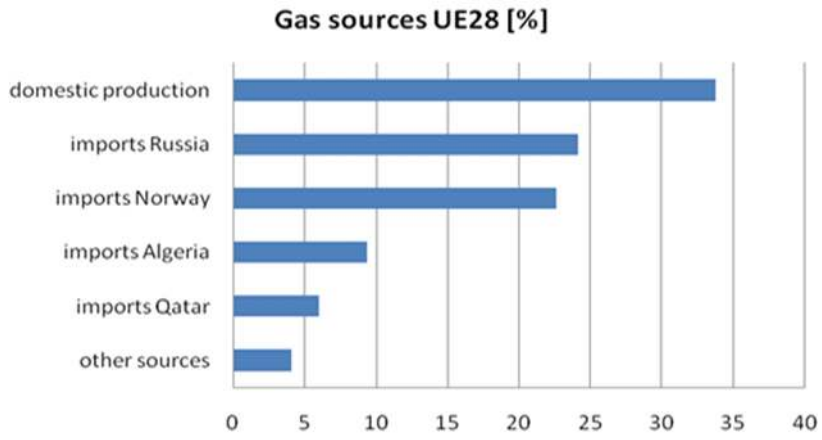

Fig. 1. *Gas sources in the EU 28*

2. Public policies on energy

"Meeting our energy goals could result in 60 billion euros less in oil and gas imports by 2020" [2]. "This is not only a financial saving but is essential for our energy security. If further progress in the integration of the European energy market is made, the GDP could increase by 0.6 to 0.8 percent" stated the Europe 2020 strategy. It is estimated that achieving the objective of having more than 20% energy from renewable sources could create more than 600,000 jobs, which is extremely important taking into consideration that the 10.5% unemployment in the EU has become alarming.

In these circumstances the role of public policies applied to the energy field becomes extremely important both in terms of reducing the consumption and in terms of providing facilities for the development of activities for energy production from renewable sources. The analysis of the classical categories of the national primary energy resources hows their limitation particularly in oil and gas, the resources of 2020 being virtually half of those of 2011.

The conclusion that can be drawn is that the energy production with the conventional sources of raw materials may not be sufficient over the next 20-40 years; the rest must be achieved by increasing the use of renewable energy sources.

Table 1. *Estimating the national reserves of oil and gas in Romania (2011-2020)*

YEAR	OIL million tons	GAS billion m^3
2011	60	134
2012	56	127
2013	52	120
2014	48	114
2015	45	107
2016	41	101
2017	38	95
2018	34	89
2019	31	83
2020	28	77
The considered premises in the estimation	Considering the depletion of the deposits, the oil production may register 2-4%annualdeclines. The degree of substitution of the exploitable reserves will not exceed15-20%	Considering the depletion of the deposits, the natural gas production can register annual declines of 2-5%. The degree of substitution of the exploitable reserves will not exceed 15-30%

"The dependence on import will depend on the discovery of new exploitable internal resources, the degree of integration of renewable energy and resources needed to increase efficiency" is shown in the Romanian Energy Strategy for the period 2007-2020 updated for the period 2011-2020 [3].

Thus the analysis of the potential of the renewable energy sources notes that Romania has developed an important segment in hydro, taking into account the natural potential that we have.

Also, a substantial increase in solar and wind energy in the recent years is observable. Given the fact that we basically started from zero in this field, the development can be seen as spectacular but far from fulfilling the potential that our country has.

Table 2. *Potential of Romania's national renewable sources*

Renewable energy source	Annual energy potential	Economic equivalent energy (thousand tep)	Application
Solar			
- **thermal**	$60x10^6$ GJ	1433	Heat
- **photovoltaic**	1200 GWh	103.2	Electricity
Wind	23000 GWh	1978	Electricity
Hydro in which: - **less than 10 MW**	40000 GWh 6000 GWh	3440 516	Electricity
Biomass and biogas	$318x10^6$ GJ	7597	Heat
Geothermal	$7x10^6$ GJ	167	Heat

From this point of view, the Energy Strategy for Romania, for the period 2007-2020 updated for the period 2011-2020, provides that in Romania steps will be taken specifically towards energy efficiency and renewable energy [4].

The actions targeting these are as will lead to the fulfillment of the objectives assumed by Romania in the environment field. Also very important, these actions will reduce our country's dependence on imported energy, the strategic national objective in the conditions of political and economic development today.

Directive 2006/32/EC, regarding the energy efficiency for final users, requires Romania to adopt significant measures in energy efficiency, including:

- The use of financial instruments to determine energy savings. It is inclusively considered the energy performance contracting.
- The purchase of equipment and technologies taking into account the priority of the defining elements for achieving energy efficiency.
- Conducting rigorous energy audits to industrial consumers, public and residential buildings. These must determine measures to reduce energy consumption and lead to the realization in 2016 of an economy through interventions at both existing buildings and at the new ones, by upgrading or creating new installations in residential areas and in the tertiary sector.

Table 3. *Estimated energy savings by sector in 2016*

SECTORS	Savings in 2016 Mil. Tep
Total Consumption, in which:	1.992
- by investing in facilities, existing buildings	1.047
- by making/building new installations, buildings	0.945
Residential, total, in which:	1.247
- investment in existing buildings	0.899
- the development of new buildings	0.348
Tertiary, total, in which:	0.085
- investment in existing buildings	0.007
- the development of new buildings	0.078

The National Program for thermal rehabilitation of buildings, the support of energy efficiency programs as well as the fiscal and the financial incentives to achieve energy efficiency projects are some of the implemented measures in the future [5].

The funding of these investments is an important problem, particularly concerning the financial effort and also supporting it for a relatively short time while the effects are observed gradually.

The main sources of funding are expected to come from:

- the state budget and local budgets, as a result of the national programs or local initiatives;

- on the basis of performance contracts signed with producers and energy service providers;
- financial loans obtained from foreign institutions WB, EBRD, EIB;
- co-financing from structural funds.

Considering the national budget, the local budgets and also the constraints related to loans in the banking system, accessing European programs appears to be the best solution to solve, at least partially, a series of actions in the field.

Thus, the priority axes "Energy efficiency in public buildings" and "Supporting urban development" are provided in the 2014-2020 Regional Operational Program, with the topic "supporting the transition towards alow-carbon economy in all the sectors "and as an investment priority" supporting the efficiency of energy and the use of renewable energy in public buildings and public infrastructure including housing"; these actions aim at improving the efficiency of energy in public buildings and public lighting system. The amount allocated exceeds 1.1 billion Euros and will be a real challenge for the public authorities.

It is estimated that the energy performance of buildings in Romania is low; buildings are responsible for about 36% of energy consumption. In this context the potential of saving for the buildings owned by public authorities is significant, averaging at 38% for heating and 23% for electricity [6].

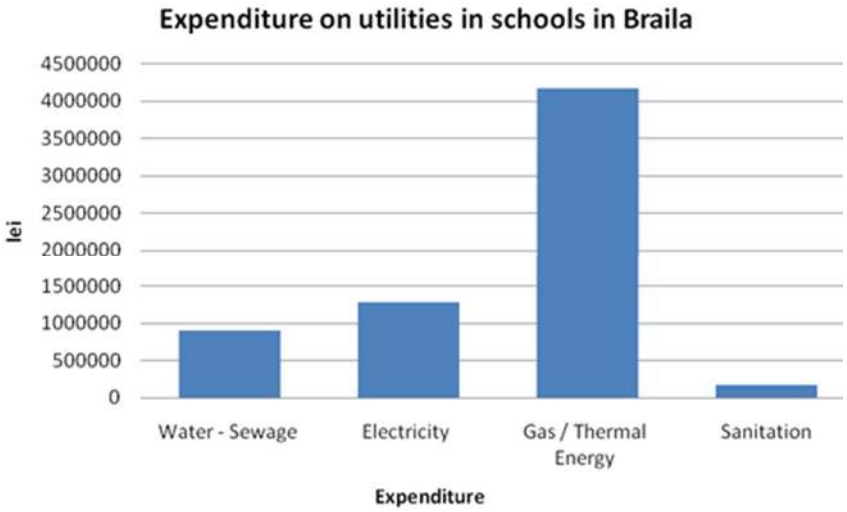

Fig. 2. *Expenditure on utilities in schools in Braila*

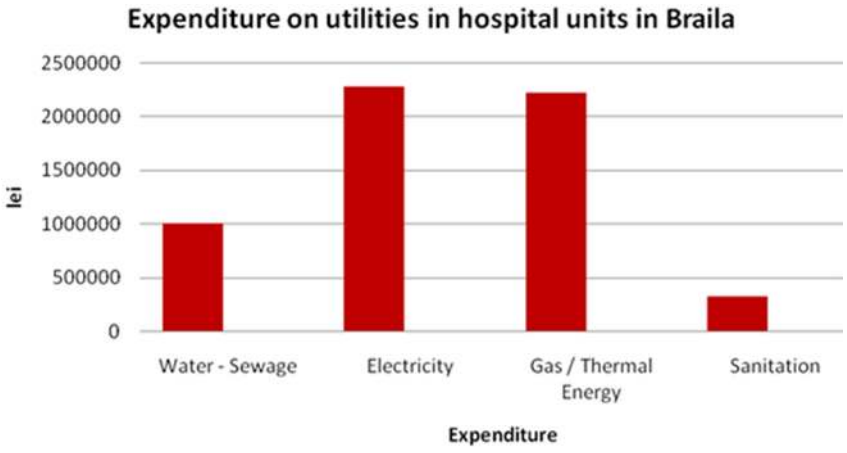

Fig. 3. *Expenditure on utilities in hospital units in Braila*

A detailed examination of a large municipality-Braila, reveals that all the utilities expenses from schools were over 6.5 million lei in 2013, from which 4.1 million was spent to provide heat either from the central heating system or on its own, the share of these expenses being 64%.

The same analysis for hospitals shows that, from a total expenditure of approx. 6.1 million lei, the cost of heating and hot water was 2.2 million lei, respectively 36.34% [7].

Thus, a 30% reduction of budget expenditures for providing heat and hot water in these institutions can mean annual savings of nearly 2 million.

If we analyze the electrical power consumption, at the school level, this means about 1.3 million lei, or 20% of the total amount paid for utilities, and in hospitals 2.3 million lei, 37.25% of total utilities payments, such that a reduction of these expenses by 20% would mean saving 720,000 lei annually.

In this respect Axis 3 of 2014-2020 ROP mentions a number of actions that can be carried out in public buildings and which can be considered as examples for implementing energy efficiency measures. Some of these actions are:

• improving the thermal insulation of the building, including measures to strengthen it;

• rehabilitation and modernization/upgrading of the facilities for producing and transporting heat, AC, hot water, etc.;

• intelligent power management including the changing of electric lighting by using lighting with high energy efficiency and long life;

• use of renewable energy sources in particular for providing heating and hot water.

4. Conclusions

There are significant sums for local budgets that may be made available for various activities, and also to support European co-funded projects.

In these circumstances the local authorities must use all their opportunities to complete the required projects so when signing the partnership Romania - the EU funding admission becomes operational, in order to be able to access the EU available funding for this axis.

Creating an "Efficient Europe in terms of use of resources" will allow for a decoupling of economic growth from the existing limited resources, the increase of the degree of the use of renewable energy resources and promoting actions and activities characterized by energy efficiency.

Improving the efficiency of energy in public buildings will lead not only to reduced energy consumption and costs, but will also cause a growth particularly in the construction industry and local industry, influencing also the research and the innovation in the field.

The use of the Regional Operational Program to finance such interventions in the public and providing incentives and tax with the use of all resources available to public authorities can help to achieve important saving goals assumed by Romania in energy efficiency and environment protection with a significant impact on the whole economy and social life for the next 40-50 years [8].

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