

BUILDING ENERGY EFFICIENCY. CASE STUDY ROMANIA

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Overview

Buildings potential to consume less energy and produce renewable energy is huge, promoting energy efficiency for new buildings constructed in the EU is one of the initiatives that will contribute to reducing CO2 emission, in the condition when the consumption of buildings in Europe is 40 % of total consumption, and 36% is energy that produces emissions. From 31 December 2018, all buildings must produce the same energy that consume. The paper seeks to identify the main steps take at the EU level to promote energy efficiency of buildings, presenting also funds needed to implement these measures. In order to influence behavior at EU level, there are several policy instruments that are used now, eg EU Action Plan on energy efficiency strategy for reducing emissions of CO2 and the new Directive concerning energy performance of buildings. Several countries have adopted their own action plans on sustainable energy consumption and production. Many initiatives and measures are adopted at both regional and local level, for example in the strategies of sustainable development and Agenda 21. The use of energy in buildings represents a large share of the total end use of energy. In residential and commercial sector the major part of the energy consumption are for buildings. This includes energy used for controlling the climate of buildings, but also energy used for lighting and other installed equipment.

Method

Research methods include analysis of statistics data on energy consumption and final energy intensity in EU and forecasting of savings potential for residential sector in Romania. Furthermore, analysis is extended of documents related financial instruments to support energy efficiency of building. Also, we raise the attention regarding the Romanian situation and the energy saving potential of residential sector and analyses of measures to encouraged the growth of energy efficiency, by providing financial incentives and tax.

Results

We have observed that the consumption of buildings in Europe is 40 % of total consumption, and 36% is energy that produced emissions. EU-wide energy projections anticipate a continued growth in final energy consumption to 2030 in all end-use sectors. Building standards are of key importance for future consumption levels. Furthermore, over the period 1990-2008 in the households sector, the final energy consumption per capita increased by 1.9 % since 1995.

In Romania the residential sector is an important sectors in the field of final energy and electricity consumption, coming second after industry within the total consumption. Energy saving national potential and reducing energy losses, is valued at 27 - 35% of primary energy resources (industry 20-25%, buildings 40 - 50%, transportation 35 - 40%). At an annual consumption of primary energy of about 36 million Tep /year the potential savings is about 10 million Tep /year and is save about 3 billion /year. Moreover, we observed that residential sector has a primary energy saving potential at 3.6 millions tones equivalent petrol through 6.8 million tones of the total final consumers; it means more than 50%. The growth of energy efficiency and using renewable sources is encouraged by providing financial incentives and tax. In Romania the main financial institution that providing commercial financing of investments projects aiming the rational use of energy is the Romanian Energy Efficiency Fund.

Conclusions

In the condition when the consumption of buildings in Europe represents 40% of total consumption, and 36% energy that product emissions, reduction of energy and using energy from renewable sources in the buildings in an important component of measures needed for reduction of greenhouse gas emissions, moreover are encouraging technological development and are creating jobs. Improvement of buildings efficiency at planning stage is recommended, improvements after their initial construction are much more difficult.

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