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## THE NEW DIRECTIVE 2012/27/EU AND AMENDMENTS IMPOSED BY IT ON ENERGY EFFICIENCY

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**ABSTRACT:** In accordance with the EU Energy Policy, developed in 2007, energy is an essential element for the development of the Union, but equally is a challenge regarding the impact of the energy sector on climate change, increasing dependence on energy imports and increasing the energy price. The paper focuses on the latest European Directive of the European Parliament and of the Council from October 25, 2012 on energy efficiency. The Directive establishes a common framework for promoting energy efficiency measures in the Member States of the Union, in order to achieve, by 2020, the main objective of 20% energy efficiency and to open up the way for further energy efficiency increase. In the paper is written a synthesis of the European Directives issued by the European Parliament on energy efficiency, specifying some of the energy-saving targets set by them.

**KEYWORDS:** energy efficiency; energy consumption; energy audit; building renovation; European Directive

### INTRODUCTION

The context of current orientation on European and global energy saving in buildings requires the development and implementation of energy efficient and comfortable buildings. For this purpose it is important to consider the whole lifetime of a building, when assessing "sustainability", who aims to create living conditions that are ecologically compatible, economically supported and have the user's needs as a priority.

At REGIONS20 Conference/Vienna, President of the European Commission Jose Manuel Barroso said in his speech entitled: "Sustainable energy: The European Union and the global agenda" the following phrases: "A global consensus is essential among governments on all levels, but also, and above all, among peoples. I firmly believe that it is possible to achieve sustainability without shutting people out of development. Energy plays an essential role in this and must be the heart of all our policies in the years to come." [1]

Given the large share of total energy consumption of buildings and especially the large share in heat consumption, it was considered necessary that the related legislation to be supplemented by a series of laws that concern directly the construction sector. The first normative acts took into account the regulations regarding the design and execution of new construction, in order not to increase building fund with poor thermophysical characteristics. Subsequently, in accordance with EU requirements of alignment with the standards in the field, there has been developed a package of legislations to support the work of thermal rehabilitaton of the buildings.

The main documents aiming energy consumption in buildings can be classified into framework regulations that establish the course of action and specific regulations that allow achieving the objectives. [2]

In accordance with the EU Energy Policy, developed in 2007, energy is an essential element for the development of the Union, but equally is a challenge regarding the impact of the energy sector on climate change, increasing dependence on energy imports and increasing the energy price. To overcome these challenges, the European Commission (EC) considers absolutely necessary for the EU to promote a common energy policy based on energy security, sustainable development and competitiveness. [3]

The European Commission proposes in the set of documents that are the new EU Energy Policy the following objectives:

- reducing emissions of greenhouse gases by 20% until 2020 compared to 1990;
- increasing the share of renewables in the total energy mix from less than 7% in 2006, to 20% of total EU energy consumption by 2020;
- reduction of global primary energy consumption by 20% until 2020. [3]

Romania is considered to be a country in transition to a market economy, so after the Kyoto Conference, from December 11, 1997 and the Protocol signed at this conference the quantitative limitation percentage reduction in the period between 2008÷2012 (percentage compared to 1990) is 92%.

The accession of Romania to the European Union on January 1, 2007 determined the adoption of solutions for solving a long list of problems in various areas of social life, political, economic etc. [4]

## STATE OF ART REGARDING EUROPEAN DIRECTIVES ON ENERGY EFFICIENCY

The first energy efficiency requirements for buildings were related to inadequate insulation which could lead to health problems due to moisture and its infiltration into structural elements of buildings.[5] Specific requirements for thermal characteristics of building's elements occur in the period between the two World Wars, when some countries have regulated the introduction of a simple insulation as an air layer in the walls or slabs of wooden beams arranged in double layer.[5]

Although most energy efficiency requirements in building codes have followed the tradition to be national, in the last decade there has been a trend in cooperation between countries to develop international energy efficiency requirements or standards. Examples are based on US standards for energy efficiency (IECC 2004 and ASHRAE 2004) that is used in the USA and Canada and the EU Energy Performance in Buildings Directive (EPBD), which requires Member States to establish requirements for energy efficiency in new buildings, starting from January 2006.

To complete the EPBD, the European Union aims to establish a model building code for the European region and to develop CEN standards for calculating energy performance. These CEN standards are about to be modified and adopted as ISO standards. Most countries have started with a common standard for energy efficiency, but along the way they developed separate standards for small and simple residential buildings and large buildings, complex or non-residential.[5]

### Energy Performance Buildings Directives (EPBD)

Buildings account for 40% of total energy consumption in the Union. Therefore, the reduction of energy consumption and the use of energy from renewable sources in the buildings sector constitute important measures needed to reduce the Union's energy dependency and greenhouse gas emissions. The EU has taken several actions to honour both its long term commitment to maintain the global temperature rise below 2°C, and its commitment to reduce, by 2020, overall greenhouse gas emissions by at least 20% below 1990 levels, and by 30% in the event of an international agreement being reached. One of the most important is the Energy Performance Buildings Directive (EPBD), which was developed and will be implemented with the following milestones:

- Dec 2002: EU adopts Energy Performance Buildings Directive EPBD 2002;
- Jan 2006: Deadline for transposing directive into national law;
- Nov 2008: Commission proposes revision of EPBD (EurActiv 14/11/08);
- Apr 2009: Parliament adopts first-reading position (EurActiv 24/04/09);
- Nov 2009: EU reaches political agreement on directive (EurActiv 18/11/09);
- May 2010: Parliament approves the EPBD Directive 2010/31/EU on the energy performance of buildings;

- October 2012: EU adopts a new EPBD Directive 2012/27/EU;
- End 2018: Public buildings to have to be nearly zero energy standards;
- End 2020: All new buildings to be nearly zero energy.[6]

The Energy Performance of Buildings Directive adopted in 2002 (2002/91/CE) includes a methodology for calculating the energy performance of buildings, minimum standards for the energy performance of new buildings and those undergoing renovation, building energy certification systems and requirements for regular inspection of boilers and air conditioning system.[7]

In early 2006, the European Commission adopted the Directive of Final Energy Consumption and Energetic Services 2006/32/CE. The Directive incorporates an objective for energy saving for the member states of 1% per year and a requirement for member states to draw up a plan for how they will achieve this goal.[8, 9]

Directive 2006/32/EC on energy efficiency to end users, which is mandatory for Romania since 2008, provides that EU Member States commit to reducing final energy consumption by at least 9% in a period of 9 (nine) years between 2008-2016 compared to the average consumption of the last five years for which data is available (2001-2005). In this regard, there has been adopted the following energy efficiency measures:

- a) using financial instruments for energy savings, including energy performance contracts that stipulate the delivery of measurable energy savings;
- b) purchasing equipment and technology specifications taking into account the priority on energy efficiency;
- c) acceleration of rigorous energy audits execution at industrial consumers, public and residential buildings, certified audits, followed by measures to reduce energy consumption.[3, 8]

Later in 2006, the EU adopted the Energy Efficiency Action Plan (2007-2012)-COM(2006)545. A mid-term review of the Action Plan was held in 2009. The Commission presented an Action Plan for Energy Efficiency in 2011. The action plan includes improvements in the application of energy efficiency standards, of labeling requirements and expands the scope of the Directive on energy performance of buildings. It also calls for the banking sector to offer funding to help increase energy efficiency, invites the European public investment institutions to facilitate public-private partnerships and sets a target for the European Commission to remove national legal obstacles of the common economies. Finally, the Action Plan includes a number of measures to strengthen education and awareness regarding energy efficiency. [9]

In its current form, Directive 2009/28/EC on renewable energy is designed to ensure the achievement of the targets on energy from renewable sources by 2020. The Directive provides the adoption in 2018 of a roadmap for the period after 2020. [10, 11]

Directive 2010/31/UE is concerned with promoting energy efficiency in buildings across Europe using cost effective measures, while at the same time harmonising standards across Europe to those of the more ambitious Member States.

The directive centres around four key strands:

- Providing a methodology framework for calculating the energy performance of buildings, taking into account local climatic conditions.
- Applying energy performance requirements to both new buildings and existing building stock.
- Providing a certification scheme for all buildings.
- Regular assessments of any heating and cooling equipment installed.[12, 13]

All new buildings must comply with high energy performance standards as well as generating a significant proportion of their own energy through renewables after 2020. The intention is that the public sector will lead the way through using buildings with “nearly zero” energy standards two years earlier, from January 2018. However the definition of “nearly zero” was left vague, and this will allow member states to define their own standards.

Buildings with a useful floor area > 500 m<sup>2</sup> that are occupied by public authorities and frequently visited by the public will be required to display the energy performance certificate in a prominent place, where one has been issued.

Directive 2010/30/EU is a recast of the original Energy Labelling Directive (92/75/EEC-applicable to household appliances). The Directive 2010/30/UE aims to improve the overall environmental performance of products and to help consumers buy more eco-friendly products, through its application to “energy related products”, including construction products, that have a significant direct or indirect impact on the consumption of energy.[12, 13]

Many EU Member States have failed to implement the EPBD in time, therefore the European Commission proposed a recast of the Directive in 2008. The restatement was approved by the European Parliament in May 2010 (2010/31/EU). This Directive reduces EU total energy consumption by 5-6% and creates from 280000 to 450000 new jobs through cost-effective measures by 2020. The governmental buildings of the member countries are obliged to consume “nearly zero” energy by the end of 2018 and the same is required for new buildings from the private sector after 2020. Energy performance certificates will also become mandatory for all rental and sale properties. The proposed standards not being mandatory to increase the energy performance of existing buildings have determined the Member States to develop national plans and programs to encourage owners to improve the energy efficiency of existing buildings.[9, 14]

#### EU Proposals on Reducing Consumption through Energy Efficiency

The European Union tried to explain to the citizen the EU proposals for cutting energy consumption through greater efficiency, through answering some frequently asked questions:

#### 1. What's the issue?

- Current estimates show the EU is not on track to achieve its target of reducing its estimated energy consumption for 2020 by 20%.
- As a result, new measures on energy efficiency are now being proposed for implementation throughout the economy to bring the EU back on track to achieve its objective by 2020.

#### 2. What exactly would change?

- **Public bodies** would need to buy energy-efficient buildings, products and services, and refurbish 3% of their buildings each year to drastically reduce their energy consumption.
  - **Energy utilities** would have to encourage end users to cut their energy consumption through efficiency improvements such as the replacement of old boilers or insulation of their homes.
  - **Industry** would be expected to become more aware of energy-saving possibilities, with large companies required to undertake energy audits every 3 years.
  - **Consumers** would be better able to manage their energy consumption thanks to better information provided on their meters and bills.
  - **Energy transformation** would be monitored for efficiency, with the EU proposing measures to improve performance if necessary, and promoting cogeneration of heat and electricity.
  - **National energy regulatory authorities** would have to take energy efficiency into account when deciding how and at what costs energy is distributed to end users.
  - **Certification schemes** would be introduced for providers of energy services to ensure a high level of technical competence.
- #### 3. Who would benefit and how?
- **Consumers** would benefit from having better information available to control their energy consumption and influence their energy bills.
  - **The environment** would benefit from reduced greenhouse gas emissions.
  - **Public bodies** could reduce their spending for energy consumption by using more efficient buildings, products and services.
  - **The EU economy** would benefit from a more secure energy supply and economic growth through the creation of new jobs, particularly in building renovation.
- #### 4. What happens next?
- Once the proposal is adopted by the European Parliament and the Council, EU countries will have to transpose the rules into national law within one year.
  - Progress made in achieving EU's 20% energy saving target in 2020 will be reviewed in 2014. If it is insufficient, mandatory national energy efficiency targets will be proposed.[15]

#### THE NEW EUROPEAN DIRECTIVE 2012/27/EU

Directive 2012/27/EU amends Directive 2009/125/EC on ecodesign requirements for energy-related products and Directive 2010/30/EU on energy efficiency labelling of energy-related products, and repeals Directive 2004/8/EC on the promotion of

cogeneration and Directive 2006/32/EC on energy end-use efficiency and energy services.

The Directive 2012/27/EU entered into force on 5 December 2012 and Member States have until 5 June 2014 to transpose the Directive into national legislation. Each Member State shall set an indicative national energy efficiency target based on the parameters set in the Directive and shall notify those targets to the Commission. From 30 April 2013 onwards, Member States shall report each year on the progress achieved towards their national 2020 energy efficiency targets. By 30 April 2014, and every three years thereafter, Member States shall submit National Energy Efficiency Action Plans.[16, 17]

The Directive lays down rules designed to remove barriers in the energy market and overcome market failures that impede efficiency in the supply and use of energy and provides national indicative targets for energy efficiency in 2020. [16, 18]

The requirements laid down in the Directive are minimum requirements and do not prevent any Member State from maintaining or introducing more stringent measures.

Among the Directive's provisions included in specific articles are:

#### 1. Regarding **EFFICIENCY IN ENERGY USE**

- Energy efficiency targets
- Building renovation
- The exemplary role of public buildings
- Energy efficiency obligation schemes
- Energy audits and energy management systems
- Metering and Billing information and access to these
- Consumer information and empowerment

#### 2. Regarding **EFFICIENCY IN ENERGY SUPPLY**

- Promotion of efficiency in heating and cooling
- Energy transformation, transmission and distribution

#### 3. Regarding **HORIZONTAL PROVISIONS**

- Availability of qualification, accreditation and certification schemes
- Information and training
- Energy services
- Other measures to promote energy efficiency
- Energy Efficiency National Fund, Financing and Technical Support

Implementation foresees that by 30 April each year as from 2013, Member States shall report on the progress achieved towards national energy efficiency targets. By 30 April 2014, and every three years thereafter, Member States shall submit National Energy Efficiency Action Plans, covering significant energy efficiency improvement measures and expected and/or achieved energy savings, including those in the supply, transmission and distribution of energy as well as energy end-use, in view of achieving the national energy efficiency targets. The National Energy Efficiency Action Plans shall be complemented with updated estimates of expected overall primary energy consumption in 2020, as well as estimated levels of primary energy consumption in specific sectors. [16, 19]

Directive 2012/27/EU proposes measures targeting energy saving, including renovation of public

buildings, saving programs for public services sector and energy audits for companies in order to decrease energy consumption by 20% in the European Union by 2020.

The Directive requires Member States to establish a long-term strategy for mobilizing investments in renovating residential and commercial building stock, both public and private, available nationwide. Given the high cost of heating for houses, thermal rehabilitation or improving the energy performance of buildings has a positive impact on consumer's utility bills and contributes in improving their quality of life. Investments to improve energy efficiency will lead, in the short and medium term, to reduce energy bills.[16, 20]

### CONCLUSIONS

In conclusion regarding the Directive 2012/27/EU member states shall set up measures in order to use energy more efficiently at all stages of energy chain, from the transformation of energy and its distribution to its final consumption. These measures include energy efficiency obligations schemes, the exemplary role to be played by the public sector and consumers' right to have exact information on their energy consumption. Some of these measures are listed as follows:

- Setting up of an energy efficiency obligation scheme ensuring that energy distributors and/or retail energy sales companies that are designated as obligated parties achieve a cumulative end-use energy savings
- Renovation of the national stock of residential and commercial buildings, both public and private
- Purchasing by public bodies of products, services, buildings with high energy-efficiency performance
- Obligation for energy distributors and retail energy sales companies to reduce annual energy sales to final customers
- Promotion of availability of cost-effective energy audits for final customers
- Provision of individual meters reflecting the final customer's actual total energy consumption
- Give consumers access to clear and precise information on metering and billing
- Promotion of efficiency in heating and cooling
- Guarantee highly efficient energy transformation, transmission and distribution.[16, 17]

Until June 5 2014, Romania, along with other EU Member States will have to transpose the European Directive on energy efficiency in national legislation.[20]

Building only eco-efficient or green buildings will be the next step for the European Union. These buildings besides being energy efficient will fit into the landscape, will have forms inspired from nature, will be built from environmentally friendly materials and will use renewable energy sources (solar energy, geothermal energy and wind power). Therefore they will be built to reduce pollution, minimize the amount of waste and reduce the negative impact on human health.

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