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European Union - The new Directive on the energy performance of buildings – Moving closer to Kyoto

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The Directive on energy efficiency of buildings[1] was adopted, after a lively discussion at all levels and with overwhelming support from Member States and the European Parliament, on 16th December 2002 and entered into force on 4th January 2003. It is considered as a very important legislative component of energy efficiency activities of the European Union designed to meet the Kyoto commitment and responds to issues raised in the recent debate on the Green Paper on energy supply security.

Estimates project a cost-effective savings potential realisable by 2010 of around 22% within the building sector – if this potential was realised, around 20% of the EU Kyoto commitment could be met. Transposition of this Directive by 2006 at the latest will allow a portion of this potential to be translated into reduced energy consumption.

The Directive is set to promote the improvement of energy performance of buildings with four requirements to be implemented by the Member States :

1. *General framework for a methodology of calculation of the integrated performance of buildings*
2. *Setting of minimum standards in new and existing buildings*
3. *Energy Certification of Buildings*
4. *Inspection and assessment of heating and cooling installations.*

The Directive is foremost a measure that concerns a very large number of actors on all levels and with different impacts and different motivations: designer, housing associations, architects, providers of building appliances, installation companies, building experts, owners, tenants, essentially all energy consumers in the European Union.

I. IMPROVING THE ENERGY PERFORMANCE OF BUILDINGS – WHY ?

The key drivers: Environment and energy supply security:

Two major policy issues drive the context of this Directive: the Community Environmental objectives and the European Union's situation on the energy supply side.

The legal framework is set by the Treaty of the European Community laying down the principles for Community policy on the environment. It calls for measures for « preserving, protecting and improving the quality of the environment, protecting human health, prudent and rational utilisation of natural resources and for promoting measures at international level to deal with regional or world-wide environmental problems[2] ».

Within this framework and in particular in the energy sector, counting for about 94% of the CO_2 emissions, the commitment of the European Community to the Framework Convention and the Protocol adopted in Kyoto in December 1997 is the major challenge. The EU and its Member States ratified the Kyoto Protocol in late May

[1] Directive 2002/91/EC on the energy performance of buildings of 16th December 2002, Official Journal of the European Communities L1/65
[2] Article 174, Treaty establishing the European Community

2002 and commits the Community and its Member States to limit and reduce greenhouse gas emissions. Concretely, the EU Member States must collectively reduce their greenhouse gas emissions by 8%, compared to 1990-levels, between 2008 and 2012[3] and "demonstrable progress" towards meeting the target must be made by 2005.

The Protocol suggests various means of attaining these objectives, including, among others, the stepping up or introducing of policies to reduce emissions through greater energy efficiency. The first phase of the European Climate Change Programme provides for a set of concrete implementation measures to be addressed in the Commission's work programme and which spells out measures to address energy efficiency.

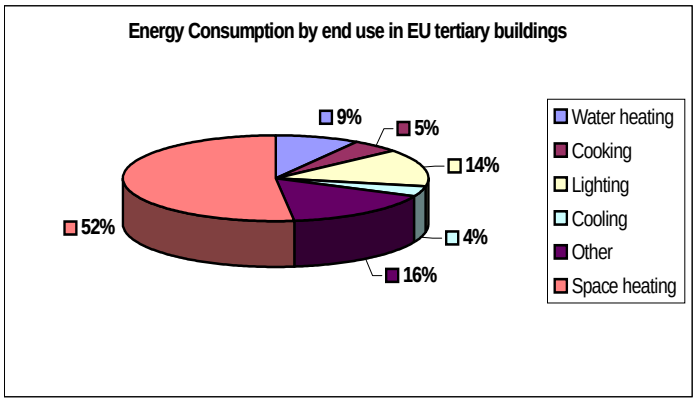
The rising concern about energy supply has been largely elaborated during the debate on the Green Paper on Energy Supply[4] published in November 2000, from which three major points emerged framing Community instruments:

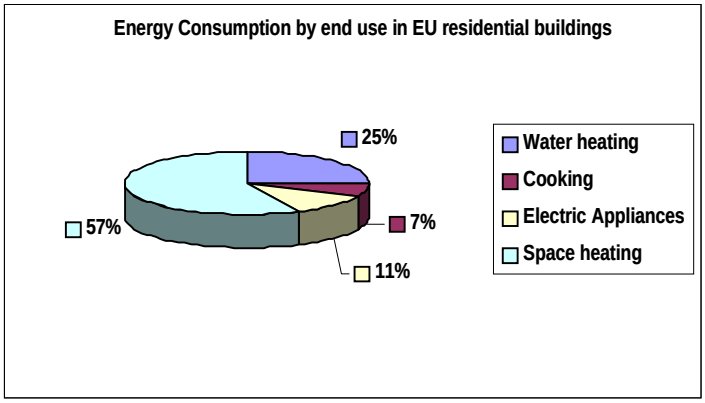
- The European Union will become increasingly dependent on external energy sources and enlargement will not change this situation : based on current forecasts, dependence will reach 70% in 2030 ;
- The European Union has very limited scope to influence energy supply conditions, it is essentially on the demand side that the EU can intervene, mainly by promoting energy savings in buildings and in the transport sector ;
- At present, the European Union is not in a position to respond to the challenge of climate change and to meet its commitments, notably under the Kyoto Protocol.

Households & Tertiary Sector – energy savings potential of 22% until 2010:

The EU's demand for energy has been growing at a rate of between 1 and 2% annually since 1986. While industrial demand has been relatively stable, as a result of the transition to a service-oriented economy, the increased demand for electricity, transport and heat from households and the tertiary sector has more than made up for this decline.

In absolute terms, households and the tertiary sector are the biggest energy users, accounting for more than 40% of the final energy demand within the European Union.





[3] Greenhouse gas emission target for Belgium : -7,5%
[4] COM(2000) 769 final of 29th November 2000

The Directive follows earlier measures which were, however, adopted in a different political context, before the Kyoto Agreement and before the uncertainties recently raised in connection with the energy security in the Union. These earlier measures did not have the same objective as are currently pursued.

When proposing this new Directive in 2001, the Commission considered a strong need to take action at Community level as current Member State's standards lead to considerable differences in the level of energy performance. Furthermore, promotion alone of new, energy-efficient technology already available did not prove to be sufficient to achieve a significant impact in the sector.
The Commission felt a need to provide for a complementary legal instrument including more concrete action with a view to achieving the great unrealised potential for energy savings and for reducing the large differences between Member States' results in this sector.

Forecast studies have projected a potential in the buildings sector of 22%, which could be realised for energy used in heating, air-conditioning, hot water and lighting purposes[5].

Savings Potentials:

- ⇨ **Boilers** : 10 million boilers in EU residential buildings are older than 20 years – their replacement would save 5% of the heating energy
- ⇨ **Lighting** : consumes 14% of the total energy in the tertiary sector – 30-50% savings could be achieved with the use of the most efficient components, control systems, integration of daylighting and other technologies
- ⇨ **Cooling** : Energy use for air-conditioning will double by 2020 – up to 25% could be saved through air-conditioning equipment minimum requirements and other measures

II. THE NEW DIRECTIVE – OBJECTIVES AND MEASURES

The Directive is set to promote the improvement of energy performance of buildings within the Community taking into account outdoor climatic and local conditions as well as indoor climate requirements and cost-effectiveness.

The Directive is designed around four major groups of new requirements:

1. **General framework for a methodology of calculation of the integrated performance of buildings:**

- ➢ Member States are required to apply a methodology, at national or regional level of calculation of the energy performance of buildings based on a general framework set by the Directive.

[5] Mesures d'Utilisation Rationelle de l'Energie (MURE), Database, European Commission, 1998

2. Setting of minimum standards in new and existing buildings :

- Member States will ensure the setting of minimum energy performance requirements. These standards should be set in a flexible way so that designers are able meet energy efficiency requirements in the most cost-effective way and can be expressed in simple energy indicators. They are to be adopted by the Member States individually for the different categories of buildings, with exceptions as set out in the Directive, and take into account climatic differences. A differentiation may be made between standards for new and for existing buildings.

⇨ Integrated standards will be formulated for: insulation, heating, hot water, cooling, ventilation, built-in lighting, heat recovery, passive & renewable energy installations, indoor climate, position and orientation of the building.

⇨ Application to most new buildings

⇨ Application to existing buildings greater than 1000m2 when larger renovations are undertaken

⇨ Standards will be reviewed at the most every 5 years to update on technical progress

3. Energy Certification of Buildings :

- Member States will ensure that when buildings are constructed, sold or rented out, an Energy Performance Certificate will be made available to the owner or by the owner to the tenant or potential buyer. The certification shall also include advice on how to improve energy performance, and may, for larger public buildings, provide for the display of the current temperature and of the recommended indoor temperature. Hence, consumers may rely on clear and reliable information on the energy performance of their building. In order to increase public sensitivity, large public buildings and public service buildings with high visiting frequencies shall display their certificates in clearly visible locations.

⇨ For most existing and new buildings

⇨ Certificates should not be older than 10 years when the respective transaction takes place.

4. Inspection and assessment of heating and cooling installations :

- With a view to reducing energy consumption and to limit CO2 emission, the Directive lays down requirements for inspections. However, Member States may also choose to adopt a different approach, by providing advise to their users and promoting alternative heating systems – this combined with possible inspections, which should have a broadly equivalent impact as an end result; this alternative, however, needs to be reported to the Commission every two years.

⇨ Regular inspection of oil-fired boilers with an effective output between 20 kW and 100 kW. (The interval to be determined by the Member States.)

⇨ Inspection every 2 years: boilers with effective output over 100 kW. For gas fired boilers, this period can be up to 4 years.

⇨ One-Off full inspection of entire system: boilers over 15 years old and larger than 20 kW effective output. The inspection should also cover the presentation of alternative solutions.

⇨ Air-Conditioning systems with an effective rated output of more than 12kw should be inspected regularly.

III. FUTURE PERSPECTIVES AND LIKELY IMPACT OF THE DIRECTIVE:

The Directive entered into force on 4th January 2003 and all Member States will have a period of three years in order to build up relevant systems and measures to transpose and implement the requirements. On 4th January 2006, the minimum requirements for energy performance will be legally binding in Member Sates, Energy Certificates will be required and inspections for heating and cooling devices will be organised under an established system.

On European level, the European Commission will be assisting the respective authorities and organisations in the Member States in informing target groups that are directly concerned with these measures. Information Campaigns can be staged with the help and funding through Community programmes – which should support the sensitisation and mobilisation of the population concerned.

It should be underlined that many of Member States have already started with relevant measures supporting this Community initiative at national level. Hence, hopes are that the impact of this Directive will become apparent even earlier than is required by the Directive itself. Certainly, competitiveness considerations will push many target actors to apply these requirements at an early stage, using the advantage of being prepared for the measures that will be adopted in their Member State.

A number of initiatives have been taken in Member States to co-ordinate the development of integrated methodologies for measuring the energy performance of buildings, for developing certification schemes, for inspecting boilers and air-conditioning systems and for training personnel for carrying out certification and inspection. Many more such initiatives are under preparation. The European Commission encourages such initiatives and supports them as much as possible.

As was mentioned above, the buildings sector accounts for nearly 40% of EU final energy consumption and as there is an estimated cost-effective savings potential realisable by 2010 of around 22%. Were this realised, around 20% of the EU Kyoto commitment could be met. Transposition by 2006 will allow a portion of this potential to be translated into reduced energy consumption by 2010. This reduction is estimated to be equivalent to around 3% of total final EU energy consumption. Following 2010, even more of the savings potential is foreseen to be realised, in an accelerating pace as the measures are carried out. This assumes, of course, that an ambitious and proper transposition of the Directive into national legislation takes place.

Upcoming Issues:

- ***Workshop on Integrated Methodologies and Harmonisation of Certification Schemes, 31 March - 1 April 2003, Brussels***

  This Workshop aims at exchanging views and reaching a common understanding on how European norms in the building sector can be used and improved upon to help implement the Directive. It is a voluntary action initiated by several of the Member States together. It will help to harmonise the integrated methodology and certification schemes of the Member States by making recommendations to CEN Technical Committees, the Commission and the new Committee of Member States' representatives established by the Directive.

  Contact (for information on the results): rodjanssen@btopenworld.com

- ***Information Leaflet on the Directive on the energy performance of buildings***

  This publication will be made available in all Member State's languages by the European Commission in the near future. It can also be made available to any stakeholder to use it on their behalf for the dissemination of information on the Directive.

  Contact: tren-BUILDING-DIRECTIVE@cec.eu.int

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The views expressed by the authors are personal and do not necessarily reflect the view of the European Commission.

FREQUENTLY ASKED QUESTIONS:

1. *Which impact is the Directive likely to have on efficient technologies and techniques ?*
   It will very likely accelerate the process of diffusing energy-efficient technology.

2. *Which body will be responsible in the Member States to carry out the inspections on heating and cooling systems ?*
   The Member States may decide this themselves, as long as it is done in an independent manner by qualified and/or accredited experts.

3. *How can I be informed whether my government has already decided on a line to take for minimum energy efficiency requirements?*
   Contact your ministries concerned with energy and building matters.

4. *Is all lighting and heating included in the integrated calculation of the energy performance of buildings?*
   No, only installed lighting and heating equipment and natural lighting when applicable.

5. *Can a voluntary certification system be used?*
   Yes, it may be based on a voluntary agreement but must be supervised and followed by the Member State government.

6. *Are industrial sites excluded from requirements for the setting of standards and certification?*
   Yes, due mainly to the fact that waste heat from industrial processes makes it difficult to calculate energy performance. Energy efficiency is promoted in other ways in this sector, including with voluntary agreements such as "Green Lights" and "Motor Challenge".

7. *Are Member States free to set their own energy efficiency requirement levels?*
   Yes, in principle. However, co-operation between Member States on the common integrated methodology, along with information-exchange activities in the Committee established by the Directive, will lead to a certain degree of convergence.

8. *Does the audit and advice-giving carried out in conjunction with the certification process require the recommended measures to be implemented?*
   No, but market forces are expected to lead to many of them being undertaken. In addition, some Member States are considering creating financial support programmes to encourage the implementation of these recommendations.

9. *When will the committee designed to review and revise the Annex to the Directive be established?*
   It will be established in the next few months.

10. *How can electricians and installers contribute to the proper transposition and implementation of this Directive?*
    The electricians and installers are important stakeholders in this Directive. They should play an active role in making sure that their national (and regional) governments enact legislation that reflects the high level of ambition intended in this Directive, and going even further than the minimum requirements set forth in the Directive whenever possible.