

Introduction

The Directive on the Energy Performance of Buildings (EPBD)¹, adopted in December 2002, is the main legislative instrument affecting energy use and efficiency in the buildings sector in the EU, and is therefore a welcome addition to the European Union's legislative framework on energy efficiency. It is a true reflection of the priority for tapping the potential for energy savings in the buildings sector, the sector with the highest energy savings potential, estimated to be around 28 % by 2020.

This is a complex directive to implement. Buildings are very different across Europe as they depend on the culture, the climate, the construction materials available, the differing legal frameworks and the economic development, which makes it difficult to have a common approach at EU level. Thus, it is not surprising that difficulties were encountered during the preliminary phase between 2003 and 2006 which continue to affect implementation. In fact, almost two years after the deadline for the transposition (January 2006), while most Member States (MSs) have transposed the Directive into national law, the practical implementation is not necessarily ensured. In most of the Member States, complementary legislation is still being developed or in the course of being approved.

Does this mean that the Directive has not had any effect? No, it certainly has. Probably the most important result of the directive is that, in all MS, the EPBD has created a strong dynamic in energy efficiency in the buildings sector. For example:

- Minimum standards for energy performance of new buildings have been reviewed and made more stringent in at least four fifth of the MS.
- Minimum standards of energy performance for existing residential buildings have been introduced in at least three MS.
- About half the MSs have introduced mandatory building energy certificates.

The directive has also created stronger awareness of the need for action on energy issues with all actors in the building sector: construction companies, engineers and architects, property owners and consumers.

However, these dynamics need to be reinforced and speeded up. First the full transposition of the directive needs to be completed. Secondly complementary measures are needed to ensure its effective implementation if the required market transformation effect towards more efficient buildings is to be achieved.

It is also necessary to look into the future to see how the strategy on energy-efficient buildings can be strengthened by future recasting of the Directive and by other measures. The October 2006 Action Plan on Energy Efficiency² provided the Commission's initial thoughts on how the Directive might evolve.

In what follows, we begin with a short description of the current Directive followed by the ecee's positions on the current Directive and our views on the direction for its further development.



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A short description of the current Buildings Directive

The directive is designed to promote the energy performance of buildings in Member States through:

- The introduction of a framework for an integrated methodology for measuring energy performance;
- The application of minimum energy performance standards in new buildings and certain renovated buildings, and regular updating of these;
- The energy certification and advice for new and existing buildings; and
- The inspection and assessment of boilers and heating/cooling systems.

The directive entered into force on January 4, 2003 and was to be transposed by Member States by January 4, 2006. The requirements of the Directive ensure that all buildings are potentially subject to at least one requirement in the EPBD (see Box).

The benefit of this directive is that it provides an integrated approach to different aspects of buildings energy use, which until this directive, only a few member states were doing in such a co-ordinated fashion. The largest potential for impact of the directive is on the renovation of existing buildings³ to be mainly tackled by requiring all buildings to have an Energy Performance Certificate.

Buildings covered by the EPBD

a) New

All to meet minimum energy performance requirements.

For those with a floor area greater than 1000 square metres, alternative systems of heating and energy generation must be considered at the design stage.

All for requirement to introduce Energy Performance Certificates.

b) Existing

For those with a floor area greater than 1000 square metres and undergoing a major renovation, the existing building's energy performance needs to be updated when technically, economically and functionally feasible.

All for requirement to introduce Energy Performance Certificates, when the whole building or apartments/units are sold or rented.

The key legal requirements

Adoption of a methodology (Article 3)

This states that Member States shall apply a methodology at either the national or regional level to calculate the energy performance of buildings on the basis of a general framework outlined in the annex of the Directive. According to the directive, energy performance is expressed by the amount of energy, estimated or actually used, for satisfying the needs of the building. For new buildings and major renovations, this implies in some MSs changing the methodology for the building regulations from one based solely on requirements for elements of the building to a more holistic approach.

Setting of energy performance requirements (Article 4)

This requires Member States to ensure that minimum energy performance requirements for buildings are set. It is allowed to differentiate between new and existing buildings and different building types. Member States are to review these requirements at regular intervals but not longer than five years "to reflect technical progress".

Actions in new and existing buildings (Articles 5 and 6 respectively)

These set out the necessary measures to be taken to ensure that minimum energy performance requirements are met. These apply to all new buildings. For existing buildings, requirements for upgrading energy performance apply to buildings over 1000 square metres and can be set for either the entire renovated building or for renovated systems or components. New buildings over 1000 square metres are required to consider the technical, environmental and economic feasibility of decentralised energy supply systems based on renewables, CHP, district heating or cooling and heat pumps.

Energy performance certificate (Article 7)

Whenever a building is constructed, sold or rented out, a certificate detailing its energy performance must be made available to prospective owner or tenant. The certificates have a maximum validity of 10 years.

The certificate must refer to energy performance standards such as current building regulations or benchmark comparisons to similar types of building. Perhaps more crucially, the energy performance certificate must

include recommendations on the cost effective measures that could improve the buildings energy performance.

For buildings where public services are provided and are visited by a large number of persons with a floor area greater than 1000 square metres, their energy performance certificate is to be displayed in a location both accessible and visible to the public. There has been some debate, which is not totally resolved, on the definition of institutions providing public services to a large number of persons and whether this includes private buildings.

Inspection of boilers (Article 8)

A choice is given to Member States to either introduce inspections of boilers or to provide advice to end-users. For Member States opting for the inspection approach, the following measures are required: regular inspections of boilers fired by non-renewable liquid or solid fuel of an effective rated output of 20 kW to 100 kW; for larger boilers, inspections every two years (four years for gas-fired boilers); one-off inspections of systems with boilers with an output greater than 20kW and older than 15 years. Member States opting for the advice option have to prove that the impact is "broadly equivalent" to the first one.

Inspection of air-conditioning systems (Article 9)

This requires Member States to establish a regular inspection of air-conditioning systems of an effective rated output of more than 12 kW.

Independent experts (Article 10)

This requires Member States to ensure that the certification and inspection activities associated with this Directive are undertaken in an independent manner by qualified and/or accredited experts.

In addition to the legal requirements placed on Member States, there are also duties on the EU Commission (Article 11). The Commission is to evaluate the Directive in the light of experience, and, if necessary to adopt some important enabling measures, such as those addressing the renovation of buildings with an area less than 1000 m². A Committee was established under the Directive (Article 14), to assist the Commission in ensuring the transposition.



PHOTO: PAWEŁ FLATO

Initiatives for supporting the implementation of the Directive

The Commission has started a process of convergence in approaches to more energy efficient buildings that paves the way for further initiatives as suggested in the European Commission's Energy Efficiency Action Plan.

The Buildings Platform was created by the Commission, within the framework of the Intelligent Energy – Europe (IEE) programme, to help in the implementation of the Directive. Its objective is to support the full and continued implementation of the Directive by setting up mechanisms for transferring information among stakeholders, notably via its website www.buildingsplatform.org. The website provides updates of the status of implementation of individual MSs.

Concerted Action⁴ is another initiative of the Commission to help in the implementation of the EPBD. Its role is to share information and experience amongst experts in MSs. The Concerted Action's work plan is organised around a series of meetings from January 2005 involving the persons and institutions responsible for the transposition and implementation of the Directive. As the transposition of the Directive took longer than foreseen, a second phase of the Concerted Action has started for helping with the questions related to the actual implementation of the Directive.

Commission proposals for the future

The Commission realised early on that the original directive was only a beginning and that further refinement and elaboration would be required. The annex to the October 2006 Energy Efficiency Action Plan listed several options for the future. These include, together with the dates for adoption, suggestions that the EU should:

- propose an expanded role for the public sector to demonstrate new technologies and methods (2009);
- propose lowering significantly the threshold for minimum performance requirements for major renovations (2009);
- propose minimum performance requirements (kWh/m²) for new and renovated buildings and some components with a target for new buildings to approach the level of passive houses from 2015 (2009);
- consider proposing binding requirements to install passive heating and cooling technologies (by the end of 2008);
- propose measures for Member States to provide financing for highly cost effective investments (2009).

ecee's position

After a long preparation period for the implementation of the Directive, the ecee is pleased that the implementation phase has now begun. The ecee understands that this is a wide ranging directive with many individual elements that require a co-ordinated approach, yet the delays in implementation were unfortunate and perhaps unnecessary in many cases. The ecee tried to help the process along by providing a platform at its summer study in 2005 to discuss some of the specific elements of the EPBD, and a large part of the panel on buildings of the summer study 2007 addressed the implementation aspects of the EPBD.

All MS were to have transposed the directive and started implementation by January 4, 2006. This deadline was initially missed by nine MS and the overall implementation has been slow.

Consequently we have been consulting with our membership on how things might be improved now and in the future. In doing so we benefited from an early sight of EnR's⁵ snapshot of how the EPBD is being implemented and to which many of our member's contributed. We also received several contributions from members stressing the importance of quality of life and ambiance for systems inside build-

ings. We agree and believe that without due attention to this important issue, barriers to what we are trying to achieve will be created. We are also conscious that all our recommendations need to be balanced against their social impact particularly their impact on low income families. However, we remain confident that this balance can be achieved.

ecee's recommendations on implementing the existing Directive more effectively and also on the way of improving and strengthening the current Directive are addressed to both the EU and MS levels. We have directed our recommendations to the Commission itself, to the European Parliament and to MS.

Our position on the current Directive

ecee wants the Commission to:

- Ensure that there are effective enforcement systems in place and assess regularly and independently whether enforcement is effective.
- Resolve as a matter of urgency the definition of "public buildings" to which the Directive will apply.
- Accelerate the activities and support of the Buildings Platform, which was created by the Commission to help in the implementation of the EPBD and disseminate more of the results produced under the Concerted Action.
- Undertake a complete re-analysis of the expected impact of the Directive, given the delays that have occurred, in order to have a more complete understanding of expected energy savings and carbon emissions reductions. This is important because such policies as the European Climate Change Policy are expecting certain results and if the EPBD falls short, then other corrective steps may be needed.
- Undertake a review of MS buildings strategies to assess the complementary measures (e.g. financial incentives) able to improve the overall effectiveness of the EPBD, including studying good practice.

ecee wants the European Parliament to:

- Ensure that continuous oversight to the implementation and effectiveness of the EPBD is maintained.
- Request regular updates on the overall effectiveness and impact of the EPBD.
- Encourage recasts to the Directive and/or other complementary measures as proposed in the Energy Efficiency Action Plan and amplified below.

ecee wants Member States at a national level to:

- Ensure that the EPBD particularly targets existing buildings where cost effective.
- Set minimum energy performance standards for new and existing buildings and clearly signal to all stakeholders that these will be tightened with time.
- Ensure that there are effective enforcement systems in place and assess regularly and independently whether enforcement is effective.
- Develop a monitoring system based on the information included in the building Energy Performance Certificate.
- Adopt and promote a set of complementary measures to

“... here is a huge potential also in buildings sector which consumes as much as 40 % of energy. In my view, the 1000m² benchmark for application of minimum efficiency requirements we have in the Energy performance of buildings directive is close to the lowest common denominator. However, Member States as well as their regions could and should consider doing much more already now and not wait for a move from Brussels. This will pay off!”

Andris Piebalgs, European Commissioner for Energy,
7 Dec 2006

ensure the take-off of building Energy Performance Certificates by: information and training campaigns targeted at all market agents in the building sector, namely property owners, architects and designers, building management companies, building development companies, potential auditors, real estate, house owners and consumers.

- Adopt policy instruments for ensuring that the energy efficiency recommendations in the certificate are implemented. Examples of such policy instruments are: financial incentives (e.g. soft loans, tax credits) linked to the implementation of the recommendations made in the building Energy Performance Certificate; connecting the EPC recommendations to existing instruments like white certificates systems; or statutory obligations to carry out the most cost effective energy efficiency recommendations; or offering individual advice and assistance to home owners.
- Adopt a voluntary label for low energy buildings, stronger than the minimum energy performance requirements, in order to create a market for these buildings;
- Implement demonstration projects for net zero energy requirements or net zero carbon buildings, and lead by example on the refurbishment of existing buildings.
- Encourage revisions to the Directive as proposed in the Commission's Energy Efficiency Action Plan and amplified below.

Future improvement of the Directive

The ecee gives high priority to furthering the efforts on buildings beyond that of the current Directive because there is significant potential for further savings that is not being addressed. Many, if not most, MS are developing long-term strategies to significantly reduce GHG emissions, well beyond the current commitments. The Commission's energy efficiency strategy advocates that the buildings sector should be at the forefront of these future developments. To achieve this goal, the saving of energy in buildings needs to be pursued more aggressively and more ambitiously. This should be viewed as a great opportunity, not a burden.

A great part of this potential lies in refurbishing existent buildings and our aim is therefore to expand the range of existing buildings covered by the current directive. Because of the differences across the EU in national climates, building styles, development status and major energy sources used, we believe it is important to focus on the desired outcomes we want for buildings rather than defining the processes or specific technologies. It is for national market

Required future improvements

ecee wants the Commission to:

- Set out a timeframe by which all new buildings will require to have net zero energy requirements or zero carbon emissions when averaged over the year. This implies the adoption of dynamic energy performance requirements and would require MS regulatory frameworks revised to allow for the purchase of excess electricity. It may also require extensive demonstration programmes in some MSs.
- Set this deadline for the new build requirement for effectively zero energy requirements or zero carbon emissions to be challenging but achievable – possibly as early as 2015.
- In the interim period to 2015, encourage MSs to provide incentives or rewards for new buildings or renovations which go beyond their national or regional building standards.
- Ensure MSs introduce inspection regimes for both new and major refurbishments so that they comply with their building regulations.
- Lower the size threshold for buildings undergoing major renovations which have to meet minimum energy performance requirements and include individual houses; MSs should be encouraged to set ambitious mandatory minimum performance requirements (kWh/m²) for all buildings undergoing major renovation from 2009.
- Regularly update minimum performance requirements for buildings components, such as windows, roof insulation, ventilation, office lighting and boilers, which should be fulfilled when these components are changed or are renovated.
- Amend the EU Structural Fund rules so that all cost effective energy efficiency measures must be carried out in any building which receives support for the installation of renewable energy sources from this fund.
- Support buildings research organisations to develop a new generation of materials and technologies that are appropriate for the various climate zones of the EU.
- Ensure that the Construction Products Directive (89/106/EEC) is updated to take into consideration energy-efficient aspects as arise from any amendments to the existing EPBD and/or the results of research.
- Assess the effects of global warming in the mid- to long-term in all building types to determine what effects there will be on energy use (e.g. through the increased use of air conditioning) and determine what technologies can be deployed to best counteract the increased energy demand.
- Ensure MS Governments at national and regional levels to lead by example in deploying and, where appropriate, demonstrating new building designs, construction and technologies in the building stock for which they have direct responsibility.
- Ensure MSs, in collaboration with the building technology supply industry, continue to raise the awareness of the owners, landlords and tenants of all buildings about the range of proven new building designs, construction and technologies.



PHOTO: PAWEŁ FLATO

“... the really shocking statistic is that in Europe we use 40 % of our energy in buildings – in heating, cooling and lighting – even though we have the technology to design and engineer our buildings to have virtually no energy requirements at all. ... We have to look at the energy wasted in existing buildings and not just at new buildings, because 75 % of the buildings which exist today will still be standing in 2050.”

Fiona Hall, MEP,
13 Nov 2007

actors and MSs/regional Governments to be more specific on the optimum processes and technologies for them.

For existing buildings, when buildings components, such as windows, roof insulation, ventilation, office lighting and boilers are changed or are renovated, it is important to have as low energy requirements specified as is cost effectively possible. Furthermore, these requirements should be reassessed every 5 years to take account of changing market conditions (either energy prices or technology improvements and cost reductions)

In new buildings there is a need to give all the market actors a clear vision of the standards for new build and refurbish-

ment such that they have time to adjust and to design to meet our energy policy goals of energy security and minimising environmental damage. To this end, we believe that the proposals put forward by the Commission in their Energy Efficiency Action Plan need to be accompanied by clearer long-term objectives.

Legislation alone cannot achieve the full energy saving potential in buildings. It needs to be accompanied by efforts to change attitudes and behaviour to energy use within buildings without which the maximum benefit of sustainable energy technologies will not be achieved. Furthermore, to achieve rapid takeoff of the savings that should arise (e.g. from the introduction of building Energy Performance Certificates), there needs to be information and awareness raising campaigns aimed at building owners and training campaigns targeted at all market agents in the building sector. Finally, it is important that the energy and carbon dioxide savings arising from the implementation of the EPBD are reported in a harmonised reporting framework such as that being agreed under the EU Directive on End Use Efficiency and Energy Services.

ecee believes that an agreed long-term vision is required to provide a robust framework for the development by individual MSs of their buildings energy efficiency strategies. As always, as the largest membership organisation of energy efficiency experts in Europe, ecee through its membership remains ready to assist the Commission, the Parliament and MSs to deliver this shared vision.

The European Council for an Energy Efficient Economy (ecee)

is a non-profit, membership-based European NGO. The goal of ecee is to stimulate energy efficiency through information exchange and co-operation. To facilitate this, ecee provides an information service through its website and e-mail newsletter, arranges workshops and conferences, and takes active part in the European Policy making process.

One of ecee's principal events is the Summer Study, held for five days every odd year in the early summer. It is Europe's primary event for cross-cutting discussions on energy efficiency. The Summer Study attracts more than 350 participants from a wide range of backgrounds.

ecee and its summer study offers governments, industry, research institutes and citizen organisations a unique resource of evidence-based knowledge and access to reliable information.

ecee promotes the understanding and application of energy efficiency in the energy research, policy and commercial organisations. It offers membership for both individuals and organisations.

Visit our web site www.ecee.org

Sources and notes

¹ <http://www.epbd-ca.org>

² Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002

³ COM(2006)545 Action Plan for Energy Efficiency: Realising the Potential

⁴ COM (2001)226 final, 11.5.2001, p. 14

⁵ EnR, the network of European national energy agencies. www.enr-network.org