

EU Legislation and Policies for Energy Efficiency in Buildings

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1=EU policy

2=Legislation

3=Lobbying

4=Energy Efficiency

5=Added value

Abstract

Buildings use over 40% of Europe's energy; more than any other sector. Driven by the need to mitigate climate change, to ensure security of energy supply and to help stimulate an ailing economy, the EU has therefore placed energy efficiency in buildings high up its political agenda. Consequently many pieces of existing legislation on energy efficiency are in the process of being revised, and many new ones developed.

However, EU Directives have to be implemented by national governments transposing them into national laws before they have any effect. Some governments are quicker, more diligent and more enthusiastic than others.

This paper identifies the key energy efficiency policy trends and legislative developments at EU level. Many however are in transition or development, and the detail will become clearer in the period between writing this paper and giving the presentation.

The paper therefore considers the main policy areas and legislative developments which will impact the energy efficiency of buildings, but only gives the detail where it is firm at the time of writing.

The author argues that the architectural glass industry – in particular the national glass trade associations – must become more proactive in its dealings with politicians and legislators at national level, to help shape EU legislation and to ensure all the opportunities created by it are exploited.

The policy context – where we are, and why

At the highest level, the European Union has targets on energy policy which sound deceptively simple, but are very ambitious. It is often called the 20/20/20/20 policy. This refers to the targets of reducing EU energy consumption by 20%, reducing greenhouse gas emissions by 20% and producing 20% of our energy from renewable sources – all by the year 2020.

In recent years, energy efficiency has been the most important component in achieving these targets, and because

buildings consume over 40% of Europe's energy – more than either transport or industry – buildings have become the prime focus of attention.

Why this matters to us

The glass industry has, in recent years, invested heavily in developing products for improving the energy efficiency of buildings. Low E glass and vacuum glazing for example dramatically reduce heat losses. Solar Control glass reduces the energy needed for cooling in air-conditioned buildings. Low iron glass increases the transmission of daylight and solar heat, thereby providing free energy. Glass for photovoltaics, concentrating mirrors and other solar energy applications contributes to the supply of renewable energy. In fact, the vast majority of product development and manufacturing investment has been in those products which save energy in buildings.

Therefore, legislation and other government policies on energy efficiency have a direct impact on the market for the glass industry's products. The impact is potentially hugely beneficial on the energy-related products, which are invariably of high added-value. It is vital for the industry – its manufacturers, suppliers and trade associations – to keep abreast of developments in legislation, and ideally to help shape it.

Here follows a resume of key emerging issues at EU level, which will affect the demand for energy efficient glass in buildings in the next few years.

The EU Action Plan for Energy Efficiency

This Action Plan [1], published by the European Commission in October 2006, has formed the backdrop for all current initiatives and legislation on energy efficiency. Although it covers all sectors of the economy, it says that buildings are the priority because "the largest cost-effective savings potential lies in the residential and commercial buildings sector." In fact, the Action Plan states that 27% of energy in residential buildings can be saved cost-effectively, and 30% saved cost-effectively in commercial buildings.

The Plan contains many positive initiatives on buildings, but I don't intend to list them here. Why? Because the Action Plan is currently being updated. In fact a public consultation on a revised Plan is currently in progress. The Commission wishes to make it even more ambitious, and it is intended that the new Plan will be announced before the end of the year. Glass for Europe has participated in the consultation process, and has of course been lobbying for ambitious targets and policies on energy efficiency in buildings.

The Energy Performance of Buildings Directive

At the 2007 GPD, I reported on this (then) relatively new Directive. It contains many requirements of importance to our industry:-

- Member States each had to develop a methodology for calculating the total energy consumption of buildings, and this methodology must form the basis of all regulations and targets relating to energy performance of buildings.
- Building Regulations therefore have to be based on this total energy performance system (and not eg on simple U values, as in the past). Furthermore, countries will have to revise their Building Regulations at no more than five-yearly intervals.
- Member States had to introduce a system of Energy Certification of buildings (again, based on the new total energy performance methodology). Every new building now requires an Energy Performance Certificate, and every existing building when sold or rented also has to be certificated.
- It is compulsory for every building larger than 1,000m², when undergoing major refurbishment, to install the latest energy saving products.

Perhaps the most dramatic of these is the Energy Certification of buildings. Every prospective purchaser or tenant of a building must receive a certificate showing how energy efficient it is (see Figure 1), and this will undoubtedly make an efficient building more commercially attractive, just as the energy labelling of white goods has

increased the demand for A-rated domestic appliances. This in turn will incentivise building owners to upgrade with the best available energy saving materials.

However, the Energy Performance of Buildings Directive (EPBD) is in the process of being revised. The Commission issued its proposal for a recast in November 2008, and since then the Parliament has been working on it, adding amendments which would make the Commission's proposals even more ambitious. For example;

- The 1,000m² threshold would be scrapped, so that every building (including houses) would require the best energy saving technologies to be installed whenever a refurbishment was taking place.
- All new buildings would be zero-energy by 2018.
- Member States would be required to introduce financial incentives for building owners to invest in energy efficiency.

I stress that, at the time of writing, these are only proposals from the Parliament, and that negotiations between the Parliament and the Council have yet to take place. Things will be clearer at the time of GPD. However, the intention is to have everything resolved, and the recast Directive adopted, by December. If the Parliament gets its way, the Directive will have a major positive impact on the demand for energy efficient glass.

The Energy Services Directive

This Directive came into effect in 2006 and, inter alia, gave all EU countries a target to reduce national energy consumption by 9% by 2017. To add substance to this, the Directive requires each country to produce a series of national energy efficiency action plans (NEEAPs) showing how they will achieve this, and reporting progress.

The first NEEAPs should have been submitted to the Commission by June 2007 (although some were nearly a year late). The Directive requires subsequent NEEAPs to be submitted in June 2011 and June 2014. The first round of NEEAPs were mixed; some strong and ambitious, some weak and vague. All however have proposals relating to buildings, and therefore glazing.

Member States will be preparing their next NEEAPs (due June 2011) about now. I would urge every national trade association and major business to find out which Ministry is preparing their country's NEEAP, and lobby it so that it includes positive measures on glazing. There is plenty of information [2], [3] about the benefits of low E and Solar Control Glass to act as an excellent resource for communicating these benefits.

Energy Labelling Directive

This Directive concerns the labelling of products based on their energy

Figure 1
EPBD Energy Certificates for various countries.



performance, and will be most familiar in the field of domestic white goods (such as dishwashers, fridges and washing machines). If you have bought one of these in the last few years, you will have undoubtedly seen the label displaying its rating on the "A to G" scale.

The European Commission is proposing to extend the scope of the Directive so that it can cover not just products which consume energy, but those which influence energy consumption. Windows of course would be a prime example.

A few EU countries (UK, Finland and Denmark for example) already have window energy labelling schemes. The Commission is keen to build on this experience and to promote an EU-wide scheme. Glass for Europe is currently developing proposals, and is liaising with the Commission. The benefits of window energy labelling to our industry are firstly that it allows the consumer to identify the best-performing products (thereby stimulating demand for added-value glass and windows), and secondly that it provides governments with a criterion by which grants, or other fiscal incentives, can be linked to the best products.

Eco Design Directive

This Directive defines the criteria by which products must be assessed in order to determine their ecological impact. It also sets minimum performance levels, below which products are banned from the market.

The Directive was originally brought out to cover energy-using products, but in March was extended so as to allow products which affect energy use to be included. The revised Directive now refers to windows as one such product. If the Commission continues to move in this direction, windows will have ecological criteria applied to them, and the worst-performing products would be banned from the market. Clearly the window and glass industries need to keep close to the European Commission as it considers whether, and how, to develop criteria for windows.

Energy Window

	Window Ltd. XYZ 68/abc
	C
Energy Index (kWh/m²/year) <small>(Energy Index certified by BFRC and based on UK standard window. The actual energy consumption for a specific application will depend on the building, the local climate and the indoor temperature)</small>	-14
The climate zone is:	UK
Thermal Transmittance (U_{window}) Solar Factor (g_{window}) Effective Air Leakage (L_{factor})	1.7 W/m².K 0.5 W/m².K 0.1 W/m².K
	www.bfrc.org
<small>This label is not a statutory requirement. It is a voluntary label provided as a customer service to allow consumers to make informed decisions on the energy performance of competing products.</small>	

Figure 2
A window energy label



Figure 3
The Eco label for the best performing products

Linked with this is Eco labelling, by which the top-performing 20-30% products are permitted to use the EU's "eco flower" (see Figure 3). So, unlike the energy label, which would give a simple objective assessment of a window's energy performance, the Eco Design Directive would eliminate from the market the products with the worst ecological performance, and would give the best performing products an award.

Renewables Directive

This Directive, which was adopted in March, allocates to each EU Member State the proportion of their national energy consumption which must be supplied by renewable energy by the year 2020. They are mandatory targets. These targets represent a significant increase in the amount of renewable energy. Solar energy, being one of the most technically and economically attractive of the renewables, is set to grow substantially, and of course glass volumes should benefit proportionally.

Implications and opportunities

It should be self-evident to all in our industry that these developments

have huge – and potentially beneficial – implications for us. Virtually all of our advanced, innovative and added-value products enhance the energy performance of buildings. If the EU is to meet its objectives it will have to find ways of encouraging the widespread upgrading of the existing building stock. New buildings will have to approach zero-carbon levels, and recent experience of Passivhaus design shows us that such buildings are likely to use much more glass than conventional architecture.

Much of the legislation I have described is still at the formative stage. It is tempting to think that it all just emanates from "Brussels" and that we can't influence it. But there is much that can be done at national level. The most influential body in the EU legislative process is the Council – which means the Member State governments. National trade associations and big industry players can therefore influence the position of Council by talking to their national governments. Similarly, members of the European Parliament will pay attention to what businesses (ie big employers) in their constituencies say to them. Also, the contents of

measures such as the National Energy Efficiency Action Plans can only be influenced by lobbying at national level.

To be brutally honest, the flat glass industry has been poor at political lobbying in the past, and has devoted very little resource to that activity compared to other similar – or smaller – industries. We are fortunate that the current policy environment is potentially very favourable to us. We now have to ensure that, at both EU and national level, we work hard to make the emerging legislation favourable for us.

References

- [1] Action Plan for Energy Efficiency; Realising the Potential. European Commission (COM (2006) 545 final). Brussels, October 2006.
- [2] Low E Insulating Glass for Energy Efficient Buildings. Glass for Europe. Brussels, 2009.
- [3] Solar Control Glass for Greater Energy Efficiency. Glass for Europe. Brussels, 2008.