EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY

Directorate C - Renewables, Research and Innovation, Energy Efficiency
C.3 - Energy efficiency

Brussels, February 2012

CONSULTATION PAPER

"FINANCIAL SUPPORT FOR ENERGY EFFICIENCY IN BUILDINGS"

1. SETTING THE SCENE

Energy efficiency is at the heart of the European Union's Europe 2020 Strategy for smart, sustainable and inclusive growth[1] and of the transition to a resource efficient economy. At the Spring Council 2007, EU leaders reiterated the importance of energy efficiency by stressing "*the need to increase energy efficiency in the EU so as to achieve the objective of saving 20% of the EU's energy consumption compared to projections for 2020*"[2].

However, calculations[3] show that the **EU is not on track to realise this goal.** Although the latest 'business-as-usual' scenario shows a break in the trend towards ever-increasing energy demand, the reduction in energy consumption is estimated to be only about 9% in 2020 (i.e. a gap of 204 Million tonnes of oil equivalent (Mtoe) in primary energy use. See figure below).

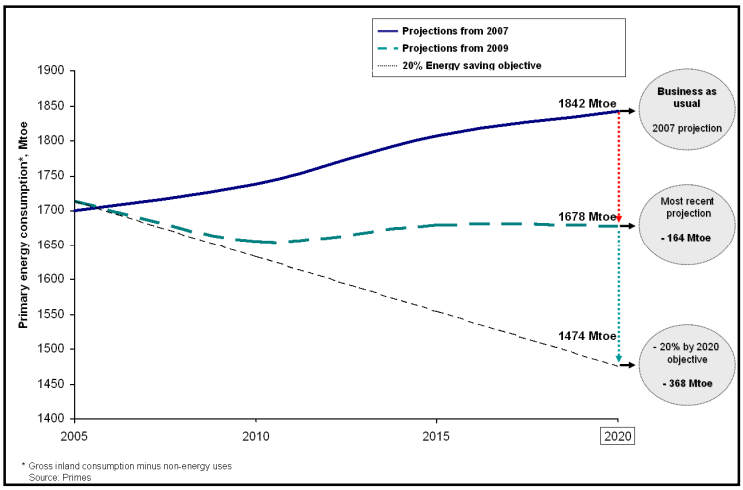

Figure 1: Estimated gap between the energy savings target of 20% by 2020 and current projections (Source: Primes)

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1 COM(2010) 2020

2 7224/1/07 REV 1

3 SEC(2011) 277

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In reaction to this, the European Council on Energy in February 2011 emphasised that "*The 2020 20% energy efficiency target…, which is presently not on track, must be delivered. This requires determined action to tap the considerable potential for higher energy savings of buildings, transport and products and processes*"[4].

The importance of energy efficiency was again confirmed in the Commission's Annual Growth Strategy 2012[5], in which it urges Member States to prioritise growth-friendly expenditure, such as education, research, innovation and energy, and to focus on resource efficiency, for example in areas such as energy efficiency and reducing waste, which can improve competitiveness, create new jobs and help our environment.

Moreover, Member States are invited to use the power of ICT to deliver smart energy and transport systems. For example, smart electricity grids, high levels of energy efficiency and widespread use of renewable energy are essential components of a modern, competitive economy and crucial for EU development in the coming years.

2. WHY FOCUS ON BUILDINGS?

Buildings must be central to the EU's energy efficiency policy, as nearly 40%[6] of final energy consumption (and 36% of greenhouse gas emissions) is in houses, offices, shops and other buildings. Moreover, buildings provide the second largest untapped cost-effective potential for energy savings after the energy sector (see figure below).

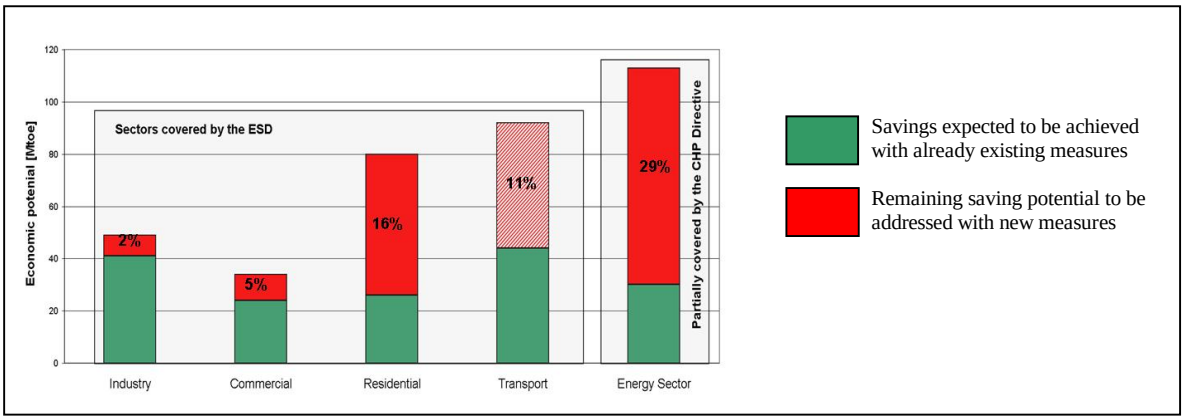

Figure 2: Energy saving potentials in sectors covered by the Energy Services Directive (Source: Ibid 7)

Based on two specific reports[7], the cost-effective energy savings potential in the building sector (i.e. covering both residential and non-residential buildings) is estimated to be 65

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4 Conclusions of the European Council (4 February 2011), EUCO 2/1/11 REV 1

5 COM(2011) 815 final. Communication from the Commission, Annual Growth Survey 2012

6 In 2008. See "Energy, transport and environment indicators, 2010 edition", Eurostat

7 Eichhammer, W. et al.: Study on the Energy Savings Potentials in EU Member States, Candidate Countries and EEA Countries. 2009;

Wesselink, B. et al.: Energy Savings 2020 – How to triple the impact of energy saving policies in Europe. Report to the European Climate Foundation, 2010

Mtoe[8], corresponding to a cumulated investment need of approximately 587 billion € for the period 2011-2020[9]. This translates to an investment need of around **60 billion € per year**[10] to realise this savings potential.

In this context, it is important to stress that buildings constructed today will be there for the next 50 to 100 years. For example, 92% of the building stock from 2005 will still be there in 2020 and 75% in 2050. This is due to the very low demolition rates (about 0.5% per year) and new built construction rates (about 1.0% per year)[11].

Moreover, the current general refurbishment cycles are between 30-40 years but those which lead to energy efficiency improvements are at longer intervals (60-80 years). With approximately 3% of the building stock being renovated per year, this signifies that in only half of the cases energy efficiency improvements are included (i.e. 1.5% energy-related renovation rate per year). Energy efficiency improvements are in most cases cost-effective when they are combined with ongoing maintenance and refurbishment work. Therefore, an upper limit of 3% can be identified for the cost-effective rate of energy-efficient renovation[12].

Furthermore, although often difficult to quantify exactly, increasing the level of investment in building energy efficiency would also have a strong effect on job creation. For example, the United Nations Environment Programme (UNEP) in its 2011 Green Economy Report[13] states that "*investments in improved energy efficiency in buildings could generate an additional 2-3.5 million jobs in Europe and the United States alone*".

The French Ministry for Ecology, Energy, Sustainable Development and Spatial Planning estimates that for every 1 million Euros of investment in property-related thermal renovation, 14.2 jobs are created or maintained in the field of energy performance-related work[14]. Applying these numbers to the above-identified investment need of 60 billion € per year would result in the creation or retention of around 850.000 jobs per year in the EU.

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8 This savings potential comes on top of the estimated savings to be achieved by the implementation of the Energy Performance of Buildings Directive (recast). Based on 1 toe being equivalent to 7.4 barrels of oil and an estimated oil price of 76 € per barrel, 65 Mtoe represents around 36 billion €.

9 See Annex I for a more detailed underpinning of these estimates

10 It has to be noted that the current analysis purposely adopts a very conservative approach to identifying the savings potential and investment need, given the high number of uncertainties in the field. Other studies estimate significantly higher levels (see e.g. World Energy Outlook, 2011, IEA)

11 Impact assessment for the recast EPBD, COM(2008) 780 final

12 SEC(2011) 779 final. Impact assessment accompanying the document directive of the European Parliament and of the Council on energy efficiency and amending and subsequently repealing Directives 2004/8/EC and 2006/32/EC

13 Green Economy Report 2011, United Nations Environment Programme

14 Plan européen pour la relance économique COM(2008) 800 final Mesure n°6 : Améliorer l'efficacité énergétique dans les bâtiments. Reprogrammation des programmes opérationnels régionaux des Fonds structurels en faveur des logements sociaux. EVALUATION A MI-PARCOURS 2009-2011 – France, L'Union Social pour l'Habitat, May 2011

Due to such positive effects on job creation (mainly due to the labour intensive nature of building renovation), investments in this area also have an impact on government revenues. A recent study on behalf of the German Kreditanstalt für Wiederaufbau (KfW)[15] has shown that each Euro spent by the state on the promotion of energy-efficient construction and renovation, generated revenue of approximately 2 to 5 Euros in the form of additional tax revenue and social security contributions and a reduction in unemployment costs (based on the creation or retention of about 340,000 jobs, primarily in the local building sector, which are also difficult to relocate to countries outside Europe).

Finally, using less energy also has a direct impact on the resources necessary for generation capacity and energy imports. For example, if EU energy consumption is decreased only by 1% this would avoid the otherwise necessary construction of about 50 coal power plants units or 25.000 wind turbines[16] and the accompanying infrastructure. As the cost-effective potential is at least 20%, Europe would need to construct 1000 less coal power plants units or half a million less wind turbines[17].

3. WHAT IS BEING DONE TO IMPROVE THE ENERGY EFFICIENCY OF BUILDINGS?

3.1. The regulatory framework

The main regulatory instrument in the EU for tackling the energy consumption of buildings is the Energy Performance of Buildings Directive recast (2010/31/EU[18]; hereafter called "the Directive"), which will replace the original Directive of 2002 (2002/91/EC[19]) in February 2012[20] and will have to be transposed by Member States in July 2012. A proper implementation and enforcement of the Directive's provisions will make an important contribution to improving the energy performance of buildings.

In fact, the impact assessment for the recast Directive[21] estimated that the full implementation of its provisions would result in energy savings of 60-80 Mtoe in 2020, equivalent to a reduction of the total EU energy consumption by 5-6%.

Specifically regarding financial measures, the Directive requires Member States, amongst others, to provide for appropriate financing and other instruments to

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15 Impact on public budgets of KfW promotional programmes in the field of "energy-efficient building and rehabilitation", Research Centre Jülich, October 2011

16 Based on the assumption that each power plant unit is 600 MW, operating 7000 hours/year; for wind: average turbine size of 4 MW in 2020, operating 2300 h/year.

17 Ibid 16

18 OJ L 153, 18.6.2010, p.13

19 OJ L 1, 4.1.2003, p.65

20 Next to the EPBD there are also various implementing measures under the Eco-design Directive which establish requirements for products used in buildings such as heating and air-conditioning systems.

21 COM(2008) 780 final

catalyse the improved energy performance of buildings and the transition to nearly zero-energy buildings.

In addition to the EPBD, the Commission is also elaborating various implementing measures under the Eco-design[22] and the Energy labelling Directives[23]. Directly relevant for buildings are the requirements for products used in technical building systems such as boilers, hot water heaters and air-conditioning equipment. The impact of measures for boilers and hot water heaters alone is estimated to result, in combination with the EPBD, in savings of around 56 Mtoe.

Finally, in response to the identified gap in reaching the 20% energy savings objective in 2020, the Commission proposed in June 2011 a new Energy Efficiency Directive[24] aimed at putting the EU back on track towards achieving this target. The proposal covers a number of measures regarding the energy efficiency of buildings and related financing, including;

- A legal obligation to establish energy saving schemes in all Member States: energy distributors or retail energy sales companies will be obliged to save every year 1.5 % of their energy sales, by volume, through the implementation of energy efficiency measures such as improving the efficiency of the heating system, installing double glazed windows or insulating roofs, among final energy customers.
- Requirements for public bodies to purchase energy efficient buildings, products and services. They will further have to progressively reduce the energy consumed on their own premises by carrying out every year the required renovation works covering at least 3% of their total floor area.
- Measures to ensure easy and free-of-charge access to data on real-time and historical energy consumption through more accurate individual metering, so as to empower consumers to better manage their energy consumption. Billing should be based on the actual consumption well reflecting data from the metering.
- A requirement for Member States to take appropriate measures to remove regulatory and non-regulatory barriers to energy efficiency, notably as regards the split of incentives between the owner and the tenant of a building or among owners.

These provisions are aimed at bridging the gap in energy savings until 2020 and, if adopted, will become a strong driver for energy efficiency investments. Moreover, the Directive will help to create a stable market environment which is necessary to attract investors.

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[22] Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285 of 31.10.2009, p.10

[23] Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products, OJ L 153 of 18.6.2010, p.1

[24] COM (2011) 370 final

3.2. Financial support mechanisms

At EU level, financial support is available through various instruments aimed at assisting Member States in supporting the implementation of EU directives and initiating associated investments. The box below provides a brief overview of the main instruments in place.

Cohesion policy

Under the current financing period (2007-2013), EU Cohesion policy funding has increasingly focused on investments in energy efficiency and renewables, in line with the Europe 2020 Strategy for smart, sustainable and inclusive growth and the 20% energy efficiency target. As an example, in 2009, an amendment to the European Regional Development Fund (ERDF) allowed Member States to reallocate up to 4% of their national allocation to energy efficiency and renewables in the residential sector.

The planned funding allocations in the 2007-2013 Cohesion Policy programmes for sustainable energy investments amounts to about 9.4 billion €, of which approximately 4.8 billion € for renewable energy sources and the remaining 4.6 billion € for energy efficiency.

Under the Joint European Support for Sustainable Investment in City Areas (JESSICA) initiative[25], Member States are offered the possibility to invest some of their Structural Funds allocations in financial engineering instruments (revolving funds) supporting urban development. These financial instruments (so-called Urban Development Funds) invest in public-private partnerships and other projects included in integrated plans for sustainable urban development.

Research funding

Under the current EU Research & Development Framework Programme (FP7 2007-2013), about 2.3 billion € is dedicated to energy-related research. Most of this budget is used to support research, technological development and demonstration projects through the annual Calls for Proposals.

Intelligent Energy – Europe

The Intelligent Energy – Europe Programme II (IEE) focuses on removal of non-technological barriers to energy efficiency and renewable energy market uptake[26]. Under the 2007-2013 programming period, 730 million € is available. The IEE helps creating favourable market conditions, shaping policy development and implementation, preparing the ground for investments, building capacity and skills, informing stakeholders and fostering commitment. This also includes projects on financing energy efficiency in public buildings.

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[25] Please see http://www.eib.org/projects/publications/jessica.htm?lang=en for more information about the JESSICA initiative

[26] For more information about the IEE programme, please see http://ec.europa.eu/energy/intelligent/

Under the IEE, the so-called ELENA Technical Assistance Facility was launched in 2009, aimed at providing co-financing (of up to 90% of eligible costs) to local and regional authorities for the development and launch of sustainable energy investments in their territories. The EU support must lead to investments with a leverage of at least 1:20. It consists of 4 operational windows with the EIB, KfW, CEB and EBRD. So far, around 27 million € has been assigned to projects which should trigger investments approaching 1.5 billion €. About a third of these investments are addressing the buildings sector and energy performance contracting.

Complementing the ELENA Facility, grant support (up to 75% of eligible costs) for project development assistance is also provided through the 'Mobilising Local Energy Investments (MLEI)' Action of the IEE, mostly aimed at small scale sustainable energy investment projects (minimum 6 million €).

European Energy Efficiency Facility

On 1 July 2011, the European Commission launched the 265 million € European Energy Efficiency Fund (EEE F), providing different types of loans, guarantees and/or equity to local, regional and (if justified) national public authorities. EEE F aims at financing energy efficiency (70%), renewable energy (20%) and clean urban transport (10%) projects through innovative instruments, in particular promoting the application of energy performance contracting. A technical assistance grant support (20 million €) is available for project development services (technical, financial) linked to the investments financed by the Fund.

Looking forward, in its proposals for the next Multiannual Financial Framework for 2014-2020, in order to increase spending on energy efficiency and renewable energy (including energy efficiency in buildings), the Commission has proposed to concentrate funding from the European Regional Development Fund (ERDF) in this area: 20% of the ERDF should be spent on energy efficiency and renewable energy in more developed and transition regions; this is 6% in less-developed regions. Based on the amounts proposed, this would result in a minimum allocation of some €17 billion, almost a doubling of the current allocations[27].

A wider use of financial instruments is proposed as well, which would enable better leverage of private capital and renewed liquidity flows towards investments in renewables and energy efficiency measures.

Moreover, under the Horizon 2020 programme €6.5 billion is to be allocated to research and innovation in "Secure, clean and efficient energy" in 2014-2020. A relevant share of this budget will be allocated to the "Market uptake of energy innovation" for projects facilitating the energy policy implementation, preparing the ground for rollout of investments, supporting capacity building and acting on public acceptance; in the spirit and continuation of the Intelligent Energy Europe Programme activities.

[27] In addition, allocations from the Cohesion Fund could also be made to sustainable energy. Contrary to the current period, no ceiling is proposed for energy-related investments in the housing sector. A wider use of financial instruments is also proposed, which would enable better leverage of private capital and renewed liquidity flows towards investments in energy efficiency measures.

Nevertheless, even assuming that most of the proposed allocations would go to energy efficiency in buildings, this would only constitute a small amount compared to the estimated investment need of around €60 billion per year.

4. WHY IS THE SAVING AND JOB POTENTIAL FOR BUILDINGS NOT BEING REALISED?

Despite the above-outlined efforts, the proven cost-effective opportunities for reducing energy consumption in buildings and the positive effects on employment and revenues, the potential for energy efficiency in the sector remains largely untapped. Based on a preliminary analysis[28], many reasons for this so-called 'energy efficiency gap' can be identified, including market failures, financial 'barriers' and the regulatory framework.

4.1. Market failures

In many instances, energy efficiency is not a major concern for consumers or firms because **energy costs are relatively low** compared to many other cost factors (such as labour costs). For example, in the office space market in London, energy costs are equivalent to 1-2% of rental costs[29]. Similarly, in a high-quality office building in Germany, heating and electricity made up less than 5% of the total operating cost of the building, including rent and maintenance (about €1.1 of out of every €23.3 spent). On top of this, price is not a strong driver for most building-related energy decisions (i.e. low elasticity). Consequently, there is little incentive to invest in energy efficiency improvements.

Furthermore, **energy market prices do not reflect all environmental and social costs,** for example those related to pollution, greenhouse gas emissions, resources depletion or geopolitical dependency. As a result, end user (and producer) choices are made on the basis of a lower energy price that does not reflect the full cost for society.

There are many examples of **split incentives or principal-agent** problems in the building sector, where the decision maker may be (partially) detached from the price signals. The most visible example is in rental markets, where building owners are responsible for investment decisions but tenants pay the energy bills. Misplaced incentives are also found in new-construction markets, where decisions about building design and features are as well made by people who are not responsible for paying the energy bills, such as architects, builders, and contractors.

Information failure is one of the most important barriers to the deployment of energy efficient technologies. Consumers, vendors, manufacturers, banks and policy makers often have inadequate information about energy efficiency technologies and their costs and benefits. There are different forms of information obstacles: its

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[28] The information in this chapter is based on several studies that have analysed these barriers in more detail, including Sorrell, S., et al. The economics of energy efficiency - Barriers to cost-effective investment. Edward Elgar, Cheltenham, UK. 2004 and Schleich, J. The economics of energy efficiency: barriers to profitable investments, EIB PAPERS Volume12 N°2, 2007

[29] Guertler, P., J. Pett and Z. Kaplan. 2005. “Valuing low energy offices: the essential step for the success of the Energy Performance of Buildings Directive.” Proceedings of the 2005 ECEEE Summer Study on Energy Efficiency. Paris: European Council for an Energy-Efficient Economy. pp. 295-305.

asymmetric access, the mere lack of available information and its highly technical nature. As a consequence, consumers and firms are frequently unaware of cost effective practices and technologies available to save energy. This is compounded by the fact that **many actors in the building sector do not have adequate training and knowledge regarding energy efficiency issues**.

Furthermore, there is also a high 'inconvenience' barrier linked to building renovation, especially for 'deep' renovations. This includes the 'cost' involved in preparing a project, obtaining permits and financing, finding contractors, supervising their work, possibly moving out during the renovation, etc. This is compounded for multi-family dwellings.

Finally, the energy efficiency market is diverse and covers a range of end-users, technologies and market sectors, making addressing these barriers complex.

The specific case of Energy Performance Contracting

Energy Performance Contracting (EPC) is an approach to financing energy efficiency measures that uses cost savings from reduced energy consumption to repay the cost of putting in place energy conservation measures. Typically, energy service companies (ESCOs) deliver these energy efficiency improvement measures in a user's facility and pay part or all of the upfront costs, which are paid back with the money saved on the energy bills. Despite the huge potential for energy services in Europe and hundreds of existing projects that have proven their effectiveness and flexibility, the market for such services is still underdeveloped.

Over and above the general hurdles to the uptake of energy efficiency measures, the major barriers that have been identified specifically for the ESCO market in Europe[30] include:

- Low **awareness** of and **lack of information** about the ESCO concept. Although the level of awareness has increased during the last years,
- **Real and perceived high business and technical risks**, related amongst others to**;** the perceived risk that the energy efficiency interventions might compromise the production or operation processes related to the core business; the aversion to outsource energy management, especially where in-house technical expertise exists; the long commitment required with ESCO contracts; and the usually small size of projects.
- High level of **mistrust** in the ESCO model both from customers and from financing institutions in some countries, due amongst others to; the lack of standardisation of contracts, measurements and verification of project savings; lack of competition in some market segments; lack of experience of clients, ESCOs and financial institutions;
- Ambiguities in the **legislative framework, including the public procurement rules,** which are often complex and time consuming, adding to the transaction costs of projects and undermining their viability. Moreover, lifecycle costs that also account for maintenance and energy costs are often not used in public procurement, which disadvantages EPC projects that may have a higher initial investment cost.
- **Lack of experience to develop adequate tender documents and**

specifications resulting in poor tenders, which has at least two potential impacts: the project will (i) not be interesting for ESCOs leading to a low response rate and (ii) not deliver the expected results.

- **Competing alternative financing mechanisms**, including public funding through grants even in market segments where investments are feasible on commercial basis.

The figure below gives more details about the relative importance of the various barriers to the uptake of energy services by SMEs.

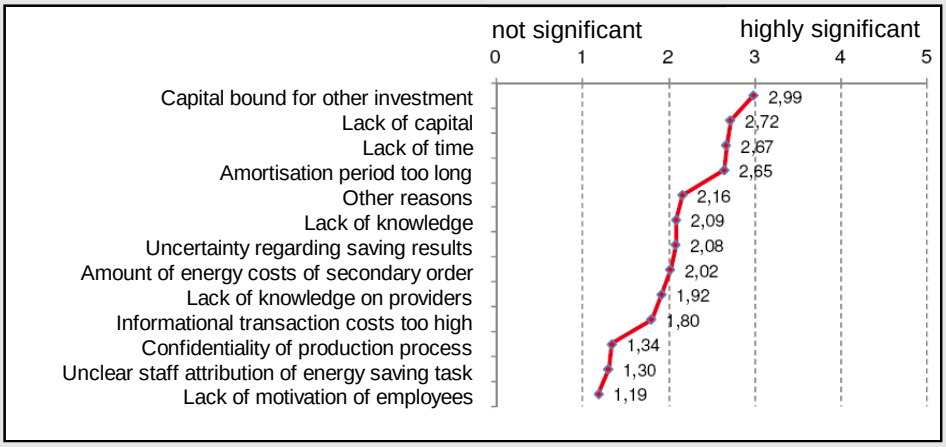

Figure 3: Barriers to energy services uptake with German SMEs (Source: Role and importance of Energy Efficiency and Energy Service in SMEs, Prognos, 2010)

4.2. Financial barriers

Firstly, the relatively **high level of initial investment costs** represents a significant financial barrier to the use of energy efficient technologies, especially for private home owners. Many households have limited resources and limited access to credit (worsened by the current economic and financial crisis), which restricts their ability to invest in energy efficiency measures. In addition, some, in particular small, businesses have insufficient capital or borrowing ability.

Moreover**,** private investors sometimes have **biased financial perceptions** about initial costs and pay-back periods disadvantages energy efficiency investments with relatively longer pay-back times. Also, lending remains primarily asset-based and financial institutions are still cautious with cash-flow based lending.

The information failure is also present in the financial sector. The **absence of awareness and knowledge** among financiers is still an important barrier to increased energy efficiency investments. This extends to the receivers of funding, such as local or regional authorities, which often **lack the knowledge, resources and capacity** to plan viable energy efficiency projects.

The relatively small size of energy-efficient projects compared to other investments **increases the transaction costs** related to energy efficiency projects. This is compounded by the relatively high uncertainty surrounding energy savings measures and the difficult replication of projects.

Furthermore, financing institutions typically provide asset-based lending rather than project financing and limit the debt amount to 70-80% of marketable asset value[31]. Energy savings are almost never taken as collateral and asset market value does not reflect the energy (and economic) performance of those assets (i.e. buildings). Financiers are reluctant to engage in long-term energy efficiency financing contracts although they may provide a positive Net Present Value and tend to prefer shorter-term and higher yield projects.

Furthermore, longer-term returns of energy efficiency investments (and their current illiquidity) are a barrier for investors compared to markets with easier and earlier exits. Combined with a significant slow-down of the secondary market (securities), energy savings-backed securities do not exist, which limits the investment size of the market and causes insufficient energy efficiency tailored financial products on offer.

Moreover, there is still a **dependency on grants** and a lack of a systemic approach to **bundling energy efficiency investments** into packages (and thereby gaining economies of scale and reduction of relative administrative costs and technical risks), is still in its infancy. Moreover, grant schemes for viable energy efficiency projects may induce market distortions and constitute a barrier for private financing opportunities[32].

Indeed, the use of innovative financial instrument is still limited although Member States now have the opportunity to channel part of their Structural funds allocation in such instruments and potentially limiting their co-financing rate by attracting matching private capital[33].

4.3. Regulatory framework

Some regulatory policies also discourage investment in energy efficiency. For example, low ambition levels and lack of enforcement of building energy codes within some Member States hamper energy efficiency in buildings. Moreover, some lack administrative capacity to develop energy efficiency legislation (including support instruments) and wait for its advancement at EU level.

Also, too frequent changes in the legal framework and financial support programmes, and a lack of a long-term vision make the investment climate uncertain. The table below gives an overview of the most common barriers reported in selected Member States.

	BG	CZ	DE	DK	FI	LV	NL	PT	UK	sum
Insufficient or lax regulation				x		x	x	x	x	5
Incentives not working properly	x		X			x	x	x		5
Unclear regulations about labelling	x		X			x	x			4
Insufficient subsidies					x	x	x			3
Price of labelling				x			x	x		3
Frequent changes in regulation	x		X				x			3
Visibility of labelling				x					x	2
Lack of supervision and enforcement	x			x						2

Figure 4: Barriers reported by Member States related to regulation. Source: IDEAL_EPBD project. Country Specific Factors - Report of Findings in WP3

Furthermore, policies that allow (public) utilities to increase their profits by selling more electricity or natural gas are disincentives to effective utility energy efficiency programs[34]. Many utilities also have applied tariffs and interconnection standards that discourage end users from adopting energy-efficient CHP systems[35].

Another hindrance is the often decentralised nature of the institutional competences in the building sector, with national, regional and local authorities playing different roles in enforcement, subsidy allocation, tax policy, etc. In the absence of proper co-ordination this can easily result in a sub-optimal support for energy efficiency in buildings.

Finally, energy efficiency in buildings is often perceived as technical and complex, resulting in a lack of political visibility in many Member States, be it at national, regional or local level. This also hampers the necessary investments and priority setting.

5. PUBLIC CONSULTATION

5.1. Objective of the consultation

Given the need to improve the financial support for energy efficiency measures in buildings in view of reaching the 2020 energy savings target, it is considered important to obtain the views of all relevant stakeholders in this area, including – but not necessarily limited to – the:

- Member States (e.g. national, regional and local authorities, etc.);
- Financial sector (e.g. public and commercial banks, institutional investors, hedge funds, etc.);
- Building sector (e.g. construction companies, manufacturers of building materials, technical building systems and components, installers, etc.);
- Energy sector (e.g. energy suppliers, energy service companies, energy auditors, etc.);
- Non-governmental organisations (e.g. consumer representatives, environmental groups, trade unions, etc.), and;
- Building owners (e.g. real estate companies, the retail sector, hotel groups, private households, etc.).

Moreover, under the EPBD recast the Commission is requested "*to present an analysis on, in particular;*

(a) the effectiveness, the appropriateness of the level, and the actual amount used, of structural funds and framework programmes that were used for increasing energy efficiency in buildings, especially in housing;

(b) the effectiveness of the use of funds from the EIB and other public finance institutions;

(c) the coordination of Union and national funding and other forms of support that can act as a leverage for stimulating investments in energy efficiency and the adequacy of such funds for achieving Union objectives."

The public consultation will provide an important contribution to this analysis.

5.2. Consultation questions

Based on the clusters of barriers identified in the previous chapter, stakeholders are requested to provide answers on the following questions:

(1) Addressing market failures

(a) Are the barriers identified in this document the most important ones? If not, which barriers are missing and why are they important?

(b) Which market failures would be most urgent to address? At what level (i.e. EU, national/regional/local) would these failures be best addressed?

(c) How could these failures be best addressed? For example; how could behavioural change needed for quicker uptake of energy efficiency measures by society be triggered at the national level? How could the development of an energy services market for households be further stimulated? What could be done to increase awareness raising and promotion of energy efficiency in buildings? How could the business community (e.g. building sector, ESCOs, local banks, etc.) be better supported in delivering energy efficiency in buildings? How could the split incentive problem be best tackled?

(2) Improving access to financing

(a) Are the current EU-level financial tools for energy efficiency in buildings effective? How could the uptake of EU-level funding for energy efficiency (including cohesion policy funding) be improved? As a complement to tailor-made national or regional financial instruments (e.g. set up with a contribution from cohesion policy funds), what could be the future role of centrally-managed financial instruments at EU level in this context?

(b) How could more private financing (both from institutional investors as well as building owners) for energy efficiency projects be mobilised? What would be the role of public funding (both at EU and national level) in this context? Is access to (project development) technical assistance an issue and how could it be provided most efficiently at the national, regional and local level? How could both national and EU financing schemes be improved to best cover all segments of the market (residential, commercial, public buildings, etc.)?

(c) Is there a need for guarantee systems related to building efficiency investments? If so, what guarantee systems for efficiency investments would be necessary and how should they be designed? Is there a need for other enabling mechanisms (e.g. risk-sharing, investment vehicles)?

(d) How could the capacity, knowledge and risk perception regarding energy efficiency investments be improved, both at financial institutions as well as with private investors and administrations at all levels?

(e) Are there examples of good practice at national or regional level (with data on costs and benefits) that could be applied more widely?

(3) Strengthening the regulatory framework

(a) Is there any need for further EU-level regulation to stimulate energy efficiency investments in buildings beyond the Commission proposal for a new Energy Efficiency Directive? If so, what should these measures entail?

(b) What could be specific measures to be taken at national level to implement and complement most effectively the EU-level regulatory framework for energy efficiency?

(c) What are the specific needs for policy guidance and awareness raising among different stakeholder groups?

Annex I

Estimates of energy efficiency 'market' size for buildings are based on two main studies, i.e. the Frauenhofer study on energy saving potentials[36] and the European Climate Foundation study on energy saving policies[37]. The Frauenhofer study analyses several scenarios on energy saving potentials, including the so-called 'Low Policy Intensity' (LPI) scenario and the 'High Policy Intensity' (HPI) scenario. The LPI scenario includes the effects of energy savings measures that are cost-effective for consumers with usual market conditions. The HPI scenario includes all measures that are cost-effective for an entire country (i.e. also measures that are not cost-effective from a consumer point-of-view). The LPI and HPI scenarios have been selected to provide a lower and upper bound for the estimate of the EE market size in the buildings sector.

The ECF report provides Marginal Abatement Cost Curves (MACC) per sector for saving measures, starting with the cheapest measures. These curves were used to calculate the annual net costs of realizing a given saving potential. Account was taken of the potential already used up in the baseline. The saved annual energy costs, calculated with the energy prices in the ECF report, together with the net costs, result in gross annual costs, mainly constituting annualized investment costs. These were transferred into total incremental investment costs using the discount rates mentioned in the ECF report.

	Energy savings in 2020 (in Mtoe)	**Incremental investment needs up to 2020 (in billion €)**
Low Policy Intensity	37	286
High Policy Intensity	65	587

Table 1: Savings potentials and investment need estimates for the building sector in 2020 (in Mtoe)

In line with the Impact Assessments for the EEP[38] and the EED[39], the HPI is considered to represent a more realistic estimate of the gap to be closed (LPI can be reached with no additional action) and leaving the objectives missed. Thus the HPI calculation is used for the total energy savings potential and investment need.

For the purpose of the overall estimate, the buildings sector includes:

- Dwellings (excluding electricity for lighting and appliances)
- Tertiary buildings (including electricity for lighting, fans and AC)
- Office buildings in industry.