COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 13.11.2008
SEC(2008) 2864
VOLUME 3

Annex 3 to

COMMUNICATION STAFF WORKING DOCUMENT

Accompanying document to the

PROPOSAL FOR A RECAST OF THE ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE (2002/91/EC)

IMPACT ASSESSMENT

{COM(2008) 780 final}
{SEC(2008) 2865}

ANNEX III

THE ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE CONFERENCE: NEXT STEPS
EU SUSTAINABLE ENERGY WEEK, JANUARY 31, 2008, BRUSSELS

CONFERENCE SUMMARY

Context - Background

The conference was organized by DG TREN with support of the EPBD Buildings Platform as part of the EU Sustainable Energy Week which took place from January 28 to February 1, 2008 in Brussels.

The buildings sector consumes 40% of the final energy in the EU. There is a 28% cost-effective potential which could translate into reduction of 11% of the total EU final energy consumption. To reap this potential the Energy Performance of Buildings Directive (EPBD 2002/91/EC) was adopted in 2002. But still, there remains a considerable unutilized potential. The reinforcement of the EPBD is a strategic objective of the Commission for 2008.

Scope

- Announcement of the preliminary ideas of DG TREN for the strengthening of the EPBD;
- Initial consultation with the stakeholders;
- Current state of the implementation of the Directive.

Participants

There was significant interest in the Conference, with some 360 registrations, the participants being:

- Officials from the European Commission
- Representatives of national governments - members of the Energy Demand Management Committee (Art 14)
- Representatives of industry organizations, property owners and managers associations, energy agencies, banks, and consulting organizations

Content

The conference was split up in 5 parts:

1. EPBD: Reaping the potential in the buildings sector
2. Lessons from the current implementation of the EPBD
3. Cutting of the 1000 m² threshold – Can it work in practice?
4. Setting minimum EU energy performance requirements?
5. Fiscal and financial incentives

Web streaming of the whole conference was available through the ManagEnergy program and each presentation can be viewed on www.managenergy.tv or on the web streaming page of the EPBD Buildings Platform website, where additional information is also given (http://www.buildingsplatform.org/cms/index.php?id=216).

PART 1 – EPBD: REAPING THE POTENTIAL IN THE BUILDINGS SECTOR

Opening: Energy efficiency improvements in the buildings sector – The next steps

Mr. Fabrizio Barbaso, Deputy Director-General of DG Energy and Transport (DG TREN), and Acting Director of Directorate D described the overall context regarding the environmental and energy challenges, paying specific attention on the European environmental policy and the important role of the buildings sector.

Presentation: Potential, current implementation, and initial ideas for reinforcing the EPBD

Mrs. Pirjo-Liisa Koskimäki, Head of unit D4, Energy Efficiency, DG TREN, introduced the significance of the buildings sector for EU energy policy objectives of 20/20/20 by 2020 (20% reduction of greenhouse gases, 20% share of renewable energy in final energy consumption and 20% savings in energy consumption). She gave an overview of the current implementation of the EPBD and possible options to be considered regarding its recast:

- Abolishing or lowering the 1000 m^2 threshold for existing buildings and major renovation
- Strengthening the content and the role of the Energy Performance Certificate
- Strengthening the content and the role of inspections
- Specifying minimum energy performance requirements

The current Directive should be fully transposed and properly implemented, whilst its main principles should not be changed. Provisional timetable: several years will be required for the Commission's proposal to be adopted by the Council and the European Parliament and an additional few years to be transposed and implemented by the Member States (MS).

Mr. Stefan Lechtenböhmer, Co-Director Energy, Transport and Climate Policy, Wuppertal Institute (WI): - contributed to the presentation of Mrs. Koskimäki, by pointing out in his presentation the following facts:
- EU-25 relevance of energy used in buildings is significant and is projected to remain stable, i.e. 40% of total final energy use and 38% of all CO_2 emissions come from this sector
- a huge cost efficient potential for CO_2 reduction by improving Energy Efficiency (EE) exists (including: improvement of building shell, heating systems, installed equipment and appliances)
- a huge share of the building stock needs to be refurbished
- standards of new and refurbished buildings have to increase
- substantial investment has to be stimulated

Ranking of technologies for energy efficiency measures (WI: 2005, 2006 and Primes 2006)

1. Refurbishment of existing buildings (long lifetime of measures)
2. High efficient heating systems
3. High efficient appliances

4. Low energy / passive house for new buildings (long lifetime of measures)

Currently covered by the EPBD:

- New buildings
- Maintenance of heating systems and of air conditioning systems
- Existing buildings: Only covered regarding labels and above 1000m^2

- for major renovation additional costs for energetic optimization are "marginal" (14€ bln/y)
- payback is relatively short, however full costs of renovation cannot be covered by energy savings
- potential of energy savings in buildings is huge: 40% to 60% of the energy efficiency targets (WI: 2008). So the energetic optimization of buildings is one of the most cost efficient solutions to climate change

Actions are split into several sectors and areas:

- Residential / Non residential sector
- Building shell
- Heating systems (plus alternative systems)
- Appliances

A mix of specific instruments is needed, e.g.:

- Minimum standards should be set (buildings, appliances, integrated planning)
- Quality should be assured
- Buildings refurbishment should accelerate

Presentation: Main challenges, gaps and opportunities of the current implementation

Mr. Eduardo Maldonado, Coordinator of EPBD Concerted Action (www.epbd-ca.org)

Since the beginning of 2005, the EPBD Concerted Action is one of the major initiatives of the European Commission for supporting the Member States (MS) in the EPBD implementation and for moving towards a certain degree of harmonization on a voluntary basis. It is a forum where MS exchange their experience and discuss the best practice examples and the challenges.

Positive aspects from the EPBD are visible:

- New, more demanding building regulations are in force throughout the EU, new software tools are available.
- New summer requirements have been introduced for the first time in many MS.
- Many MS have established a working administrative system for issuing certificates and inspecting boilers and air-conditioners, as well as train and/or recognize qualified experts, bringing a clear improvement to the level of technical expertise acting in this area throughout the EU.
- There are now clear targets for what can be considered high-performance buildings in most MS.
- Awareness of the importance of building energy efficiency is now much higher throughout the EU.

Weak points of the EPBD:

- The technical annex is complex and very ambitious and it should be made realistic.
- Direct comparisons of building performance among different MS will be quite difficult due to the adoption of different sets of simplifications at national level.
- Mandatory periodic inspection of small boilers and air-conditioners, and even of larger units in mild climates, can be easily shown not to be cost-effective. The lack of an

"option b)" for inspections of air-conditioners, as offered by the EPBD for boiler inspection, is commonly considered as highly desirable.

- Some definitions (e.g., "Public Buildings", "air-conditioning system", "ventilation system", "12 kW limit for AC per building or per unit", etc.) are too vague and allow quite a large degree of variation for application by MS.
- The concept of "independence" of the qualified experts and inspectors is also quite vague.

Main Gaps of the EPBD:

- Promotion of passive solutions is seen as lacking in the EPBD. Building regulations promoting better summer design and prevention of overheating may have a more important potential for producing energy savings than inspections of small air-conditioners, of doubtful cost-effectiveness.
- New requirements set up by MS, especially for major renovations, often cause significant difficulties to building owners. Financial support schemes are clearly desirable.
- Information and awareness campaigns are essential and they should be addressed in a more systematic way.
- Monitoring requirements and reporting contents are clearly needed.

Other Urgent Actions:

- CEN standards addressing difficult technical issues such as integration of renewable Energies, thermal bridges, natural ventilation, day lighting, cogeneration, etc., pose difficulties for practical implementation. More practical standards are needed.
- CEN standards addressing inspections of boilers and air-conditioners also need a quick revision. As they stand, they are of very limited use.
- Every MS agrees that costs for certification and inspections are of paramount importance. MS must make compromises between costs and accuracy need to be carefully balanced and differentiated by building type.
- The provision of advice in the Certificates and after inspections is also quite vague, as cost-effectiveness criteria are not precisely defined.
- Standardized software tools must be made available to experts and inspectors, at a national or regional level, to enable consistency and reproducibility in advice.

Also, building regulations should not place limits on innovation!

PART 2 – LESSONS FROM THE CURRENT IMPLEMENTATION OF THE EPBD

In this session, the focus was on the present experiences with the EPBD implementation and the lessons learned.

To show the advancement and challenges of the implementation of the current Directive three Member States (MS) made presentations.

Presentation: Lessons learned – perspectives from Germany

Mr. Horst-P. Schettler-Köhler, Federal Office for Buildings and Regional Planning, Germany gave an overview of the German experience in implementing energy methods:
Situation 2002:

- Before 2002 holistic methods with overall approach were already in use
- to meet the standards of the EPBD: only two aspects (Lighting and cooling) had to be included (inclusion was not possible with EN 832)

Building stock:

- Catalogue of measures, in case of which requirements have to be met with list of maximum U-values for fabric elements
- "bagatelle margin", no 1000m^2 threshold, all buildings were treated in the same way
- All new heating equipment had to meet the new requirement for new buildings
- Mandatory upgrade of old boilers, thermal insulation of pipes and upper ceilings/roof

Certificates:

- Energy certificates (new buildings and certain major renovation) were mandatory since 1995 (but not all aspects of EPBD), voluntary for existing buildings
- Inspection scheme for Boilers in force since 20 years, but no mandatory of heating-systems and air-conditioning appliances

Approach:

- 1:1 implementation of the "missing parts"
- The Energy savings Ordinance 2007 was adopted in summer 2007
- Next steps: Strengthening the requirements of new buildings (PassiveHouse Standard)
- 2009: further 30% cut for new buildings, 2012: repeat of the exercise

Lessons learned:

- The lifetime of energy-saving regulations gets shorter, but building reality reacts slowly
- Experts have to learn, software for certification must be ready for use
- The energy performance of building products has to improve
- The building costs must be taken into account: the costs decrease, when a level of requirements is in force for a certain time
- Requirements on energy performance, on renewable energy, on building products and on boilers are subject of different European directives as well as national issues, but have to be merged in national implementation
- Citizens prefer a predictable energy-saving policy, people do not welcome a new ordinance or amendment every year!
- If different requirements, methods and schemes are due for change, it is better to wait a little, collect the issues and do all together with one amendment

Presentation: Lessons learned – perspectives in the Czech Republic

Mrs. Irena Plocková, Senior official, Ministry of Industry and Trade, Czech Republic,
More than 30 years of experience in calculation, evaluation and verification of heat and energy consumption of all types of buildings. Since 2001 a scheme is operational with energy certificate of buildings, but only with indicators of heat consumption. Direct energy is calculated for the whole building not for individual units or flats. The Ministry certifies the energy auditors.
The expected annual energy savings in the households by the end of 2010 is higher than 914 GWh and 6048 GWh by the end of 2016. Potential for savings is more than 30% of all energy consumption in the Czech Republic. Savings in the tertiary sector are 800 GWh by the end of 2010 and 3100 GWh by the end of 2016. The potential of savings in this sector is more than 16% of all energy consumption in the Czech Republic.
Lessons learned:

- Voluntary processes are not effective and legislation is needed to realize the potential of energy savings
- The implementation of EPBD is very effective to achieve energy savings potential
- Methodology for the inspections of boilers and air conditioning systems. The Czech Republic needs more technical standards and best practice or guidelines.

Presentation: Lessons learned – perspectives in France

Mrs. Marie-Christine Roger, Head of prevention and technical quality office, Ministry for Ecology, Sustainable development and Spatial Planning, France
Lessons learned:
Energy performance certificates:

- Mandatory for sales since November 2006
- Mandatory for rentals since July 2007
- Many experts were needed in a short time
    - Good point : About 5 000 experts today
    - Point to improve: Certification level not very high
- For a cheap certificate :
    - Simplified method : to be improved
    - Energy consumption based on the bills: good point
- Question of reliability/credibility of the certificates

Existing buildings:

- Buildings>1000 m² and cost of works >25% cost of building. The most difficult measure to implement
- Issues :
    - Diversity of the building stock (age, construction type, …)
    - Data and measurements are hardly available for old buildings
    - Consumption difficult to assess
    - It has been necessary to develop a new and appropriate calculation methodology
- The idea in France is that certificates could be used to lay down a regulation:
    - To delete class G from the building stock
    - Can works be mandatory when the house is sold? Could the certificate be used in this case?
    - This implies that the certificate has to be more accurate and has to be closer to the reality
    - What kind of incentives? How to involve the banks in the process?
    - Develop efficient solutions to certain types of buildings (feasibility, cost…)

Presentation: EnR Report on the implementation of the EPBD

Mr. Simon Green and Mr. Eion Lees, EnR – (European Energy Network, www.enr-network.eu) "EnR Report on the implementation of the EPBD"

EnR recommendations for EU:

- Set out a timeframe by which all new buildings will require to have net zero energy requirements or net zero carbon emissions when averaged over the year (case study UK);
- Encourage Member States to provide incentives or rewards for new buildings or renovation which go beyond their national or regional building standards until such times as the net zero house is mandatory (case studies Germany & UK)
- Require all buildings undergoing major renovations to meet minimum performance requirements and to lower the size threshold to include individual houses (Sweden will lower threshold from January 2009)
- Ensure that there are enforcement systems in place and assess regularly and independently whether enforcement is effective (case study Sweden)
- Use EUP Directive to maximum effect for end use appliances used in buildings and which are traded across the EU e.g. lighting, air conditioning etc.
- Within 7 years, make cost effective energy efficiency measures and alternative energy sources mandatory when selling or renting buildings (Portugal has mandatory solar water heating in new build since July 2007)
- Ensure harmonized reporting of the energy and/or carbon savings arising from the EPBD if they are not forthcoming from Member States reporting under the EU Directive on End-Use Efficiency and Energy Services
- Amend the EU Structural Fund rules such that all cost effective energy efficiency measures must be carried out in any building which receives support for installation of renewable energy sources
- Implement demonstration projects for net zero energy or net zero carbon buildings, and for refurbishment of existing buildings (case study Germany)

EnR recommendations for MS:

- Set 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 and signal tightening of requirements through time
- Ensure the take-off of building energy performance certificates by information and awareness campaigns to building owners and training campaigns targeted at all market agents in the buildings sector (happening in Germany, Portugal, France, Netherlands)
- Establish effective enforcement systems to ensure that the Building regulations on new build and major refurbishments of existing buildings are actually met
- Lead by example in deploying and, where appropriate, demonstrating new building designs, construction and technologies and renovation strategies in public buildings (Netherlands for renovation)
- Step up efforts to change attitudes and behavior to energy use without which the maximum benefit of sustainable energy technologies will not be achieved
- Implement mechanisms and incentives for building residents and owners to improve their energy performance through linking into EPBD requirements such as EPCs at key trigger points e.g. sale, major renovation, rent levels, mortgages etc. (Netherlands and many other countries working towards this)

PART 3 – CUTTING ON THE 1000m^2 THRESHOLD – CAN IT WORK IN PRACTICE?

Presentation: Cost-effectiveness, added value and examples from the EU Member States

Kevin O'Rourke, Head of Built Environment at Sustainable Energy, Ireland (SEI)

Suggested further investigations:

- Establish baseline energy efficiency penetration status across MS (reduces potential)
- Cover all relevant energy efficiency buildings technologies (not only thermal, increases potential)
- Differentiate with more refinement between:
    - Different MS in same climatic zone: technical, economic, institutional
    - Housing and non-residential (including public) sectors
- Seek more clear convincing cost effectiveness evidence to investors
- Examine alternative and/or reinforcing options to extended regulation
- Examine practical and organizational issues in depth (lessons from current EPBD)

Conclusions:

- Upgrading small buildings is important, but can be difficult
- A wide technology potential to be harvested
    - Mechanical & electrical hardware may be more cost-effective than building fabric measures
    - But not all may be suitable for regulation
- Cost-effectiveness: apparently
    - Net public gains justified in societal terms
    - Private gains and priorities may not be convincing
- Value added of amending the 1000 m2 threshold :
    - Potential to treble impact of current EP renovation, but:
    - Actions already taken may mean that differential impact could be much less
    - Pace of realization slow, gains evolve cumulatively
- Enforcement of such a new requirement is a challenge
- Under ESD, every MS must have an Energy Efficiency Action Plan
    - Existing buildings must be part of that agenda
    - May be by regulatory or other means
- EPBD seems to be driving MS towards similar systematic approaches to energy efficiency, pulled by the early movers
- Complex, diverse conditions apply across the EU
- A harmonized EP criterion for renovation: may not be important
- Regulation can drive innovation – demand for new skills, energy efficiency materials, products and services
- Further investigation needed to inform processes of negotiation and (if adopted) MS implementation
- Article 6: EP requirements for "major renovation" of existing buildings over 1000 m^2 – "in so far as this is technically, functionally and economically feasible" – very slippery phrase which allows escaping from obligations.
- Buildings > 1000 m^2 represent only 28% of total area.

Presentation: Costs for implementing and monitoring compliance

Mr. Frans van Ekerschot, Coordinator EPBD, Ministry of Housing, Spatial Planning and the Environment, the Netherlands.

Requirements on component level

- Component requirements:
  - Easier to deal with by the market
  - CO_2 impact is limited to the building parts to be renovated
  - Integrated in the execution of the renovation (cheaper)
  - Legal frame can be simpler (restricted to the measures themselves)
  - Assessment method can be simpler
  - Can be controlled/monitored easier

Requirements on building level

- Building requirements:
  - Require a full building assessment
  - Impact relates to building as a whole
  - Not or partly integrated energy saving measures are often more expensive
  - Legal frame is more complex because it extends beyond the renovated part and therefore complexity is added
  - Should be controlled/monitored on the whole building level

Combining both approaches:

- Starting from the component level
    - Set requirements on component level
    - Use the building requirements as a lower threshold, to avoid poor buildings not to be considered as a whole
- Starting from the building level
  - Set requirements on building level
  - Use the component requirements as a lower threshold, to avoid replacement or renovation of components on a poor level

Recommendations:

- Realizing an effective and cost efficient implementation requires:
  - A national vision on the most effective and practical approach
  - A national vision on the future use of this policy instrument
- This requires flexibility in the way the EPBD can be implemented:
  - Regarding component or building requirements
  - Regarding the definition of major renovation and feasibility
- The flexibility in article 6
  - Provides the opportunity to develop a effective approach on national level.
  - Requires explicating the effectiveness of the chosen national approach.
- The EC should be transparent about the way article 6 can be interpreted including where freedom of interpretation is allowed.

Panel discussion

Interventions by Member States:

Mr. Wolfgang Ornth, Ministry of Building, Transport and Urban affairs, Germany;

- Germany: 80% of buildings are less than 1000 m^2
- The potential is great, because buildings of this size also tend to be in bad energy conditions
- But: It should be taken into account what is economic from a global point of view and desirable (what maybe would make sense) on one hand and what the market will provide and people are willing to pay for on the other hand.
- Where there are high rents nobody will pay for energy savings
- A big issue is: how people in smaller buildings could be motivated to invest. The energetic renovation costs thousands of Euros. Even with the financial incentives (look presentation of KFW-Bankengruppe) Germany has still difficulties to motivate private investments.

Interventions by different stakeholders:

Mr. Hubert Despretz ADEME, Agency for Energy and Environment, France (www.ademe.fr);

- Presented results of a study on the costs of feasibility studies (required under Art. 5 – new buildings above 1000 m^2). The conclusions are that below certain area (500 m^2) the costs for the study are not necessary economically interesting as the study does not depend so much on the size but on the complexity of the job.
- There are not enough experts to do the feasibility studies if the limit is abolished. Maybe one of the solutions is to progressively bring the limits down and gradually involve more and more buildings as energy prices go up. The feasibility studies on renovation will become a better economic option.

Mr. Olivier Loebel, CEETB, European Technical Contractors Committee for the Construction Industry (www.ceetb.eu);

- 72% of the building stock is excluded from the scope of EPBD and at the same time 1 to 2% of the building stock is replaced every year, so the focus is on existing buildings.
- New provisions have to be in compliance with forthcoming Directive for Renewable Energy, which will impose certain obligations.
- 1000 m^2 threshold requirement is certainly too high and can not really be justified.
    - 100 m^2 is realistic, exclusion for buildings which are rarely used (weekend and holiday houses).
- MS must be free to go down from 100 m^2 to 0 m^2.
- Renovation it is usually done step by step and Directive should follow this approach by introducing minimum energy requirements for components and for equipment
- EPC should be obligatory for all public buildings
- Need of combined legal obligations and incentives (encourage and make).

Mr. Olli Seppanen, president of REHVA, Federation of European Heating and Air Conditioning associations (www.rehva.com);

- Position regarding Art. 5:
  - Regarding the new building the limit of 1000 m^2 can be omitted so that requirement will apply also to smaller buildings, but "alternative systems" should be changed to "energy efficient system in respect of low carbon emission and primary energy use"
  - The list of examples should be changed accordingly, and moved to appendix
  - The last sentence in Art. 5: it is too late to consider any alternate systems " before construction starts" instead formulate it "at design stage"
- Position regarding Art. 6:
  - 1000 m^2 limit should be reduced but not so the all requirements of energy efficiency for new buildings are mandatory. Such kind of requirement would delay many necessary refurbishments but
  - the requirements can be set "for the renovated systems or components when these are part of a renovation to be implemented within a limited time period"
- When the requirements are extended to the buildings smaller than 1000 m^2 the following issue should be addressed:
  - Indoor air quality (IAQ) should be considered always when remodeling avoid sick building syndrome
  - Gross national product per capita to be considered within EU-countries when setting requirements
  - LCC analysis to be used when selecting the renovation and presenting examples on national level – no need to include examples in directive, maybe in appendix
  - CO2 analysis is preferred instead of primary, final or end-use (delivered) energy
  - Housing area per person could have an influence on the requirements regarding residential buildings
- Position regarding Art. 7:
  - No reason why this article couldn't be extended to all buildings occupied by public authorities and by institutions providing public services
- Conclusions:
  - It is feasible to reduce 1000m2 limit with some reservations
  - At the same time tools and guidelines should be developed and published how to select "best" measures in renovation for improvement of energy efficiency
  - These guidelines should be published simultaneously with the revised directive

Mr. Stratos Paradias, President of UIPI (International Union of Property Owners);

- Property owners have to be respected in all the relevant discussions, and also informed about proposed amendments of EPBD.
- Property owners need to be convinced that it is a right way to follow and assisted in order to overcome the difficulties with the implementation of EPBD.
- The building owners are those who are going to pay high costs of the implementation of the Directive.
  - Especially problematic in private renting sector is that the owner has to invest in energy saving and that their tenant can profit from this investment.

- The expenses for making alternation in buildings are eligible within community framework.
- MSs should take concrete measures to assist property owners with implementation (if not situation will not improve).

Mr. Peter Bach, Energy Authority, Denmark;

- Denmark has implemented a target for major renovation (>25% of the surface of the building) that covers all kind of buildings (no 1000m^2-treshold), but as well components (roof-, wall-insulation, windows etc.) could be changed without being forced to renovate the whole house. Therefore there are still practical problems need to be solved removing the 1000m^2-treshold.
- Cost-effectiveness of renovations is not easy to find out (without experts)

Mr. Martin Elsbergers in reply to Denmark;

- EPBD has to be clarified, there seems to be questionable interpretation of the requirements of the Directive in practical term
- It is not the intention of EPBD to force owners to do things which are not cost effective
- From the current EPBD it is clear that the energy performance requirements are to be met only for the components that are renovated and not the whole building

Mr. Horst-P. Schettler-Köhler, Federal Office for Buildings and Regional Planning, Germany;

- In Germany experience of 20 years of requirements about individual measures that had to be adopted and market reacts to that. The requirements became self-fulfilling as the owners of the building have to buy particular kind and that is what people start selling.

Short summary by the moderator Mr. Eduardo Maldonado:

- Market regulation is really important. National governments can take positive action in controlling that type of reaction.
- Cutting 1000m^2 threshold is something what has been long discussed. Also during EPBD (2002/91/EC) the 1000m² threshold was not the first choice, it was already a compromise. Everybody agrees that 1000m^2 is arbitrary. 0 m^2 or more careful propositions consider eventually financing or technical problems. To do it by component could be basically the message and not to do it on the scale of the building.
- If there is a political decision solutions will be found for technical problems.

PART 4 – SETTING MINIMUM EU ENERGY PERFORMANCE REQUIREMENTS

Presentation: Initial ideas on setting minimum energy performance requirements

Mr. Martin Elsberger, **Policy Officer at DG TREN**. Presentation on the Initial ideas regarding specifying EU minimum energy performance requriements.

Reasons for specifying minimum requirements:

- Setting cost-optimum requirements
- Leading all Member States to more ambitious, cost-optimal requirements
- Giving long-term planning certainty to governments, building owners, industry etc.
- Speeding up the realization of the savings potential – considering the long life-cycle of buildings

Possible options to be considered:

- Overall energy/CO2 limitation (EU setting the values or establishes the basis for a benchmarking)
- Subdivided technical requirements (building shell component and buildings services engineering approach)
- Reference buildings approach (for non-commercial)
- "Evolving building stocks" - eliminate the worst first
-

There are number of boundary conditions that will limit the applicability of some of these options, including:

- High complexity of national/local boundary conditions, building types and building services engineering
- Calculation of cost-optimal requirements depend on national boundary conditions
- Standard of improvement of classification for renovations not feasible because of non-uniform scales
- Definition of reference buildings diverse - EU-wide definition of reference buildings and its principles not yet available
- Lack of Data/statistics on national building stocks

Presentation: Feasibility, limitations and benefits

Mr. Thomas Boermans, **Senior Consultant at ECOFYS GmbH, Germany**

Background:

- Building stock in Europe represents a high potential to benefit from energy efficiency

Objectives of the study:

- Describe the initial position and define an optimum of objectives and guide values in terms of best cost-value ratio
- Improve energy efficiency of buildings through better Isolation (mainly in the southern part of Europe) for winter and summer conditions
- Because of rapidly increasing Energy consumption for buildings and Energy prices, the objectives for 2020 are realistic and should be much more ambitious for 2050.

Conclusions:

- Energy savings objectives and good cost-value ratio are not mutually exclusive

- In 2007, most requirements for U-values for wall, roof and floor in new buildings are below the economic optimum
  -> Cost saving opportunities are lost for households as well as for society
- U-values recommended in the study are valid for new as well as for existing buildings
  -> There is room for improvement for new AND for existing buildings
- Almost identical recommended U-values, for maximum cost effectiveness and for post Kyoto targets
  -> Good economy and climate protection are not contradictory. Fast action needed for 2020/2050 targets
- Insulation (especially roof and wall) reduces energy demand for cooling of residential buildings
  -> This adds a new perspective to insulation in Southern Europe
- Studies can be downloaded at the homepages of ECOFYS (www.ecofys.de) and EURIMA (www.eurima.org)

Panel discussion

Interventions by Member States:

Mr. Ted King, United Kingdom;

- Overall energy/CO2 limitation has very serious drawbacks because of the diverse EU climate, construction culture, heating, social culture and various other parameters.
- Some of the other options seem to be a lot more promising, but all of them need a deal of work before hard up on them and go trough firm strategy.
- As for the U-values and cost-effectiveness calculations: one of the dangers of focusing on these types of calculation is that you fail sufficiently to take account of the actual practice of constructing a wall to given U-value.
- Any analysis that we do must actually be anchored down to what ordinary constructors around the Union can do in practice.

Mr. Eduardo Maldonado, Portugal;

- We have to take into account how people really use their buildings. For example, in most parts of southern Europe we do not heat the buildings from October, 1st April, 31 continuously. We only do it when it is necessary. So
- Economics are different. It is nice to have these rough indicators (U-value) but not to take them as the law. So as the criteria for cost-effectiveness it has implications in the way industry builds. So all this has to be taken into consideration in fixing the right level.

Mr. Wolfgang Jilek, Austria;

- New legislation to limit energy demand shall be within a certain limit as open as possible and as well flexible to the constructors. They must to be able to choose their way to construct it. Planners should then follow this development and react with their design.

Mrs. Edita Meskauskiene, Lithuania;

- Construction products directive: The Commission services (DG TREN / DG ENTR) should cooperate to get quicker solutions.

Mr. Tom Eisschen, Luxembourg;

- Asks whether DG TREN considers specifying U-values at the EU level?

Mr. Martin Elsbergers in reply to Luxembourg;

- This could be one of the options. However, it would be very challenging to do it.
- The values have to be tailored to the specific outdoor conditions plus take into consideration some national boundary conditions.
- One unified U-value for all over Europe will not be possible and is no point of discussion.
- But at least some kind of principle should be found where there is a basis fixed (e.g. same cost-effectiveness standards of U-values of neighbor-countries with the same climate conditions).
- More transparency is needed

Mr. Kevin O'Rourcke, Ireland;

- Revision of building regulations was made 2 years ago, come into force in 2008
- Use of electricity is quite big and it is not controlled by building regulation in Ireland
- Energy intensity and CO2 emissions are greater in non-residential sector. Sometimes the use of the buildings is unclear in this sector – more methodological studies and approaches are needed.

Interventions by different stakeholders:

Mr. Chris. Hamans, EURIMA, the European Insulation Manufacturers Association (www.eurima.org);

Potential of recasting of the EPBD is big to use it as a motor for EU Energy policy. ECOFYS-Study Nr. 7 says: that costs if nothing is to be done for new residential buildings are extremely high and around EUR 1 billion / per year will be wasted (a barrel of oil: USD 100). Support of a revised EPBD with minimum performance requirements in their proper context:

- Integrated Concept of a) total energy efficiency and b) components is the most cost effective one
- Performance requirements as close as possible at economical optimum.
- Minimum performance requirements ensure that life cycle costs for energy consumption and energy investment are optimized in buildings.
- Priority shall be given to the building envelope: most cost-effective measures for maximum demand reduction.
- Individual minimum performance requirements for roofs, walls, floors and windows are basic in the design for calculating total heating and cooling demand (kWh/M2/yr) requirements for buildings.
- Minimum component and integrated building envelope requirements can be applied to both new buildings and to renovations.

Mrs. Kerstin Kallmann , FEDARENE, the European Federation of Regional Energy and Environment Agencies (www.fedarene.org);

Fedarene supports the recasting of the EPBD, especially the fixing of minimum standards as presented from the European Commission. Fedarene will send a summary of ideas of the European Member regions in the following weeks to the European Commission.

- Revision of EPBD setting minimum performance requirements is supported
- The regional and country framework (climate) shall be taken into account.
- The refurbishment rates shall be improved.
- Public building shall serve as an example.
- Consultation with those affected is needed.

Mr Derk Welling, ICSC, the International Council of Shopping Centers;

- The Shopping Centers support the recasting of the EPBD but the Shopping Centers want be able to compare with others
- Energy consumption must be monitored and made comparable.
- It must be clear which amount of energy the shops consume.
- Only 30% of retailers are aware of EPBD, more information is needed because they must apply for energy savings (not the developers or investors)
- To set minimum energy performance requirements for shopping centers is very difficult because there is a big variety of energy consumption in different types of shops (e.g. energy use of groceries higher than for clothes shops) and regions.
- That would produce costs for the investor but the retailer will benefit. Contracts could manage this but legislation is needed in the background to set this into force.
- Minimum requirements should be on component basis, not all of the building because only the shell is rented not the content and chattels
- Need of legal requirements to put penalties. Set minimum requirements to make it visible to the users.

Mr. Jerry Percy, RICS, the Royal Institution of Chartered Surveyors (www.rics.org);

Conclusion: It can be done:

- Harmonization of approach but not of requirements
- Overall buildings approach is needed
- Overall comprehensive understanding of cost and value
- Consent required not compromise
- EU can set the standards but it is up to MS to achieve them

Mrs. Marleen Spiekman; TNO, the Netherlands Organization for Applied Scientific Research;

- To set minimal requirements for all MS is very difficult because of the diversity of MS
- The definition of requirement is much more easy than the implementation
- Two approaches: a) setting the requirements on the level of the whole building (optimal freedom of choice, cost effectiveness, stimulation of innovation); requirements on the level of building's needs; b) requirements on component level.
- Focus should lie not on rules but on benchmarking in comparing with neighbor MS.

- Quality control is important and the monitoring of it
- The target should be: Energy saving.

Conclusions by the moderator Mr. Martin Elsberger:
The recasting of the EPBD with its obligations must be organized very well in the MS.
Holistic view of energy use is important. The tenant/owner problem is remarked as a cost-benefit problem. Benchmarking system could be one good choice to set comparability in between MS. Neighbor MS could compare their costs and effectiveness of measures.

PART 5 – FISCAL AND FINANCIAL INCENTIVES

Presentation: Taxation and fiscal incentives

Mr. Alexander Wiedow, **Director at DG Taxation and Customs Union**

Background:

- Taxation or fiscal incentives are proved and tested instruments to promote non-popular aims in the EU market.

Objectives:

- What do we want to achieve and whom do we want to address?
- Change/promote behavior by correcting market

Examples:

- Consumer taxes, Direct taxation, other taxes/charges, direct subsidy

Conclusions:

- Lowering Consumer taxes (e.g. VAT) could boost consumption but least good instrument because of wide and unspecific target group
- Direct taxation can in some cases be appropriate
- Other taxes/charges are potential candidates
- Direct subsidy is in general easy to target, hardly disadvantages, so that could be a good instrument,

Barriers:

- Need to be financed
- Complicates administration
- Other aspects to be taken into account:
- lack of fiscal coherence; attention on contradictorily signals/messages
- Incentives may lead to higher taxation in another area (e.g. investment made – higher value for property tax; problem also: higher rentals!)

Presentation: Financial measures to support the realization of the energy efficiency potential of the buildings sector in Central and Eastern Europe

Mr. Richard Jones, **Principal Policy Manager, European Bank for Reconstruction and Development (EBRD).**

Background:

- Financial measures to support the realization of the energy efficiency potential of the buildings sector in Central and Eastern Europe trough ESCOs (municipal sector), commercial banks (residential sector) or other mechanisms
- Members: 9 MSs, 6 candidates (Western Balkan), 12 FSU countries (including Russia and Mongolia)

- Major Problem: High energy intensity of buildings

Objectives:

- Information, technical assistance, reducing barriers, force investments; complying with EU legislation (e.g. EPBD)

Examples:

- ESCOs (Lender – ESCO - Energy End user – Lender)
- Commercial banks (EBRD – participating bank (several options) – Subborrower) Donor Funded Contract; Consultation of the bank; Independent Energy Expert
- Others: Energy efficiency Revolving Funds, Guarantee funds, Green mortgages, PPP, Green Investment Schemes

Conclusions:

- Key is better information, sensitization, marketing

Barriers:

- Misunderstanding of financiers (client has enough expertise to assess optimal technology alternative; modern facilities do not need any EE technical assistance; EE increases costs; EE has poor profitability)
- Multiple stakeholders have different knowledge and awareness of the problem

Presentation: KfW's best practice experience in Germany and its financing/advisory initiatives in the new Member States

Mrs. Tatjana Bruns, **Senior Project Manager at the German KfW Bankengruppe**.

Background:

- The KfW Bank is the biggest Promotional bank in Europe with a total balance sheet of about 400 billion € (Sept. 07) and around 4.000 employees.

Objectives:

- Promotion of housing, environment and climate protection with long term loans with favorable or subsidized interest rates (e.g. maturity 30 years, interest rate 10 years fixed, lowest interest rate around 2%)
- The higher the effect of Energy efficiency is the higher incentives should be, lower interest rates promotes more investment

Examples:

- Ecological construction program for new buildings (innovations in low energy, passive energy, model-projects, renewable energy-systems etc.)
- housing modernization program (functional value, energy efficiency investments)
- CO_2-building rehabilitation program (predefined investment to reduce CO_2 emissions (objective: level of a new building)

Conclusions:

- Energy Efficiency measures activated 40 billion € of loans in around 2,5 million homes (1990-2005), Reductions of 1 million tons of CO_2 emissions (2006), 220.000 jobs safeguarded (2006)
- 2007-2013: Structural funds used for housing modernization and energy efficiency measures within financial instruments (loans, guarantees, risk capital) in new MSs

Implementations of loan funds have advantages compared to distribution of grants (e.g. creating revolving funds, assume risks to private investors, etc.)

Panel discussion

Interventions by Member States:

Mr. Kevin O'Rourcke, Ireland;

- Outlining the philosophy behind different options for tax breaks or subsidies linked with the challenge of upgrading the existing building stock the question is: if a) you set a regulatory for new buildings this excludes any subsidy or tax breaks because you cannot be incentivised to comply with what is a mandatory requirement; b) one transmit this logic to the building stock: how is it then possible to persuade the ministries of finance for tax breaks or subsidies?
- The whole question of compatibility of regulation and incentives is a potential point of tension which needs to be resolved.

Mr. Alexander Wiedow, Director at DG Taxation and Customs Union:

- Agrees with Mr. O'Rourcke but situations might be different if the regulation is not catching all the situations at one go at one time. This is probably the case if you introduce minimum standard requirements for buildings of a certain age. You cannot have improvements happen from one to another year. A timeframe is needed to come forward with the standards at a given time.
- There is room for fiscal incentives in order to push the people in the earliest moment rather than wait for the latest moment.
- Tax incentives could be very helpful in forcing people to invest earlier and not wait until the expiration of this time frame.

Interventions by different stakeholders:

Mr. Paul Louis Marty, CECODHAS, the European Liaison committee for social housing (www.cecodhas);

CECODHAS agrees to the importance of the Directive and its recasting. But the recast should have the following requirements:

- Balance of success/failure of impacts of the existing Directive
- Differentiation of New and existing buildings
- Financing one of most important requirements (Structural funds not open for old MSs)
- Directive should have simple not bureaucratic, reliable concerted methods for all MSs, the positions of experts are desirable
- All involved persons should be trained
- Outcomes of the Directive should be evaluated with Follow-up

Mr. Michael MacBrien, European Property Federation (www.epf-fepi.com);

Represents 800 billions € of Real Estate Management. He stressed on the importance of this sector:

- Strongly supports the suggestions of the EU-Commission for the recast of the EPBD. He stressed on the point that everybody now is pulling together where only five years before the situation was different.
- Reason for that: a) Members woke up that they could play a central role in this; b) beginning of the realization of the fact that money could be made out of this
- Now it is a perfect time to act!

Mr. Andrew Warren, EuroACE, the European Alliance of companies for energy efficiency in buildings (www.euroace.org);

- Focus on "Lowest energy buildings"

- Removal of the 1000m2 threshold.
- Refurbishment must result in increased EE (best components)
- MS should develop financial instruments (total unity is not possible).
- Stricter enforcement oversight within MS
- Harmonization of training program for Inspectors.
- Harmonization of certification process for non-residential buildings
- Inspections should cover entire system (not only boilers).
- EPC permanently displayed in buildings visited by public. When certificate is received the tenant should know what to do with it.

Mr. John Goodall, FIEC, the European Construction Industry Federation (www.fiec.org);

- Budget resources should quickly be transmitted to the sector for the realization of energy efficiency measure
- Refurbishment is the most effective and cost-efficient solution to save the planet
- Deceleration of the economic system is not suspected. Directive has not enough bite
- Proposals: a) reduce the level of VAT for energy saving products, b) make energy more expensive for them who use more of it, c) built new system with reduction of property taxes for those who invest in energy saving

Mr. Constant van Aerschot, World Business Council for Sustainable Development (WCBSD);

- There is variable interest by country regarding energy efficiency of buildings
- Environmental impact underestimated, while
- Cost premium for the realization of these measures is overestimated
- No direct relation have been established between building cost and energy efficiency
- Energy bill is often not significant compared to other costs for commercial buildings
- the most important aspects are: provision of financing, changing of the behavior, applying holistic approach. a) the incentives for owners should point on the relation owner/tenant which is a legal problem not a problem of the incentives, b) costs (cash-flow) is still priority Nr.1, c) incentives should be made by steps (at the beginning: more money, at the end: less money).

Mr. Stratos Paradias, President of UIPI (International Union of Property Owners);

Represents property owners of 23 Member States

- There is still a lot of confusion for European property owners and advantages of a recast of the EPBD are not to be seen. What is seen is only: new regulations and new legislation with a lot of financial impacts on them.
- But: Where is the money for that? Where is a realistic answer on the question of concrete meanings for subsidies..
- He reclaimed not to be able to give an answer to the European people how the EU will help them to shoulder impacts of new legislation.
- Only one big question: How can one really lower or abolish the 1000m^2-treshold if one does not give a concrete answer on the incentives for the people of Europe!

Mr. Christian Kornwall, **World Business Council for Sustainable Development** made conclusions on the last session:

- Regarding taxation: Using taxation and financial incentives is way to promote or to make change in behavior, to correct market failure. That is very clear. Taxing the bad things and rewarding the good products is a very carrying idea. Good things to do: direct subsidy as a very efficient way to reach out and have effects while VAT was not as good. And the direct taxation had the whole question of burden issue carry on it that you have to take into account as well as there could be the lack of coherences in taxing systems if you just add new taxes.
- Regarding EBRD: interesting to see their way of promoting and reaching out into their market is based on policy dialogue, on demonstration of products, skill improvements, technical support but also that they need new business models. The ESCOs in which we may have put hope in are having mixed results in this region which we also found in our approach in other parts of the world.
- Regarding KfW: we could see how effective money can actually promote and mobilize other money and create private public partnerships and other types of models. We took note on your record of supporting 2.5 millions of homes.

CONCLUSIONS BY THE EUROPEAN COMMISSION – DG TREN

Mrs. Pirjo-Liisa Koskimäki, Head of unit, DG TREN concluded the conference:

It has been a successful day and there are many good ideas which we might be able to take on board.

- Nobody was opposing that we should take the climate change very seriously, and we should act for the improvement of energy efficiency. The sector of buildings needs to play a key role here. This is a challenging task.
- There is general support on working further on the Buildings Directive. But: MS should continue their efforts for proper transposition and implementation of the existing Directive.
- We need to clarify, simplify the current Directive as much as possible, also introducing some clarification regarding standards.
- Refurbishment of the building stock is still the most effective and cost-efficient solution for new energy standards. Buildings over 1000 m2 represent only 28% of total EU buildings stock. The problem of the 1000m2 threshold has to be somehow addressed. We are aware that if we remove the threshold the burden put on house owners should be portable.
- For the energy performance certificates there is support for their enforcement. They could play more active and operational role to lead to improved energy efficiency.
- Minimum energy performance requirement. We need kind of clarification and possibly some kind of benchmarking.
- Inspections – we need encouragement to better use of inspections, immediate energy efficiency results can be found here. A good training for inspectors is needed.
- Financing incentives leading to energy efficiency measures. Macro and micro economic reflections they are not always totally identical but we should do our best to come to good proposal there. Of course fully respecting that taxation is remaining in a very large amount in the competences of MSs.