

Implementation of the cost-optimal methodology according to the EPBD recast

The EPBD recast states that Member States (MS) must ensure that minimum energy performance requirements for buildings are set “with a view to achieving cost-optimal levels”. The cost-optimal level must be calculated in accordance with a comparative methodology.



Kim B. Wittchen
Senior Researcher
Danish Building Research Institute, SBI
Aalborg University, Denmark
kbw@sbi.dk



Kirsten Engelund Thomsen
Senior Researcher
Danish Building Research Institute, SBI
Aalborg University, Denmark
ket@sbi.dk

The Commission has established a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements. A proposal for the framework was adopted by the European Commission on **16 January 2012**. This framework has to be accepted by the European Parliament and the Council as both have the right to oppose within 2 (+2) months.

The Council voted by **1 March 2012** and there were no objections, so it seems that the methodology will soon be approved and will come into force after being published in the official Journal.

There is a legal document - the Regulation, based on a CEN package of standards, which is accompanied by Guidelines outlining how to apply the framework for calculating the cost-optimal performance level.

The comparative methodology framework requires MS:

- To define reference buildings that are characterised by and representative of their functionality and climate conditions. The reference buildings must cover residential and non-residential buildings, both new and existing ones;

- To define energy efficiency measures that are assessed for the reference buildings. These may be measures for buildings as a whole, for building elements, or for a combination of building elements;
- To assess the final and primary energy need of the reference buildings as well as the reference buildings with their defined energy efficiency measures applied, and
- To calculate the costs (i.e. the net present value) of the energy efficiency measures during the expected economic life cycle applied to the reference buildings, taking into account investment costs, maintenance and operating costs, as well as earnings from energy produced.

MS are requested to report to the Commission all input data and assumptions used for these calculations and the results of the calculations for two perspectives: societal level or the level of the private investor. MS can then choose which one to apply at the national or regional level. MS need to submit their reports to the Commission at regular intervals of maximum five years, with the first report due by **June 2012** according to the Recast. **This date will be extended** until one year after the date of publication of the regulation in the official Journal, i.e.

till March 2013, because, according to the Directive, the framework should have been ready in June 2011.

The main purpose of the framework is to detect gaps between the cost-optimal level and the national energy performance requirements in force. It is not the purpose to harmonise requirements and not the purpose to compare across MS.

If the result of the benchmarking performed shows that the minimum energy performance requirements in force are significantly less energy efficient than cost-optimal levels of minimum energy performance requirements (i.e. exceeding 15%), the MS need to explain this difference. In case the gap cannot be justified, a plan needs to be developed by the respective MS, outlining appropriate steps to reduce the gap significantly by the next review of the energy performance requirements.

The new procedures under the Lisbon treaty require the Commission to consult with MS experts and other stakeholders, but the Commission has the sole responsibility of taking the final decision on the delegated act. The Council of the European Parliament cannot amend the text, but only accept or reject it in its entirety. The Commission held two expert meetings on a cost-optimal methodology framework on 16 March and 6 May 2011 respectively.

The purpose of the meetings, which was attended by participants from MS and other stakeholders, was twofold: Firstly to obtain experts' input on key scope and methodology issues and secondly to get a better understanding of current cost effectiveness methodologies applied in the MS. A questionnaire with 23 questions was sent to the experts ahead of the first meeting, covering the topics:

- The need for consistency between the nearly zero energy target and the cost-optimal requirements;
- The degree of detail needed for the reference buildings as well as other input data;
- The perspective for cost optimality (societal level or the level of the private investor);
- Cost optimality at the building element level;
- The need to include lighting systems for the non-residential sector;
- Energy price development trends and their best data sources;

- The need to address demolition as part of the methodology.

At the second meeting the Joint Research Centre of the Commission presented the draft reporting template, which addresses the following main elements:

- Reference buildings (e.g. key characteristics, how they are defined, new vs. existing, technical details);
- Type of energy efficiency measures;
- Calculation of energy demand (e.g. for heating, cooling, etc., per energy carrier, etc.);
- Global cost calculation (e.g. sensitivity analysis, etc.)
- Cost-optimal level for reference buildings;
- Comparison.

A representative from the Concerted Action EPBD reported that four main issues for discussion were needed:

- The private vs. societal perspective;
- Cost optimality being a range/curve and not a single point;
- Reference buildings are difficult to identify, primarily for 3 existing buildings;
- The suggestion that costs and prices should be identified/set by MS.

Furthermore, the Concerted Action EPBD proposed that the approach should be not to go into too much detail at this point in time; the Concerted Action can be used to gain knowledge and evaluate the methodology; to perform sensitivity studies to determine dominant parameters in cost-optimal analysis; and adapt and adjust the approach based on knowledge gained.

A report from the Concerted Action EPBD "Cost-optimal levels for energy performance requirements" is available on: <http://www.epbd-ca.eu> or <http://www.buildup.eu/publications/22209>. 3E