Commission Delegated Regulation (EU) No 244/2012 of 16 January 2012 supplementing Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings by establishing a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements (Text with EEA relevance)

COMMISSION DELEGATED REGULATION (EU) No 244/2012

of 16 January 2012

supplementing Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings by establishing a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings[(1)], and in particular Article 5(1) thereof,

Whereas:

(1) Directive 2010/31/EU requires the Commission to establish by means of a delegated act a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements.

(2) It is the responsibility of Member States to set minimum energy performance requirements for buildings and building elements. The requirements must be set with a view to achieving cost-optimal levels. It is up to the Member States to decide whether the national benchmark used as the final outcome of the cost-optimal calculations is the one calculated for a macroeconomic perspective (looking at the costs and benefits of energy efficiency investments for the society as a whole) or a strictly financial viewpoint (looking only at the investment itself). National minimum energy performance requirements should not be more than 15 % lower than the outcome of the cost-optimal results of the calculation taken as the national benchmark. The cost-optimal level shall lie within the range of performance levels where the cost-benefit analysis over the lifecycle is positive.

(3) Directive 2010/31/EU promotes the reduction of energy use in the built environment, but also emphasises that the building sector is a leading source of carbon dioxide emissions.

(4) 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[(2)] provides for the establishment of minimum energy performance requirements for such products. When setting national requirements for technical

building systems, Member States must take into account the implementing measures established under this Directive. The performances of construction products to be used for the calculations under this Regulation should be determined in accordance with the provisions of Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC[(3)].

(5) The objective of cost-effective or cost-optimal energy efficiency levels may, in certain circumstances, justify the setting by Member States of cost-effective or cost-optimal requirements for building elements that would in practice raise obstacles for some building design or technical options as well as stimulate the use of energy-related products with better energy performance.

(6) The steps that comprise the comparative methodology framework have been set out in Annex III to Directive 2010/31/EU and include the establishment of reference buildings, the definition of energy efficiency measures to be applied to these reference buildings, the assessment of the primary energy demand of these measures and the calculation of the costs (i.e. net present value) of these measures.

(7) The common framework for the calculation of the energy performance as established in Annex I to Directive 2010/31/EU applies also to the cost-optimal framework methodology for all its steps, in particular the step of the calculation of the energy performance of buildings and building elements.

(8) For the purpose of adapting the comparative methodology framework to national circumstances, Member States should determine the estimated economic lifecycle of a building and/or building element, the appropriate cost for energy carriers, products, systems, maintenance, operational and labour costs, primary energy conversion factors, and the energy price developments on this point to be assumed for fuels used in their national context for energy used in buildings, taking into account the information provided by the Commission. Member States should also establish the discount rate to be used in both macroeconomic and financial calculations after having undertaken a sensitivity analysis for at least two interest rates for each calculation.

(9) To ensure a common approach to the application of the comparative methodology framework by the Member States, it is appropriate for the Commission to establish the key framework conditions needed for net present value calculations such as the starting year for calculations, the cost categories to be considered and the calculation period to be used.

(10) Establishing a common calculation period does not conflict with Member States' right to fix the estimated economic lifecycle of buildings and/or building elements since the latter could both be longer or shorter than the calculation period fixed. The estimated economic lifecycle of a building or building element has only limited influence on the calculation period since the latter is determined rather by the refurbishment cycle of a building, which is the period of time after which a building undergoes a major refurbishment.

(11) Cost calculations and projections with many assumptions and uncertainties, including for example energy price developments over time, are generally accompanied by a sensitivity analysis to evaluate the robustness of the key input parameters. For the purpose of the cost-optimal calculations, the sensitivity analysis should at least address the energy price developments and the discount rate; ideally the sensitivity analysis should also comprise future technology price developments as input for the review of the calculations.

(12) The comparative methodology framework should enable Member States to compare the results of the cost-optimal calculations with the minimum energy performance requirements in force and to use the result of the comparison to ensure that minimum energy performance requirements are set with a view to achieving cost-optimal levels. Member States should also consider setting minimum energy performance requirements at cost-optimal level for those building categories where so far no minimum energy performance requirements exist.

(13) The cost-optimal methodology is technologically neutral and does not favour one technological solution over another. It ensures a competition of measures/packages/variants over the estimated lifetime of a building or building element.

(14) The results of the calculations and the input data and assumptions used are to be reported to the Commission as stipulated in Article 5(2) of Directive 2010/31/EU. These reports should enable the Commission to assess and report on the progress made by Member States towards reaching cost-optimal levels of minimum energy performance requirements.

(15) To limit their administrative burden, it should be possible for Member States to reduce the number of calculations by establishing reference buildings that are representative of more than one building category, without affecting Member States' duty under Directive 2010/31/EU to set minimum energy performance requirements for certain building categories,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter and scope

In accordance with Article 5 of, and Annexes I and III to, Directive 2010/31/EU, this Regulation establishes a comparative methodology framework to be used by Member States for calculating cost-optimal levels of minimum energy performance requirements for new and existing buildings and building elements.

The methodology framework specifies rules for comparing energy efficiency measures, measures incorporating renewable energy sources and packages and variants of such measures, based on the primary energy performance and the cost attributed to their implementation. It also lays down how to apply these rules to selected reference buildings with the aim of identifying cost-optimal levels of minimum energy performance requirements.

Changes to legislation: *There are currently no known outstanding effects for the Commission Delegated Regulation (EU) No 244/2012. (See end of Document for details)*

Article 2

Definitions

In addition to the definitions in Article 2 of Directive 2010/31/EU, the following definitions shall apply noting that for the calculation at macroeconomic level applicable charges and taxes are to be excluded:

(1) *Global cost* means the sum of the present value of the initial investment costs, sum of running costs, and replacement costs (referred to the starting year), as well as disposal costs if applicable. For the calculation at macroeconomic level, an additional cost category *costs of greenhouse gas emissions* is introduced;

(2) *Initial investment costs* mean all costs incurred up to the point when the building or the building element is delivered to the customer, ready to use. These costs include design, purchase of building elements, connection to suppliers, installation and commissioning processes;

(3) *Energy costs* mean annual costs and fixed and peak charges for energy including national taxes;

(4) *Operational costs* mean all costs linked to the operation of the building including annual costs for insurance, utility charges and other standing charges and taxes;

(5) *Maintenance costs* mean annual costs for measures for preserving and restoring the desired quality of the building or building element. This includes annual costs for inspection, cleaning, adjustments, repair and consumable items;

(6) *Running costs* mean annual maintenance costs, operational costs and energy costs;

(7) *Disposal costs* mean the costs for deconstruction at the end-of-life of a building or building element and include deconstruction, removal of building elements that have not yet come to the end of their lifetime, transport and recycling;

(8) *Annual cost* means the sum of running costs and periodic costs or replacement costs paid in a certain year;

(9) *Replacement cost* means a substitute investment for a building element, according to the estimated economic lifecycle during the calculation period;

(10) *Cost of greenhouse gas emissions* means the monetary value of environmental damage caused by CO_2 emissions related to the energy consumption in buildings;

(11) *Reference building* means a hypothetical or real reference building that represents the typical building geometry and systems, typical energy performance for both building envelope and systems, typical functionality and typical cost structure in the Member State and is representative of climatic conditions and geographic location;

(12) *Discount rate* means a definite value for comparison of the value of money at different times expressed in real terms;

(13) *Discount factor* means a multiplicative number used to convert a cash flow occurring at a given point in time to its equivalent value at the starting point. It is derived from the discount rate;

(14) *Starting year* means the year on which any calculation is based and from which the calculation period is determined;

(15) *Calculation period* means the time period considered for the calculation usually expressed in years;

(16) *Residual value* of a building means the sum of the residual values of the building and building elements at the end of the calculation period;

(17) *Price development* means the development over time of prices for energy, products, building systems, services, labour, maintenance and other costs and can be different from the inflation rate;

(18) *Energy efficiency measure* means a change to a building resulting in a reduction of the building's primary energy need;

(19) *Package* means a set of energy efficiency measures and/or measures based on renewable energy sources applied to a reference building;

(20) *Variant* means the global result and description of a full set of measures/packages applied to a building that can be composed of a combination of measures on the building envelope, passive techniques, measures on building systems and/or measures based on renewable energy sources;

(21) *Subcategories of buildings* means categories of building types that are more disaggregated according to size, age, construction material, use pattern, climatic zone or other criteria than those established in Annex I(5) to Directive 2010/31/EU. It is for such subcategories that reference buildings are generally established;

(22) *Delivered energy* means energy, expressed per energy carrier, supplied to the technical building system through the system boundary, to satisfy the uses taken into account (heating, cooling, ventilation, domestic hot water, lighting, appliances, etc.) or to produce electricity;

(23) *Energy needed for heating and cooling* means heat to be delivered to or extracted from a conditioned space to maintain intended temperature conditions during a given period of time;

(24) *Exported energy* means energy expressed per energy carrier delivered by the technical building system through the system boundary and used outside the system boundary;

(25) *Conditioned space* means space where certain ambient parameters such as temperature, humidity etc. are regulated by technical means such as heating and cooling etc.;

(26) *Energy from renewable sources* means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases.

Article 3

Comparative methodology framework

1 When calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements, Member States shall apply the comparative methodology framework laid down in Annex I to this Regulation. The framework prescribes calculation of