

Revision of the EPBD: Possible changes and additions Possible impact on renewable energy systems

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Revision of the EPBD

- ▶ The European Commission published a proposal for the revision of the « Energy performance of buildings » Directive (2010/31/EU)
 - ▶ Part of the « Clean energy » package, 30 Nov. 2016
- ▶ This presentation is only about the proposals from the European Commission
- ▶ It is not yet possible to know:
 - ▶ the final content of a revised EPBD
 - ▶ the date at which it shall enter into force



Scope and Objectives of the EPBD

Energy performance of:

- ▶ New and existing buildings
- ▶ Technical building systems, whenever installed, replaced or upgraded systems

Technical Building System (art. 2)

Definition

EC proposal: to add red words

Technical equipment for space heating, space cooling, ventilation, domestic hot water, built-in lighting, building automation and control, on-site electricity generation, on-site infrastructure for electro-mobility, or a combination of such systems, including those using energy from renewable sources, of a building or building unit

Revision of the EPBD (EC proposal)

- ▶ What might remain:
 - ▶ Member States must adopt:
 - ▶ **Methodology to calculate** the energy performance of buildings (art.3)
 - ▶ **Minimum energy performance requirements** for new and renovated buildings, reviewed at least every 5 years, with a view to achieve cost-optimal levels (art.4, 5 and 7)
 - ▶ New buildings: **nearly-zero energy by the end of 2020** (end 2018 for buildings occupied and owned by public authorities) (art.9)
 - ▶ **Energy performance certificates** (art.11-13, 17,18)

Revision of the EPBD (EC proposal)

- ▶ What might disappear:
 - ▶ **Feasibility study** of the use of **high-efficiency alternative systems** (art. 6,7)

Feasibility study before construction

EPBD 2010 (art. 6,7)

- ▶ For new buildings, Member States shall ensure that, before construction, the technical, environmental and economic feasibility of high-efficiency alternative systems is considered and taken into account
 - ▶ Decentralised energy supply systems based on energy from renewable sources
 - ▶ Cogeneration
 - ▶ District heating and/or cooling
 - ▶ Heat pumps

Revision of the EPBD (EC proposal)

- ▶ What might change:
 - ▶ **Inspection** of heating and air conditioning systems (art. 14, 15)

Inspection of heating and air-conditioning systems (art. 14 & 15)

- ▶ EPBD 2010:
 - ▶ heating >20 kW, air-conditioning >12 kW
- ▶ EC proposal:
 - ▶ Non-residential buildings: primary energy use > 250 MWh
 - ▶ Residential buildings with a centralized technical building system with a rated output > 100 kW
 - ▶ No more indication on inspection frequency depending on type or heat output of the heating system, or on monitoring control system in place

Alternative to inspection for non-residential buildings (EC proposal)

- ▶ Requirement for a building automation and control (BAC) system capable of:
 - ▶ (a) continuously monitoring, analysing and adjusting energy usage;
 - ▶ (b) benchmarking the building's energy efficiency, detecting losses in efficiency of technical building systems, and informing the responsible person about opportunities for energy efficiency improvement;
 - ▶ (c) allowing communication with connected technical building systems and other appliances inside the building, and being interoperable with technical building systems.

Alternative to inspection for residential buildings (EC proposal)

- ▶ Requirement for buildings equipped:
 - ▶ (a) with continuous electronic monitoring that measures systems' efficiency and inform building owners or managers when it has fallen significantly and when system servicing is necessary, **and**
 - ▶ (b) with effective control functionalities to ensure optimum generation, distribution and use of energy

Revision of the EPBD (EC proposal)

- ▶ What might be new:
 - ▶ Requirements for Member States to:
 - ▶ Describe their calculation methodology following the framework of the national annexes of the EPB standards
 - ▶ When putting in place a database of EPCs, include actual energy consumption of buildings frequently visited by public, and allow tracking of actual consumption of all buildings
 - ▶ Express energy performance in kWh/m².y of primary energy

Calculation of EPB (Annex I)

EPBD 2010:

- › The energy performance of the building shall reflect the **heating and cooling energy needs**
- › Indicator of primary energy use

EC proposal:

- › The energy performance of the building shall reflect **its typical energy use** for heating, cooling, domestic hot water, ventilation and lighting
- › Indicator of primary energy use in **kWh/m².y**
- › Use of primary energy factors based on national or regional annual weighted averages

Revision of the EPBD (EC proposal)

- ▶ What might be new:
 - ▶ Requirements for Member States to:
 - ▶ Link **financial measures for energy renovation** to the energy savings
 - ▶ Ensure pre-cabbling of each parking space for **recharging points for electric vehicles**, and make mandatory one recharging point for every ten parking spaces by 2025

Revision of the EPBD (EC proposal)

- ▶ What might be new:
 - ▶ Requirement for Member States to:
 - ▶ Ensure that the **overall performance** of installed, replaced or upgraded **technical building systems** is **assessed, documented and passed on to the building owner**, remaining available for compliance verification and input data for future EPCs
 - ▶ A so-called « Smartness indicator »

Smartness Indicator (EC proposal)

The Commission is empowered to adopt delegated acts ... with a **definition** of 'smartness indicator' and with the **conditions under which the 'smartness indicator' would be provided as additional information** to prospective new tenants or buyers.

Smartness Indicator (EC proposal)

The smartness indicator shall cover **flexibility_features**, enhanced functionalities and capabilities resulting from **more interconnected and built-in intelligent devices** being **integrated into** the conventional technical building systems.

The features **shall enhance the ability** of occupants and **the building itself to react to comfort or operational requirements**, take part in demand response and **contribute to the optimum, smooth and safe operation of the various energy systems and district infrastructures** to which the building is connected.

Smartness Indicator

No definition yet

- For the building itself?
- For the technical building systems?

No assessment method(s)

Smartness Indicator

Are heating and cooling systems ready?

- ▶ Some heat pumps are already “smart grids ready”
 - ▶ Limit use according to scenarios from energy suppliers (shift on peak demands, night/day prices,...) with no discomfort for the end-user
 - ▶ Shift from electricity network to self-production
- ▶ Ecodesign regulation gives benefit to water heaters with smart control
 - ▶ Learn from the actual use of domestic hot water to increase energy efficiency

Smartness Indicator

Are heating and cooling systems ready?

- ▶ More and more manufacturers provide connected products
 - ▶ For maintenance
 - ▶ Apps for the end-user
 - ▶ temperature and time settings
 - ▶ follow-up of the energy consumption



Development of home automation

- ▶ Connecting all technical building systems

Revision of the EPBD (EC proposal): possible impact for renewable energy systems

- Definition of technical building systems: **words added ?**
- Feasibility study of the use of high-efficiency alternative systems : **might disappear?**
- Inspection of heating and air conditioning systems: **might change?**
- Energy performance in **kWh/m².y** of primary energy use?
- **Overall performance** of installed, replaced or upgraded technical building systems **assessed, documented** and passed on to the building owner?
- **Smartness indicator?**

Thank you for your attention

