

## EPEE POSITION PAPER

# Reviews of the EPBD, EED, and RED: Making Energy Efficiency in buildings a reality

EPEE, representing the heating, cooling and refrigeration industry in Europe, strongly supports the “energy efficiency first” principle which is essential to achieve the EU’s energy and climate goals.

Heating, cooling, and refrigeration have been identified and projected in the long-term as the EU’s biggest energy-consuming sector and EPEE members’ technologies are very well placed to significantly increase energy efficiency, limit energy demand and reduce energy consumption.

EPEE therefore welcomes the upcoming reviews of the Energy Efficiency Directive (EED), the Energy Performance of Buildings Directive (EPBD), and the Renewable Energy Directive (RED), in interaction with the new energy market design initiative. EPEE calls upon decision-makers to adopt a holistic approach, leveraging synergies between the various pieces of legislation.

EPEE is in particular looking forward to higher and binding Energy Efficiency targets of at least 30% and outlines in this paper concrete proposals that will help tapping the huge potential for efficiency gains in the building sector:

- More ambition on a 2050 vision for a near zero energy building stock
- A greater focus on maximising energy efficiency of Technical Building Systems, and requirements for servicing, maintenance and control;
- Enhanced consistency under the different pieces of energy legislation
- A PEF that establishes a solid and coherent bond between various pieces of legislation

## I. More ambition on a 2050 vision for a near zero building stock

EPEE believes the building sector has the biggest energy efficiency gains to offer, towards EU carbon and energy savings targets. Therefore, the EPBD should set a clear vision toward 2050 for a near zero energy building stock – including targets for renovation. These should be set out in the already required national Renovation Strategies, with clear milestones for 2030 and 2040. In addition, the targets expressed in the EPBD and EED should be strengthened. The annual renovation target for the public sector to renovate central-government owned buildings should be broadened to include all public buildings. Public procurement should be set to drive nZEB buildings and efficient Technical Building Systems.

## II. Optimising Technical Building Systems, and requirements for servicing, maintenance and control

Setting minimum energy efficiency requirements is the most obvious solution to increase the energy efficiency of heating and cooling. However, even the most energy efficient products in buildings will not lead to energy savings if they are not properly sized, installed, controlled and maintained. Besides the eco-design related products, many building systems are built on site or amend other systems and do not match the final performance requirements.

Concretely, a [study](#) carried out by the French consultancy Cardonnel Ingénierie shows for instance that the energy consumption of a conventional space heater increases by 10% after 5 years and by 35% after 10 years in the absence of proper maintenance and control, which subsequently results in an increase in CO2 emissions.

It is also essential that legislation takes a holistic view when approaching buildings systems by optimizing the energy performance of Technical Building Systems. Key to optimized Technical Building systems is to ensure effective building automation and control. This does not require invasive renovation measures, pays back quickly and has no lock-in effects. However, despite these obvious benefits, the great potential of optimizing energy performance of Technical Building Systems has not been exploited yet. Basic control functionalities of heating and cooling systems as well as regular service and maintenance are often missing or being neglected, although they could trigger energy savings of over 30% at very low payback times, according to the Cardonnel Ingénierie [study](#).

Energy certification and passive efficiency technologies like insulation are not sufficient to ensure expected energy efficiency due to the rebound effect in the human user behaviour. Heating consumption in similar buildings can vary with a factor 3 dependent on behaviour, according to Kirsten Gram-Hanssen [study](#) on efficient technologies. This is a major parameter to observe and the first step to enable energy friendly behaviour is to ensure metering of system performance and then mitigate deviations by active Technical Building Systems controls.

Strengthening the focus on Technical Building Systems is therefore an efficient way to address these shortcomings and is much needed to overcome well-known market barriers such as split incentives between homeowners and tenants, lack of investment and of awareness. This is true for both, residential and non-residential buildings. Indeed, residential buildings account for 60% to 90% of the floor area, depending on the Member State, and the main energy cost driver is heating.

Finally, EPEE acknowledges that inspections of Technical Building Systems may become redundant if and when continuous monitoring and maintenance are successfully implemented. Nonetheless, as long as this is not the case, inspection requirement, including the need to act on the findings of the inspections, are essential to tap into the huge energy savings potential of buildings and on the performance improvement of these Technical Building Systems. Therefore, servicing and maintenance requirements need to be combined to control obligations of Technical Building Systems in the revised EPBD to ensure the subsequent optimisation of the Technical Building Systems.

A successful implementation of this continuous monitoring and maintenance will enhance on one hand the market uptake of best available Demand Response Technologies per building type with subsequent energy savings and GHG-emission reduction. On the other hand it will unlock the huge potential of energy storage systems due to the increased flexibility of buildings.

EPEE therefore suggests to *(please refer to the Annex for concrete wording suggestions of revised Article 8(5) and (6))*:

- ⇒ Introduce building automation and control requirements in article 8, while ensuring that such control obligations are properly implemented and effectively followed by servicing and maintenance of building equipment. We strongly support that non-residential buildings whose total primary energy use is more than 250 MWh per year are equipped with building automation and control systems by 1 January 2023.
- ⇒ Put greater emphasis in the revised EPBD on proper maintenance and control to improve the energy performance of buildings.

In addition, EPEE welcomes:

- ⇒ Improvements made to Annex I and the addition of Annex IA on the “calculation of ‘Smartness Indicator’ (SI) for Buildings” in the leaked EPBD proposal, which pursue the objective to enable efficient compliance with the energy performance requirements of building systems and to maintain the operational performance of technical building systems above a certain threshold. Considering the introduction of the SI, it is important to continue the work on a more consistent definition which relates the buildings basic characteristics (like thermal mass) to an installed and realised flexibility controlled by the Technical Building Systems.

Lastly, on a related note, buildings are shelters whose primary goal is providing the proper Indoor Environmental Quality (IEQ, i.e. thermo-hygrometric conditions, hygiene level, water quality, lighting, etc.) for persons, animals and various types of processes. It is critical that the building systems guarantee the proper IEQ be calculated at national and regional level in a harmonised, transparent and consistent way.

### **III. Ensuring enhanced consistency under the different pieces of energy legislation to leverage synergies**

When it comes to improving the calculation of the energy performance of buildings, there is a need to ensure consistency under the different pieces of energy legislation to leverage synergies. Indeed, monitoring the performance of technical building systems requires that the energy performance of buildings is valorised in a uniform calculation methodology at national and regional level in a transparent and consistent way. This valorisation in a holistic approach shall trigger ‘competition’ between different technologies, meaning that the approach becomes a key driver for technological innovation. For several building systems like heat pumps and air-conditioning systems, the standards are based on input from the mandatory “Ecodesign” requirements. Test results from the mandatory

product tests (i.e. EN14825) are used as input parameters for the relevant standards, calculating the energy performance for buildings.

In addition, the calculation of the energy performance of buildings should take into account their use of renewable sources of energy. This calculation should be harmonized across different legislations: EPBD, Directive on the promotion of the use of energy from renewable sources and Ecodesign. For example, the Annex VII of the Directive 2009/28/EC on the promotion of the use of energy from renewable sources, establishes a formula to estimate the amount of aerothermal, geothermal or hydrothermal energy captured by Heat Pumps to be considered energy from renewable sources for the purposes of this Directive. This calculation should also apply to nZEBs in EPBD to ensure compliance with minimum renewable energy requirements to meet the nZEB target by 2020 and encourage market uptake of energy efficiency technologies as Heat Pumps.

EPEE pushes therefore for:

- ⇒ The establishment of a unique, mandatory calculation which will be able to classify technologies by the amount of energy captured to be considered from renewable sources across energy legislation being reviewed.

#### IV. The Primary Energy Factor: a solid and coherent bond between various pieces of legislation

EPEE is a strong supporter of both, the “energy efficiency first” principle and the transition of the energy market towards the use of renewable energies. We believe that ultimately, the European energy system needs to be fully based on renewable energies to achieve the EU’s climate and energy goals but clearly this transition needs to go hand in hand with reducing the energy demand if we want to be successful.

EPEE members provide a broad range of technologies in that sense: from solutions using waste heat, for example generated by refrigeration applications in supermarkets, centralised solutions such as district heating and cooling through to decentralised technologies based on renewable energies such as heat pumps, etc. **For a broad based association like ours, the Primary Energy Factor (PEF) plays a key role which needs to strike the right balance between promoting renewable energies, and the “energy efficiency first” principle.** Indeed, we see it as a solid and coherent bond between the Energy Efficiency Directive, the Ecodesign and Energy labelling framework and the Directive promoting renewable energy sources (RES).

**EPEE supports a PEF of 2.0. We believe it will achieve this goal as we need a PEF that:**

- ✓ ...allows for comparability and promotes renewable energies
- ✓ ...promotes the “energy efficiency first” principle
- ✓ ...provides a robust, transparent and up to date bond between energy policies

For more details about EPEE position on the Primary Energy Factor, please refer to [our position paper](#).

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The revision of the EED, setting higher and binding energy efficiency targets, and the revision of the EPBD, in particular a strengthened Article 8 on Technical Building Systems as well as an improved calculation method of the energy performance of building taking into account the smartness of buildings, is a great opportunity and the right track to trigger the urgently needed improvements for the EU to achieve its energy and climate goals. As part and parcel of the EU's energy efficiency acquis, it strongly contributes to a gradual transformation of the EU building stock into "smart" buildings that are integrated in the energy and electricity systems, giving direction to industry for investments into R&D, innovation, smart technologies and digitalisation.

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### **About EPEE:**

The European Partnership for Energy and the Environment (EPEE) represents the refrigeration, air-conditioning and heat pump industry in Europe. Founded in the year 2000, EPEE's membership is composed of 40 member companies, national and international associations.

EPEE member companies realize a turnover of over 30 billion Euros, employ more than 200,000 people in Europe and also create indirect employment through a vast network of small and medium-sized enterprises such as contractors who install, service and maintain equipment.

EPEE member companies have manufacturing sites and research and development facilities across the EU, which innovate for the global market.

As an expert association, EPEE is supporting safe, environmentally and economically viable technologies with the objective of promoting a better understanding of the sector in the EU and contributing to the development of effective European policies. Please see our website ([www.epeeglobal.org](http://www.epeeglobal.org)) for further information.

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## ANNEX 1

EPEE has two drafting suggestions in relation to the revised article 8 (leaked EPBD proposal):

- Update the new Article 8(5)b to “benchmark the building's energy efficiency, detect, and inform the person responsible for the facilities or technical building management about opportunities for energy improvement **including regular service and maintenance of the technical systems connected to it**; and” and update the new Article 8(6)a to “continuously monitor and meter the system efficiency and inform building owners or managers when this efficiency has significantly decreased **to ensure regular system servicing and maintenance**, and”
- Add a subparagraph 8(5)d and 8(6)c along the lines of “**alert the person responsible that maintenance and/or servicing is required or is going to be required in a reasonable time**”.