REHVA
Federation of European Heating, Ventilation and Air Conditioning Associations

EU Policy Advocacy Group

REHVA comments on

Call for evidence: Energy efficiency – legal framework after 2030

Feedback period 19 March 2026 - 16 April 2026

Introduction

➢ Who we are and what we stand for

REHVA is the **European umbrella organisation** representing over 120,000 HVAC design engineers, building services engineers and technicians across 24 European Countries. REHVA members are key actors in the energy transition and support the EU 2050 climate and energy targets.

As REHVA is representing HVAC professionals, we are **not advocating for a single product**, but for a **technology-neutral** level **playing field among the different solutions**.

REHVA members are **contributing** in their **daily professional activities** to reach the **European climate goals** by **designing, installing** and **maintaining** energy systems which are sustainable, energy efficient, cost-effective, lowering emissions and ensuring affordable and healthy buildings for the citizens.

REHVA, together with our national Member associations, are advising policy decision makers at the European and national level, based on professional experience and know-how.

➢ Motivation for REHVA contributions

The future legal framework on Energy efficiency **directly affects the technical core** of REHVA members in their **professional** activities. It might shape future methodologies for assessing building performance, including indicators, calculation methods, and the treatment of HVAC systems, indoor environmental quality, and smart controls.

Therefore, it is necessary that **the framework reflects solid engineering principle**s, focuses on **performance** (not being descriptive) and remains **implementable in practice**. The efficiency framework also **impacts product requirements** through regulations (e.g. Ecodesign).

REHVA comments

➢ Use “energy efficiency” as an “indicator“ but not as a “requirement”

The Energy Efficiency Directive **(EED) article 3** focuses on “**energy efficiency first**” as the basic principle for energy planning, policy and investment decisions to **decide among alternative cost-efficient** energy efficiency measures**.**

In the definition of energy efficiency first (**Article 2, point (18),** of Regulation (EU) 2018/1999), the target is **not the energy efficiency by itself**, but the delivery of **cost-effective end-use energy savings** and by **more efficient conversion**, **transmission**, **distribution, storage** and **use** of energy.
Applied to the HVAC sector, the "energy efficiency first principle" defines a **holistic** approach. Energy efficiency is a means, or a principle, but not a target.

The definition of energy efficiency also depends on the assessment boundaries, the inputs and outputs taken into account, as shown hereafter.

REHVA recommends using "energy efficiency" as an "indicator" or a "principle" to describe a process, but not as a "requirement" in a regulatory framework.

➢ The importance of the boundary conditions when defining efficiency

According to EED article 2(8), "**energy efficiency**" is defined as the **ratio** of **output** of performance, service, goods or energy to **input** of energy.
The assessment boundary for the outputs and inputs, which inputs and outputs are taken into account, is not defined.
But this is essential for the results and the impact.

Example: Heat pump vs thermal solar panel: The "efficiency" a product boundary
A **heat pump** recovers two-thirds of the heat output from the environment, but needs one-third as driving force for the compressor, which is mostly electricity. By counting just the electricity input and the heat output, the "**efficiency" could be 300 % (COP=3).**

But this result was reached without considering the energy needed to **produce the electricity**, and without considering the **recovered heat as energy input**.
Installed in Germany and driven by grid electricity, the **CO2 emissions** in the use phase are around **100g CO2/kWh useful energy**.

In comparison, a **thermal solar panel** has an **efficiency of around 80%,** much less than the heat pump.
But this result is reached by considering the **solar radiation,** which is also **"recovered energy**", as energy input. Otherwise, the **"efficiency" of a solar panel** would be **much higher than 300%.**
The CO2 emission during the use phase of a solar panel is **0 gCO2/kWh**.

The "efficiency" depends on the assessment boundary and the input and outputs taken into account. By addressing "efficiencies" in a modernised energy efficiency framework, the boundary condition (assessment boundary, input, output) should be stated.
This « limited efficiency approach » takes as an assessment boundary only at the product level, with different boundary conditions is dangerous because it does not guarantee reaching the climate targets.

Note: *To not be misunderstood, we consider* ***heat pumps as an excellent technology.*** *They have to play a major role in the electrification of heat. But for a fair comparison between products, the same boundary conditions should be used.*

➢ Consider the adequate boundary conditions in the legal framework and set relevant requirements

Set only the requirement for the targets. Focus on the targets: primary energy (total and non-renewable, CO2 emissions).

The example before illustrates the difficulty of using "efficiency" as an indicator already at the "**product level"**.

When it comes to the **"system level",** where the "efficiency" of the product is **strongly dependent on the running conditions** and **interactions with other products**, **only requirements related to the whole energy chain are relevant.**

HVAC products are, in general, not 'out of the box" products. The **HVAC product's** efficiency" depends largely on the **real running conditions**, on their use and their **system integration**. An "efficient" and affordable system is **not the sum of the best performing "products",** but it is the **result of building optimisation**.

This is the case, for example, for an **electrical boiler**.

According to Ecodesign, an electrical boiler has a very low efficiency (~43%). But an electrical boiler could be very **useful for the thermal storage of renewable electricity** (photovoltaics). It would have significant benefits by contributing to the flexibility of the grid, avoiding peak load in the electricity distribution system, and allowing the use of the grid electricity when prices are low or even negative.

Therefore, even products qualified as **"less efficient"** may be an interesting element in a **system** approach.

European regulation (e.g. Ecodesign) focusing on products efficiency should not harm the possibility of designers and installers to build efficient and affordable systems on-site. For HVAC products, the efficiency should be taken as an indicator (information) but not as a requirement, allowing them to be withdrawn from the market.

For the HVAC sector, only the holistic approach, including the whole energy chain, is relevant.

➢ Ensure real performance of HVAC systems

In addition to defining appropriate assessment boundaries and indicators, the future energy efficiency framework should place stronger emphasis on the actual operational performance of building systems. The experience shows that a significant gap often exists between

calculated and real energy performance, caused by the difference between the real use of a building and the assumed user pattern, which is standardised to be able to compare buildings (and not the users) and by suboptimal system integration, control strategies and operation.

Therefore, policies should promote the measurement and verification of energy performance in operation, supported by continuous monitoring and data-driven optimisation. In this context, building automation and control systems play a key role in ensuring that HVAC systems operate efficiently under real conditions.

Furthermore, proper commissioning, regular re-commissioning and lifecycle optimisation are essential to achieve and maintain the expected energy performance. These aspects require not only appropriate regulatory recognition but also continuous professional training and skills development across the value chain.

Strengthening the focus on the real performance will ensure that energy efficiency policies effectively deliver cost-effective energy savings, contribute to system integration and support the overall decarbonization of the energy system.
Proper commissioning, lifecycle optimisation, and skills development are essential to deliver and maintain expected performance.

➢ Choose the right indicator when setting targets

When setting energy "efficiency" targets as in **EED article 4,** the **impact** of the requirements should be **clearly addressed** because the impacts are not the same if the requirements are set in **primary energy**, **final energy** or **energy needs.**

Article 4 (2) indicates that the Union has a **binding final energy consumption target** and an **indicative primary energy** consumption target (It is not specified if the target in primary energy is in total or non-renewable primary energy).

According to the **EED article 2 (6),** "**final energy"** means the energy **supplied to households** excluding losses due to transmission and distribution. The final energy takes into account the **energy losses within the building**, but **not in the upstream of the building**.

Therefore, to get a better **rating on final energy**, it is sufficient just to move the **energy transformation losses** from **inside** the building to **outsid**e the building, for example, by replacing a boiler with a heat pump.

The impact is illustrated in the example hereafter.

For the **boiler,** the transformation losses from gas to heat are within the building. Gas is a primary energy.

For the **electricity-driven heat pump,** the transformation losses from electricity to heat are also partly inside the building, but the **electricity is a secondary energy** and must first be produced by using primary energies. Most of the transformation losses **to produce electricity are outside the building** and **therefore not considered by the final energy**. The **final energy may be divided by 2,5** (COP = 2,5) and therefore much lower than for a gas boiler.
But if the electricity is produced by low efficient coal power plant ("efficiency" = 20%), then the **primary energy consumption might even be higher** for the **same energy needs**. The energy "savings" are just realised by changing the assessment boundary.
For the climate and for energy security, the whole energy chain is important.

Targets should be defined in primary energy (total and non-renewable) and CO2 emissions.

➢ Local heating and cooling plans

Article 26/6 of the Energy Efficiency Directive (EED) stipulates that **local authorities** shall **prepare local heating and cooling plans** at least in municipalities having a total population higher than 45 000.

These plans could be a **game changer** for the energy transition because citizens, local authorities and professionals are working together.

It is **regrettable** that currently the local heating and cooling plan is focusing only on the **heat a**nd **cooling, without considering** how the **increased electricity demand** will be **supplied.**
The **matching** of the **electrification of the heat demand** and the **renewable electricity production,** the storage and distribution, should also be **addressed.**
Looking only **at one piece** of the **whole energy chain** may have **negative side effects**. The increase of hours of negative electricity prices is an example.

The **assessment timestep** is not specified in the Directive. The feedback from local plans shows that the **assessment period** is **annual**. As the renewable electricity production is an **intermittent production** (wind and photovoltaics), flexibility, demand and supply management, storage is important. These topics can only be addressed by **a dynamic assessment** with **shorter timesteps**.

Article 25/6 EED requests that **Member States** shall **develop recommendations** supporting the regional and local authorities to implement policies. Member States are starting to develop methods for the implementation of these plans **at the national level**.
As the experience showed with the calculation methods developed at Member State level under the EPBD, these national methods have different qualities and lead to **a fragmentation of the European market,** which is **neither beneficial** for the professional working European-wide, nor for industrials.

It is proposed that these r**ecommendations** (Guidance documents) and the **structure of the related databases** be developed by the **Commission** and standardized at the **European level. Providing high-quality tools based on the experience and knowledge of European professionals would be a game-changer with a real European added value and impact.**