

POLICY BRIEFING SEPTEMBER 2021

In October 2020, the European Commission announced in the Renovation Wave Communication its intention to open the Energy Performance of Buildings Directive (EPBD) for revision by the end of 2021 – much earlier than its planned review by 1 January 2026. The aim is to align legislation with the Renovation Wave objectives to at least double the annual energy renovation rate by 2030, and to foster deep energy renovations. In reality, this legislative update is a make-orbreak opportunity to make the EPBD 'fit for 2030', and crucially, fit to respond to the climate emergency.

The recently published report from the UN's Intergovernmental Panel on Climate Change (IPCC)¹ signals 'a code red for humanity', as UN Secretary General António Guterres described the planetary emergency. Greenhouse gas emissions need to decrease as soon, as quickly and as deeply as possible. The EU must now deliver on announced targets by taking bold actions and showing results.

The ambition of the EPBD revision should therefore go beyond simply 'aligning' with the Renovation Wave, since the latter was published before the new 2030 climate target of reducing greenhouse gas (GHG) emissions by at least 55%, was agreed. The revision should be comprehensive; first to ensure the buildings sector will contribute to the achievement of the updated 2030 climate target; and second, to make the EPBD a milestone towards reaching climate-neutrality by 2050. According to BPIE's analysis, this means reaching an annual 3% deep renovation rate and a 60% reduction in GHG emissions by 2030.²

¹ Intergovernmental Panel on Climate Change (IPCC) (2021). Sixth Assessment Report

² Buildings Performance Institute Europe (BPIE) (2020). On the way to a climate-neutral Europe: contributions from the buildings sector to a strengthened 2030 climate target

Scaling up deep renovation is urgent not only for the climate. A revised EPBD should also take social aspects of the European housing situation into account. According to the Renovation Wave, in 2018 nearly 34 million Europeans were unable to afford keeping their homes adequately warm.³ In the design of all policy options, particular attention should thus be paid to their contribution to the alleviation of energy poverty and the achievement of a just and fair transition towards carbon neutrality. These considerations, which mean specific support for energy-poor households as well as low- and middle-income households, must be mainstreamed in the EPBD revision. The following recommendations include them throughout.

Next to a continuous effort to thoroughly implement and enforce current provisions, a comprehensive revision of the EPBD is needed. Revising the Directive only in a limited manner will not address the climate and social challenges of the buildings sector. The comprehensive revision should include the recommendations below, which are based on BPIE's extensive research over recent years.

THE AMBITION OF THE EPBD REVISION SHOULD GO BEYOND THE RENOVATION WAVE

REVISION SHOULD BE COMPREHENSIVE TO

- 1. ensure the sector will contribute to the achievement of the updated 2030 climate target
- 2. make the EPBD a milestone towards reaching climate-neutrality by 2050

OUR ANALYSIS INDICATES THAT the sector needs to reach

an annual 3% deep renovation rate

and a reduction of 60% GHG emissions by 2030

THE EU SHOULD NOW DELIVER ON ANNOUNCED TARGETS BY

taking bold actions in light of the 6th IPCC Assessment Report



The revision should be comprehensive; first to ensure the buildings sector will contribute to the achievement of the updated 2030 climate target; and second, to make the EPBD a milestone towards reaching climate-neutrality by 2050.

The revision of the Directive should address both the climate and social challenges of the buildings sector.

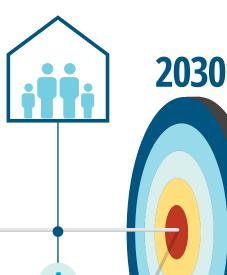


³ European Commission (2020). Communication: A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives, p.20

HOW TO MAKE THE EPBD FIT FOR 2030







A CLARIFIED AND MORE AMBITIOUS 2050 VISION FOR THE BUILDING STOCK, INTEGRATING WHOLE-LIFE CARBON CONSIDERATIONS

Set a clear objective

for the building stock to be net zero energy and carbon over the whole lifecycle by 2050



in the EPBD as additional operating principles, next to the "energy efficiency first" principle STANDARDS AND TOOLS TO ACHIEVE CLIMATE-NEUTRALITY FOR ALL BUILDINGS



going beyond current nearly zero-energy building (nZEB) definitions in a two-step approach (upgraded nZEB standards by 2025 and net zero energy and carbon over the lifecycle by 2030)

Reform th
cost-optimal
methodology as
a benchmark for
setting requirements
for existing and new
buildings, integrating
deep-renovation
approaches and making
it standard practice

Boost the exemplary role of public buildings

AN ECOSYSTEM OF TRANSFORMATIVE POLICIES AND MEASURES FOR THE WHOLE BUILDING STOCK

Introduce minimum performance standards (MPS) to

drive action on both renovation rate and depth

Leverage financing streams and technical assistance (TA)

for deep renovation

Ensure strategic policy planning underpinned by reliable data

Improve the integration of buildings

into the wider energy system

BUILDINGS FOR PEOPLE:
TAKING
EVERYONE ON
BOARD THE
RENOVATION
WAVE

Increase the quality of the energy performance certificate (EPC) framework

Develop a network of advisory services (building renovation passports, one-stop-shops)



1. A CLARIFIED AND MORE AMBITIOUS 2050 VISION FOR THE BUILDING STOCK, INTEGRATING WHOLE-LIFE CARBON CONSIDERATIONS

EPBD Article 2A sets the objective of a "highly energy efficient and decarbonised building stock" by 2050. While a 2050 vision for the building stock has been a major positive addition during the last EPBD revision, this concept remains vague and therefore subject to interpretation. It should be clarified that:

BY 2050
THE EU BUILDING
STOCK MUST BE
NET ZERO ENERGY
AND CARBON OVER
THE WHOLE LIFECYCLE



This means:

- Achieving a very high energy performance (putting energy efficiency first).
- Undergoing a full decarbonisation at operational phase (energy supply by renewables only).
- Ensuring low embodied carbon emissions in building and construction materials and processes.

While continuing to promote and implement the energy efficiency first principle, whole-life carbon (WLC) should be integrated in the EPBD as an additional operating principle. Gathering more data is a first necessary step before setting requirements, which must be announced well before they come into force to provide the market with sufficient lead time to prepare.⁴ All in all, the design of EPBD policy options should enable carbon performance as a (future) complement to energy performance.

More practically, the EPBD should contribute to the establishment of a WLC roadmap by:

- Improving the understanding of WLC accounting, notably by introducing clear operational and embodied carbon metrics as add-ons to energy performance metrics, and
- Requiring new constructions, public buildings and large non-residential buildings to assess and disclose information on embodied carbon emissions, using the above-mentioned metrics.

⁴ BPIE (2021). Introducing whole-life carbon metrics: recommendations for highly efficient and climate-neutral buildings

2. CLIMATE-NEUTRAL COMPATIBLE STANDARDS FOR ALL BUILDINGS

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UPDATE BUILDING STANDARDS FOR NEW BUILDINGS, GOING BEYOND CURRENT NZEB DEFINITIONS

As of 1 January 2021, all new buildings in the EU must be nearly-zero energy. As a BPIE analysis⁵ has shown, there is wide disparity between Member States in their implementation of nZEB standards, and many national definitions are not aligned with a "nearly-zero energy performance". Considering the lifecycle of buildings, new construction should not need to go through a major renovation between now and 2050 in order to comply with the EU's climate-neutrality objective. While buildings constructed between 2021 and 2050 will not constitute most of the building stock by mid-century, the standards for new builds set the tone for decarbonising the existing stock: they can and should become a benchmark for renovation. The nZEB standard is also used as a reference point in the technical screening criteria for new buildings in the EU's new taxonomy for sustainable economic activities. If the nZEB standard is not changed, private investments will continue to be directed towards projects that are not fully aligned with the 2030 targets and 2050 objective for the building stock.



For all these reasons, it is crucial that beyond thorough implementation at national level:

- The standard for new buildings is set at a higher level of ambition. Current definitions for nZEBs will not fully contribute to the decarbonisation of the building stock up to the level required to achieve climate neutrality by 2050.
- The EPBD revision should update the nZEB definition to be applied as of 2025.
- The definition should include clear references to numeric indicators for maximum primary energy use (e.g., referring to benchmark ranges which should be lower than the current ones⁶) and require energy to be supplied by renewables only.
- A requirement to report on embodied carbon emissions should also be included.
- As a next step, as of 2030, new buildings should be net zero energy and carbon over their lifecycle.
- They should also be positive energy at operational phase, given the expansion of renewables, and be fully equipped with demand response and energy storage technology.
- A definition of positive energy buildings should be introduced in the EPBD.

⁵ BPIE (2021). Nearly Zero: A review of EU Member State implementation of new build requirements.

⁶ Based on European Commission, Recommendation 2016/1318 on guidelines for the promotion of nearly zero-energy buildings and best practices to ensure that, by 2020, all new buildings are nearly zero-energy buildings



REFORM THE COST-OPTIMAL METHODOLOGY SETTING REQUIREMENTS FOR BUILDINGS, MAINSTREAMING DEEP RENOVATION THINKING AND MAKING IT STANDARD PRACTICE

Minimum energy performance requirements for existing buildings, which only apply in the case of major renovations, are calculated based on national methodologies, and set with a view to achieve cost-optimal levels. The same approach is required in defining national nZEB standards. This cost-optimal methodology, which has not been revised since 2010, was introduced in order to guide Member States when setting energy performance requirements for existing and new buildings.

SEVERAL ISSUES WITH THE METHODOLOGIES NEED TO BE SOLVED:



1. The guidance for assumptions is outdated, and does not reflect the technical and technological developments of the last decade which have notably allowed buildings to consume less energy and to increasingly be active elements of the energy system.



2. The guidance provided for EU CO₂ emission allowance costs is much below market values, resulting in distorted cost calculations.



3. Externalities (e.g., avoided cost of carbon emissions, reduced air pollution) and wider benefits (e.g., improved indoor air and environmental quality) are not considered in the calculations, distorting the picture of costs and benefits of renovation.

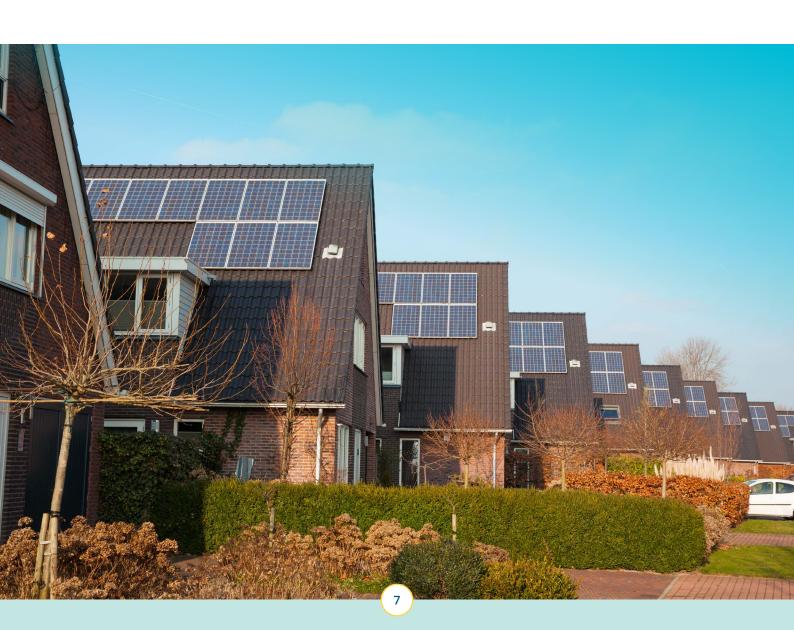
The Delegated Regulation establishing a methodology for cost-optimality, its guidance and assumptions thus need to be urgently updated. Multiple benefits of highly energy efficient new and renovated buildings should be better conveyed and factored in. These would clearly make the case in favour of renovation and higher performance standards for all buildings, resulting in increased comfort, improved air quality and positive impacts on health, well-being and productivity.

However, simply improving the calculation methodologies used to set up minimum energy performance requirements will not be enough. The whole spirit of cost-optimality can be questioned: considering the 2030 climate target and the objective of climate-neutrality by 2050, should building requirements be set based on what is considered to be economically feasible (even based on a corrected picture of costs and benefits) or rather based on what should be delivered to achieve our goals? It is not cost-optimality but climate-neutrality that should be used as the guiding principle to set building performance requirements. It will therefore be necessary to evolve the cost-optimal methodology by putting the principle of climate-neutrality at its core.



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Further, buildings should be adapted to the effects of climate change. Including climate adaptation and resilience aspects in setting building performance requirements will be essential for the European building stock. Relying on an outdated framework and methodology will lead to buildings unable to protect occupants, and renovations being off track for our 2030 and 2050 targets, with a high risk of lock-in of underperforming design and technologies.

Defining a "deep renovation" standard is a necessary step in the EPBD revision. Deep renovation should become standard practice and be embedded as the default option in the design of all renovation policy measures, such as building renovation passports (BRPs).



DEEP RENOVATION is a process capturing, in one or a few steps, the full potential of a building to reduce its energy demand. The EPBD revision is also the opportunity to explore how a definition of deep renovation should be expressed more specifically in numerical terms (e.g., percentage of energy savings realised).⁷

DEEP RENOVATION ultimately leads to a very high energy and carbon performance, ensuring the building is compatible with climate-neutrality by 2050 and delivering quality to its occupants (indoor environmental quality, accessibility, etc.).

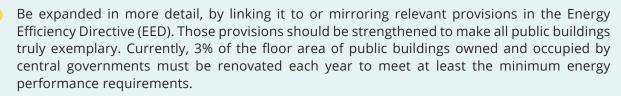


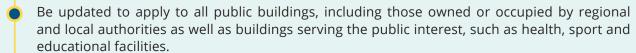
BOOST THE EXEMPLARY ROLE OF PUBLIC BUILDINGS

The EPBD includes a provision specifically addressing public buildings. According to Article 2A(e), Member States are required to include in their long-term renovation strategy (LTRS) "policies and actions to target all public buildings".



This provision should:





Abolish the possibility to choose alternative measures over renovation, and the depth of renovation should be at least nZEB level. To do this sustainably, a requirement to assess and disclose information, by 2025, on embodied carbon emissions should be introduced. A strong monitoring, reporting and verification framework should be put in place, with links to EPC databases.

The European Commission usually considers "deep renovation" as a renovation delivering more than 60% energy savings (for example, in the 2019 Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU) but it is questionable whether 60% energy savings is the appropriate benchmark and whether it would put the EU on track to meet its 2030/2050 targets.

AN ECOSYSTEM OF TRANSFORMATIVE POLICIES AND MEASURES FOR THE WHOLE BUILDING STOCK



INTRODUCE MINIMUM PERFORMANCE STANDARDS TO DRIVE ACTION ON **BOTH RENOVATION RATE AND DEPTH**

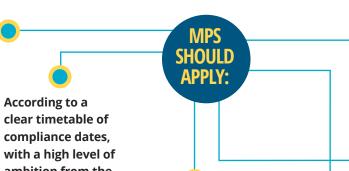
The current 2050 objective for the buildings sector implies reducing its GHG emissions by 60% by 2030 as well as bringing the annual deep renovation rate from 0.2 to 3% as soon as possible in this decade A key policy instrument to boost both the renovation rate and depth is a Minimum Performance Standards (MPS).

A Minimum Performance Standard is a regulation requiring buildings to meet a certain performance standard by a specific time, in coordination with natural trigger points in the building's lifecycle. The standard is typically based on energy performance standards (kWh/m²/year), generally using the EPC as a proxy. But MPS can also incorporate broader aspects such as operational carbon performance standards expressed in CO₂/m²/year, WLC thresholds and indoor environmental quality aspects.⁸

MPS should be introduced in the EPBD. This can be done with sufficient flexibility to design policy variations according to different ownership structures and the state of the different building segments. Some key quality principles should nevertheless be respected.

At building level, to all building typologies,

with a specific focus on the worst-performing buildings owned or occupied by energy-poor households (which would also imply that Member States need to put in place a definition of energy poverty9). A differentiated approach, mainly based on the ownership structure, is possible, but it is key to include the residential segment within the MPS frameworks, rather than focusing on or giving priority to commercial buildings.



ambition from the

start (first compliance dates should be set before 2030, i.e., around 2027-2028), while giving an outlook up to 2050 in line with the climateneutrality objective, and in coordination with other "natural" trigger points in the life of buildings, which should act as "boosters" for early compliance.

In line with the LTRS and its 2030/2040

milestones: to ensure delivery and good implementation, Member States should be required to report how their MPS frameworks support the objective set out in the strategy and how they ensure progress towards the 2050 objective.

Within an ecosystem of measures to ensure optimal investments and avoid lock-ins:

this should include dedicated funding and social safeguards for those in energy poverty, but more generally, financial support and use of advisory services, such as **Building Renovation Passports** (BRPs) and One-Stop-Shops (OSS)

Using public financing wisely,

for (1) financing the ecosystem of measures (BRPs, OSS, etc.) and the compliance system, rather than only the works themselves; (2) incentivising investments to reach the MPS ahead of the deadline, in deeper renovations or deep renovation in one or very few steps; and (3) specifically supporting energy-poor households, whether tenants or owners.

Together with a clear compliance and penalty system: it should be clearly communicated in advance who can be penalised and how in case of non-compliance.

More detailed recommendations on minimum performance standard design are available in BPIE et al. (2020). Lessons learned to inform integrated approaches for the renovation and modernisation of the built environment.

See COMACT (2021). Overview report on the energy poverty concept



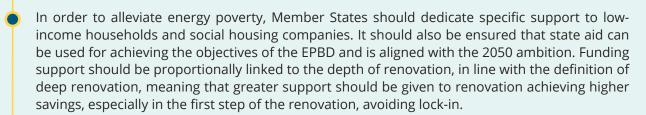
LEVERAGE FINANCIAL INSTRUMENTS AND TECHNICAL ASSISTANCE FOR DEEP RENOVATION

Financing and technical assistance (TA) is more than an "enabling framework" for the EPBD – it is an "essential framework" that should go together with regulatory measures. Key principles and requirements for a quality financing and TA framework should be incorporated in the EPBD. For example, in Article 10 on financial incentives and market barriers or Article 20 on information.

There is a wide variety of available funding sources (including energy efficiency obligation schemes, recovery plans, regional and cohesion funds, and emissions trading system revenues including the possible new Social Climate Fund) and financial instruments that can help increase renovation activity if they are understood and communicated correctly to potential beneficiaries.



EPBD Article 10 should ensure that Member States put in place support programmes with a long-term perspective, in line with the 2050 vision and policies included in the LTRS (Article 2A). Member States should also pay attention to tailoring financing tools to the different target audiences.



EPBD Article 10 should give guidance on how to better use public financing, which should achieve a high leverage effect triggering private investment. Public support should be provided in priority (1) directly to low-income households living in the worst-performing buildings, and (2) indirectly to incentivise those having financial means (e.g., through guarantee funds for commercial banks) to undertake renovations delivering additional savings.

Public money should be used to fund the set-up, development, and long-term availability of the surrounding ecosystem for renovation, i.e. OSS, BRPs, or support programmes to boost industrial renovations especially in multi-apartment buildings. The use of public financing should always be accompanied by strict requirements on monitoring, verification and reporting of results achieved.

Accessing public funding and deploying projects on the ground implies a robust technical assistance framework is in place. While there are many TA programmes and funding streams available, the process of engagement is seen as highly complex. It is not always clear which end-users are eligible for certain programmes, or how to begin the engagement and application process. The EPBD revision should therefore strengthen EPBD Article 10 ("financial incentives and market barriers") to transform it into a true TA framework. It should clarify what financial and advisory support is available to public authorities and private actors, and facilitate access to that support. To achieve this, the role of OSS should be strengthened, especially as they can support smaller cities and stakeholders with less capacity.

Enhanced deployment and capacity building for energy performance contracting in the public sector, notably through a link to and good implementation of the relevant EED provisions, is also key¹⁰, as well as a simplified engagement and application process that is clearly communicated to potential beneficiaries.

The multiple benefits of renovation should be better conveyed and factored in when preparing renovation projects to make the case in favour of renovation (increased comfort, improved air quality and positive impact on health, well-being and productivity).

¹⁰ BPIE (2020). Energy Services and the Renovation Wave: opportunities for a green economic recovery in Europe



ENSURE THOROUGH STRATEGIC POLICY PLANNING UNDERPINNED BY RELIABLE DATA

The introduction of MPS supported by an ecosystem of support measures (financing and TA), should not happen in a vacuum. It needs to be integrated in the existing architecture of renovation policies which should be governed by the national LTRS. However, during the three iterations of LTRS (2014, 2017, 2020), compliance often was poor and LTRS have not been aligned with the 2050 decarbonisation objectives.¹¹

The EPBD revision is an opportunity to strengthen the LTRS requirements in order to improve strategic planning for the buildings sector:

- The LTRS provisions should be better linked to and aligned with other strategic planning and reporting tools: national energy and climate plans, recovery and resilience plans, social climate plans (if the proposal of a Social Climate Fund is adopted), comprehensive heating and cooling assessments (EED), requirements on renovation of public buildings (EED), and nZEB plans (EPBD).
- The LTRS should start considering other aspects beyond energy performance at operational phase, since the updated 2050 vision for the buildings sector would be net zero energy and carbon over the whole lifecycle. This means all carbon emissions, besides the operational phase, should be addressed in the LTRS. Other points of attention in the LTRS should be to link mitigation measures with climate adaptation and resilience actions. Finally, the LTRS should include stronger requirements for Member States to set up schemes to alleviate energy poverty in collaboration with local authorities.



Moreover, the European Commission should:

- Help Member States by providing them with strong guidance and a template for LTRS, including common measurable progress indicators and baseline years, as well as milestones made binding. This would make drafting, implementing, reporting and monitoring easier, and would enable the Commission to better analyse and derive EU-wide milestones and progress indicators for 2030, 2040 and 2050.
- Be able to give recommendations to Member States on how to improve their LTRS and to undertake a gap-filling exercise, on both ambition and delivery. In any case, a regular (every one or two years) national report on actions undertaken, policies adopted and implemented, and progress achieved, should be submitted to the Commission.
- Ensure that a revision of the LTRS takes place every five years minimum (instead of the current 10 years).

¹¹ BPIE (2020). A review of EU Member States' 2020 Long-Term Renovation Strategies; BPIE (2021). The road to climate-neutrality: are national LTRS fit for 2050?

In order to design relevant strategies and track progress of implementation, it is key to increase the use of and access to quality data, notably in the form of EPC databases.



The EPBD should:

- Require all Member States to have a national, easy-to-access EPC database, including in a digital format.
- Set quality principles for data management for EPC database beyond recommendations to increase the quality of EPCs per se (see section below). They should be user-friendly with facilitated access; interoperability with other databases, such as cadastral databases, can help with planning renovation interventions, benchmarking and comparability.
- Clarify the objectives of data gathering (what data to gather and in what format) and design of data governance (clarifying obligations of different actors at different stages of the process collection, storage, processing, sharing, access and reporting). One area that could be explored is to grant differentiated access to EPC databases depending on who the user is (prospective buyer, owner/tenant, bank, notary, construction company, one-stop-shop manager, etc.). In this context, a clarification of General Data Protection Regulation (GDPR) rules in relation to building-relevant data would be welcome.

The EPBD should also introduce a definition and requirement for Member States to make use of BRPs and of digital building logbooks (DBLs), which provide common data templates facilitating data collection, organisation, visualisation and comparison. Finally, the EPBD should design an overarching system for data collection and management that functions coherently in order to collect and provide the best and most reliable information, whether to building owners or to policymakers. This means that existing EPC databases should be fit for upcoming data from BRPs or DBLs, and data systems governing EPCs, BRPs and DBLs should be designed in a coordinated way.



IMPROVE THE INTEGRATION OF BUILDINGS INTO THE WIDER ENERGY SYSTEM

A more efficient, decarbonised and smarter building stock is a cornerstone of a climate-neutral energy system. Increased integration of distributed energy (re)sources, renewables and storage and the growing peak demand for electricity will drive the need for increased flexibility, demand-response capabilities and consumer empowerment to further develop an affordable, reliable and decarbonised energy system. Buildings have the potential to be at the forefront of providing flexibility to the energy system, through energy production, control, storage and demand response.

Beyond defining positive energy buildings, the EPBD should also introduce a definition for positive energy neighbourhoods. This is clearly missing and would be a first step in promoting and enhancing the integration of buildings within the wider energy system.¹³ The EPBD should ensure that new building standards for new buildings encourage the deployment of active energy management and storage solutions, and that deep renovations include such solutions whenever possible.

¹² More details in BPIE et al. (2021). Study on the Development of an EU Framework for Digital Building Logbooks

¹³ Some additional recommendations, for and beyond the EPBD, can be found in BPIE (2017). Opening the door to smart buildings

4. BUILDINGS FOR PEOPLE: TAKING EVERYONE ON BOARD THE RENOVATION WAVE

Overcoming non-financial barriers to renovation will be essential for increasing renovation rate and depth. Owners and tenants should have easy access to information and guidance facilitating investment decisions. Some instruments exist already, but they need improvement, as well as broader acceptance and dissemination to have a meaningful impact on renovation activities.



INCREASE THE QUALITY OF THE EPC FRAMEWORK

EPCs were introduced in the EPBD in 2002, with the aim of:

- Giving information at a certain point in time (linked to selling or renting a building) about the energy performance of the building, and
- Laying out some (general) recommendations about which steps to undertake to improve it.

EPCs could play a decisive role in the transformation of the building stock, but for this to happen, a thorough update and upgrade on both aspects is needed. This would enable EPCs to:

- Be recognised as reliable information tools across all Member States, and
- Fulfil new purposes linked to other policies, such as MPS, BRPs or financing measures.

First, the coverage of the building stock with EPCs is still rather low, and there are concerns related to the quality of issued EPCs, which are not acting as reliable information tools. This becomes even more important as a successful rollout of MPS will depend on EPCs whose quality and reliability has to be improved ahead of the first MPS compliance date. The EPBD should therefore require that all buildings get an EPC by a certain date, to increase the coverage.



Improving EPCs means going beyond their design. The EPBD must establish key quality principles for each aspect of the EPC framework.



However, improving EPCs means going beyond their design (e.g., common template). While harmonisation in the design might boost the usefulness of the tool amongst real estate investors at cross-border level, what is crucial is that the EPBD ensures *all Member States* comply with requirements and establishes key quality principles for each aspect of the EPC framework:

- The design should display useful information to the different types of EPC users (prospective buyer, public authority, bank) finding the right balance between readability/attractiveness on one side and quality/reliability on the other, while always ensuring trust.
- The calculation methodologies should be harmonised and improved, such as by adding complementary indicators like validated actual energy performance, GHG metrics, and indoor air and environmental quality (the latter being especially important for occupants). Overall, the quality of input data should be improved.¹⁴
- The performance assessment should be based on an on-site audit executed by a skilled certifier.
- Recommendations should be more specific and tailored, include information on costs and benefits, and be linked with advisory services.
- The allowed lifetime of 10 years is too long for the EPC to be considered up to date and should be shortened to five years.

¹⁴ The X-tendo project provides more detailed recommendations on improvements to EPCs and potential new features, including a smartness indicator, a comfort indicator and how to measure the difference between actual and calculated energy use.

Regarding the quality control of EPCs, a holistic approach should be adopted to improve every stage of the certification process, from training/upskilling of auditors, quality checks of methodologies/software, more frequent ex post quality controls, and more stringent penalties. Some of these recommendations can be implemented using digital tools.

DEVELOP A NETWORK OF ADVISORY SERVICES

Beyond improving the quality of EPCs and their surrounding framework, it is key to develop and roll out other tools which can guide homeowners in their renovation journey and ensure that all renovations are aligned with the 2050 vision for the building stock.

The EPBD should mandate Member States to make BRPs available to building owners, which would then be incentivised to take it up and use it (either through MPS or financial support). The BRPs ought to provide a renovation roadmap to a "future-proof building", including improvement of the energy performance level, share of renewables and flexibility/smartness, while minimising the WLC footprint. The BRP can also give a reliable projection of investments needed to improve the building over time. The rollout of BRPs must serve the right level of ambition and must be supported with financial and informational instruments.

The EPBD should introduce a "common reference framework" for quality BRPs, which would lay down mandatory requirements on what the instrument should include and how it should be designed. Core features on which the Commission should issue guidance to Member States are:

- Alignment with the LTRS and 2050 vision;
- Alignment with the deep renovation standard, encouraging several renovation steps to be taken together;
- Integration into or complementarity with the EPC, notably its recommendations, as well as with the DBL;
- Preparation by qualified experts based on an on-site audit;
- Added value of digital version of BRP, and
- Need for financial support for the development and rollout phase.

One-Stop-Shops (OSS) are another useful tool to guide homeowners in their renovation journey. OSS are still a niche occurrence in Europe, but the Renovation Wave objectives require them to become mainstream. The EPBD could mandate Member States to introduce a plan, in collaboration with local authorities and in coordination with the LTRS, to ensure that all cities above a certain size have an OSS providing unbiased renovation advice and services (from technical support to helping with the financing landscape). Specific OSS and community-tailored actions for low-income households should also be developed in this framework. The European Commission should support these actions with TA and develop guidelines helping local authorities to set up successful OSS. Many good examples of OSS exist across the EU and can be replicated and adjusted to local conditions.

Conclusions

The revision of the EPBD must be undertaken in the light of the urgency to address climate change, while addressing societal challenges such as affordability of housing and energy poverty. Well-performing buildings providing climate-neutral, healthy and resilient spaces for citizens should be at the core of every society. While transforming the existing building stock and adjusting standards for new buildings is not a trivial task, our well-proven European ingenuity and innovation will deliver solutions if the political will and framework defines appropriate rules and guidelines which are thoroughly implemented.

WELL-DESIGNED AND MAINTAINED BUILDINGS CONTRIBUTE
TO SOCIETAL COHESION, INFLUENCE WELL-BEING OF
INDIVIDUALS AND SOCIETY, AND HELP CITIZENS IDENTIFY
WITH THE SPACES WHERE THEY LIVE AND MOVE.

EUROPE HAS THE MEANS TO GET ITS CLIMATE AND BUILDINGS POLICY RIGHT, AND THE TIME IS NOW.



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