

Renovation and renewable heating and cooling

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Introduction

Buildings are central to people's lives. They are our shelters against the cold, the heat, the rain. They are the places in which we live, learn, work and rest. They are where we spend 90% of our lives – more than 21 hours per day. Transforming the built environment will be key to a successful energy transition. Buildings represent 40% of the EU's total energy consumption and 36% of its GHG emissions – and that is just during their use phase. This is because a very large proportion of the building stock has poor energy performance. Much of it was built before the 21st century and still relies heavily on fossil fuels for heating ([European Commission, 2020](#)). Given that nine out of ten buildings standing today will still be there in 2050, building renovation and switching to renewable heating and cooling (H&C) will be key to reaching our climate goals. However, progress has been slow in recent years, leaving the building stock in the EU off-track to reach climate neutrality by 2050¹. More action is needed to insulate our buildings and move to renewable energy to heat and cool them, be that on-site or via the grid. In addition to fighting climate change, this contributes to lower energy bills, improves health and well-being, reduces pressure on electricity grids, and increases the EU's energy independence and resilience. But as with all elements of the energy transition, these benefits need to be distributed fairly across society in order to achieve the broad backing needed for the transition to be a success. Action on buildings must include all segments of society.

After taking stock of recent achievements in the EU policy framework, this brief reflects on the state of play regarding support for renovation and renewable H&C, highlights gaps and challenges and presents some ideas on how to improve the current offerings and make the benefits more accessible, equitable and inclusive. The analysis will touch on **four aspects of social fairness: availability, accessibility, affordability and inclusivity**².

¹ BPIE's EU Buildings Climate Tracker shows a gap of 10.3 points between the 2020 status of the building stock and where it should be to reach climate neutrality in 2050 (BPIE, 2023)

² This approach is based on expert discussions within the Knowledge Community and former BPIE research on the social dimensions of building decarbonisation policies.

State of play: How renovation and renewable heating and cooling contribute to fair participation in the EU energy transition

The Energy Performance of Buildings Directive

The most important EU legislation for access to building renovation and renewable H&C is the 2024 revision of the **Energy Performance of Buildings Directive (EPBD)**³. The EPBD introduces Zero Emission Buildings (ZEB), which will be the standard for new-build construction from 2030 and will also set the tone for deep renovation. A ZEB is defined as a fully decarbonised building with a very high energy performance (although not necessarily entirely renewables-based). **The EPBD also strengthens renovation policies for existing buildings**. It introduces Minimum Energy Performance Standards (MEPS) that require every Member State to renovate the worst-performing 26% of non-residential buildings by 2033. Member States must also set a 2020 to 2050 trajectory at the national level for the progressive renovation of residential buildings⁴, with the aim of delivering 55% of this through the renovation of the worst-performing 43%. These savings can be delivered by means of a mix of policies (including MEPS), financial support and technical assistance.

The EPBD also includes specific **provisions relating to the decarbonisation of H&C**⁵ and reinforces the **National Building Renovation Plan (NBRP)**, which is the strategic planning tool used at national level. Member States use this *inter alia* to report on the state of their building stock, calculate investment needs and list available financing sources. Member States must outline the policies they have put in place ‘*with a view*’ to phasing out fossil fuel boilers completely by 2040 and achieving a zero-emission building stock by 2050⁶. The EPBD also encourages Member States to incentivise the use of renewable energy, including by redirecting financing streams.

The EPBD also improves the enabling framework for building renovation and the switch to renewable H&C by providing **new or better access to information, advice and financial support**. It reforms the Energy Performance Certificates (EPC) system, introduces an EU framework to supervise and facilitate the uptake of renovation passports, and gives a strategic role to a more diverse financial framework. Finally, it also offers more recognition, better integration and a stronger role for one-stop shops (OSS), a subject that we deal with below.

Fairness considerations are at the core of the EPBD. The social aspects of buildings policies are given more political recognition through the introduction of legal definitions for ‘energy poverty’ (in line with the EED) and ‘vulnerable households’⁷. It puts a strong emphasis on the renovation of the worst-performing buildings, which are often occupied by people in energy poverty. There are requirements to make the enabling framework accessible and affordable for vulnerable and low-income households, and for Member States to

³ Directive EU (2024/1275), April 2024. The transposition period runs until May 2026. For an in-depth discussion of the revision, see BPIE (2024). The EPBD decrypted: a treasure chest of opportunities to accelerate building decarbonisation. Retrieved from https://www.bpie.eu/wp-content/uploads/2024/04/082_BRIEF_The-revised-EPBD—decrypted_Final.pdf

⁴ Intermediary milestones are included with the target of reducing primary energy use by 16% between 2020 and 2030, and by 20-22% between 2020 and 2035.

⁵ EPBD Article 2 § 4 defines renewable energy as ‘wind, solar (solar thermal and solar photovoltaic), and geothermal energy, osmotic energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas’.

⁶ These objectives should also be read in relation to the “indicative target of at least 49% renewables in the EU final energy consumption in buildings in 2030” (Renewables Directive, Article 15a§ 1).

⁷ EPBD Article 2 § 28 defines them as ‘households in energy poverty or households, including lower middle-income households, that are particularly exposed to high energy costs and that lack the means to renovate the building that they occupy’.

introduce specific social safeguards to protect citizens, particularly tenants⁸.

One-stop shops

One-stop shops are a type of advisory service for building renovation and renewable H&C. OSS are (usually) physical places facilitating or offering energy renovation solutions. They mainly describe the available options for renovation and renewable H&C measures (in line with the policy framework) and help identify the best options and sequencing for a specific building, thereby simplifying and guiding the homeowner's decision-making process. Examples of OSS are varied, as there are a number of different models and a large range of options in terms of (1) how responsibility for delivery of the services is divided between public authorities and private entities, (2) the breadth and depth of the services provided⁹, (3) the target audience(s) and their level of involvement in the OSS, and (4) the funding sources.

While the EPBD does not provide an official definition of an OSS, it does include a specific provision on the topic. Article 18 defines (1) who is responsible for setting them up (usually public authorities, with the option of private stakeholder involvement); (2) how they are to be rolled out (minimum one OSS per region and/or per 80,000 inhabitants); (3) their intended users (public bodies; homeowners/households, with a particular focus on people affected by energy poverty and on vulnerable households; and private entities such as small and medium-sized enterprises (SMEs)); and (4) lists the services to be provided. It also clarifies the role of the OSS within the ecosystem, notably their key contribution to fulfilling renovation obligations.

OSS have real potential to improve access to renovation and renewable H&C solutions. Experience shows that **providing advisory services has more impact than simply (or mainly) providing financial support**, as it gives clarity and confidence about the renovation process, which ultimately triggers action. There is evidence that a lower but steady subsidy, coupled with targeted information and advisory services, has a more positive impact than higher but short-term financial support detached from any technical assistance ([COMACTIVATE project, 2020](#)). **OSS make the energy transition more tangible for citizens and give them a place to voice their needs and concerns**, thereby enabling true participation by involving them in the decision-making about the building they own and/or occupy. All in all, **OSS symbolise the energy transition as a whole**, since they operate at the intersection of all its different aspects – legal, planning, financing, technological coordination and human – and create bridges between them at the level of the individual building.

What is missing?

EPBD implementation: questions raised and best practices required

While the EPBD undeniably makes many improvements to the support available for renovation and renewable H&C, the transposition phase, which runs until May 2026, brings new challenges. Implementing so many new or updated provisions in such a short timeframe creates the risk that **positive changes brought in at the EU level get 'lost in transposition' at the national level**.

In order to leverage the EPBD's potential for social fairness, its implementation must ensure that **households have greater access to renovation and renewable H&C solutions (policy availability)**. Delivery on the ground may be hindered by the lack of skilled workers and certifiers, as well as by a lack of capacity within

⁸ EPBD Article 17 § 17 specifically mentions the need for Member States to 'address the eviction of vulnerable households caused by disproportionate rent increases following energy renovation [...]'. Safeguards include for example 'providing rent support, imposing caps on rent increases, incentivising financial schemes that tackle the upfront costs of renovations' (EPBD Article 17 § 19).

⁹ OSS can provide a range of services from facilitation (providing general information about renovation benefits and potential suppliers) and coordination (overseeing the renovation process and coordinating with all suppliers on behalf of the homeowner) to all-inclusive services (offering full renovation packages to homeowners and bearing responsibility for the customer). See Innovate Project (2020).

national and local administrations and banks.

Support programmes should be delivered more effectively to their target audiences (policy accessibility).

The EPBD asks Member States to focus their policies on the worst-performing buildings, which are often occupied by vulnerable households. But a lack of verified, consolidated granular data on the building stock makes it difficult to identify and target those buildings. Similarly, the EPBD calls on Member States to target support to energy-poor and vulnerable households, but the same identification issues can arise here too. In addition to this, the EPBD definition of ‘vulnerable households’ puts strong emphasis on economic factors, ignoring other, intersectional aspects of vulnerability.

Support programmes should be made more equitable (policy affordability). The EPBD recognises that measures and tools should be affordable and that some segments of the population need special support. But financing for renovation and renewable H&C remains a major challenge: there is not enough funding available, and it is often poorly targeted or poorly designed¹⁰.

Support programmes should be planned and designed with stakeholders (policy inclusivity). Member States are required to consult with civil society and bodies working with vulnerable households when drafting their National Building Renovation Plans. This is essential for successful policy design and must be done in a meaningful way, not as a box-ticking exercise¹¹.

The road to socially fair one-stop shops

Availability: While there are more and more OSS, there is a risk of reinforcing current inequalities due to their greater concentration in Western/Northern Europe, higher uptake by affluent and highly educated households, orientation towards owners of single-family houses rather than condominiums in the private-rented sector, and a tendency for them to be clustered in cities rather than in rural areas. Another challenge is to ensure that OSS have sufficient human resources to respond to increasing demand.

Accessibility: There are high expectations on OSS to support the delivery of mandatory renovation and renewable H&C measures, but so far, there has been insufficient tailored guidance and support for the creation and ongoing management of the OSS themselves.

Affordability: There is often a lack of sufficient funding or suitable business models to sustain OSS in the long term and/or to offer services at lower or no cost for vulnerable households.

Inclusivity: Even though OSS are nominally open to all citizens, the services directed at energy-poor and vulnerable households have often been sub-optimally designed. For these target groups, OSS must first offer support to resolve any legal issues (e.g. energy bill payments, disputes between tenants and landlords) before offering support for renovation. This is essential in order to reach some segments of society, and could be facilitated by improving coordination between OSS and stakeholders trusted by these groups (e.g. social workers).

How can the EU broaden access to renovation and renewable heating and cooling?

Support EPBD implementation with future-proofed policies for all

Build an EU Affordable Housing Plan founded on a rights-based approach

Right from the inception phase of the policymaking process for the EU Affordable Housing Plan, the

¹⁰ For example, with subsidies being disbursed once works are completed, while costs are upfront.

¹¹ BPIE evaluated the compliance of Member States against the requirements of the 2020 long term renovation strategies and awarded an average mark of 2.1 out of 5 for the consultation phase (BPIE, 2020).

Commission should be moving from a corrective to a preventive approach to protection, especially for vulnerable households. As part of this, it should **broaden the use of the EU Fair Transition Observatory**¹² to monitor and report on the social/distributional impacts of building policies (not only ex post, as required by the EPBD for social safeguards within the NBRP, but also ex ante); and should also adopt a broad intersectional approach to vulnerability, reflecting the diversity of its forms. The Affordable Housing Plan should address **the structural problems in the (rental) housing market** in addition to the energy-related ones, and should reflect on what is needed in the EU framework in order **to scale up innovative practices for the better use and management of the existing building stock** (e.g. repurposing vacant buildings, facilitating office conversion into residential spaces, and creating incentives to share living spaces).

It should also link EPBD implementation with the provision of housing that is not only affordable but also high-quality as a result of renovation, and should carefully consider new construction.

Reflect on how to integrate social fairness criteria into EU funds

With regard to affordability, the Commission should reflect on how to **embed social fairness criteria in all EU funds**, beyond Do No Significant Harm, as well as on how to ringfence funds for energy-poor and vulnerable households. This could be done as part of the Multiannual Financial Framework post-2027, the revision of the Public Procurement Directive and the reform of state aid rules. This is discussed further in the brief on just transition governance within this series.

Support a holistic approach to EPBD implementation

The Commission should provide guidance and active support to Member States to aid the timely and consistent implementation of recently agreed legislation. A holistic approach to implementation, focusing on the EPBD and its synergies with other instruments¹³, would help to avoid silo thinking that could have unintended consequences (often harming the most vulnerable in society). The Commission should also:

- bundle its buildings-related activities into a new Directorate-General for the Built Environment, bringing together staff dealing with buildings from all current directorates, and reporting to the newly created Commissioner for Energy & Housing.
- **create an EPBD Implementation Forum** for best practice sharing and data collection
- provide Member States with best practices for engaging with citizens meaningfully, creatively and effectively during the consultation phase of the NBRPs¹⁴.
- **create an Energy Efficiency, Renovation and Renewable H&C Academy** to build capacity and improve skills, including for energy advisors and certifiers, as part of the proposed Union of Skills.

Update the Heating and Cooling Strategy

The Commission should update the 2016 H&C Strategy ([European Commission, 2016](#)) when working on energy system integration. The Strategy should reflect the Energy Efficiency First principle¹⁵, set a target to move away from fossil fuel use in buildings by 2040 at the latest, and further elaborate on the low-temperature heat readiness concept introduced in some EPBD provisions¹⁶.

¹² The European Commission put out a tender for the creation of a 'Fair Transition Observatory' in 2024; it is now in the process of being set up.

¹³ Fit for 55 Package and other instruments such as the Ambient Air Quality and Cleaner Air Directive (AAQD). The AAQD has been approved by the European Parliament pending Council approval (status as of 25th September 2024). The AAQD regulates levels of pollutants emitted inter alia by the worst-performing buildings, which are often occupied by vulnerable households.

¹⁴ Based, for example, on the New European Bauhaus Investment Guidelines (pages 153-158). European Commission (2024). Staff Working Document: New European Bauhaus Investment Guidelines ([European Commission, 2024](#)).

¹⁵ Putting energy efficiency first (as defined in Governance Regulation Article 2 § 18) in energy policymaking avoids over-dimensioned grids and supports better infrastructure planning and investment.

¹⁶ Low-temperature heat readiness is an approach ensuring buildings are (renovated to be) ready for renewable heat, either by setting a minimum insulation standard or by requiring newly installed H&C systems to run at a certain (lower) temperature. This

Turbocharge the effective rollout of socially fair one-stop shops

Make one-stop-shops a political priority for EPBD delivery and provide guidelines for setting them up

Availability: The creation of OSS should be given higher political status by being put under the leadership of the Commissioner for Energy & Housing, and should also be frontloaded as a priority measure in EPBD implementation. They are an essential component for successful EPBD delivery. The Commission should provide an off-the-shelf kick-starter toolkit¹⁷ and helpline on how to set up and maintain OSS in line with the needs identified in the NBRP and local H&C plans¹⁸. This advice should recognise that there is no one-size-fits-all for OSS and that their design should reflect their intended beneficiaries. It should be designed to respond to the specific needs of energy-poor and vulnerable households, thus providing a bridge between energy advice and other services such as income support or legal advice¹⁹.

Ensure adequate funding for one-stop-shops is available

Affordability: it is essential to strike the right balance between public and private funding, depending on the stage of the OSS rollout, the services provided and the target audience. **In the initial phase, booster funding is key and should primarily come from public sources** such as Emissions Trading System (ETS) revenues, the Social Climate Fund, Energy Efficiency Obligation Schemes and subsidies redirected away from fossil fuels²⁰, as well as from the post-2027 MFF. **Once OSS have been established, business models involving private money should kick in** so that they are sustainable in the long term and the remaining public money can be shifted to supporting access for energy-poor and vulnerable households. Banks could easily be brought into financing OSS and their services; this would promote renovation and renewable H&C to citizens in a business setting. Ultimately, OSS could also serve as a platform to check the conformity of mortgage and lending applications.

Promote an integrated, community-centric approach to one-stop-shops

Accessibility and inclusivity: Trust is vital to OSS success: they should be available in areas where energy-poor and vulnerable households live, work or benefit from other services ([RAP, 2024](#)). This could involve transforming OSS into mobile physical places²¹. They should preferably be managed by local authorities or local stakeholders (e.g. social workers, neighbourhood associations, energy communities, charities, consumer organisations, condominium managers, health specialists, etc.) ([Comactivate, 2020](#)). Citizen participation is not just about using the OSS, but also extends to owning them, setting them up and managing them. Community and cooperative approaches to OSS should be further promoted and supported²², e.g. by integrating renewable energy communities²³ (which can have a positive role in fighting energy poverty, see

approach ensures proper sequencing and avoids closing down future options in terms of renovation and renewable H&C measures. See [BPIE & BEUC \(2023\)](#), and [IFEU & RAP \(2023\)](#).

¹⁷ For the key features of this kind of OSS replication toolkit, see [TurnKey Retrofit project \(2021\)](#).

¹⁸ Best practice sharing to increase the impact of OSS on residential building renovation already exists in the [EU PEERS Community of Practice project](#).

¹⁹ Energy-poor and vulnerable households often prefer OSS that are integrated, providing end-to-end services, rather than OSS only providing broad advice. On the gap between short-term income/energy bill payment support and long-term energy advice, see [Öko-Institut & e-think \(2024\)](#).

²⁰ As of 1st January 2025, Member States are banned from providing financial incentives for the installation of stand-alone boilers powered by fossil fuels (EPBD Article 17 § 15).

²¹ An example is the Belgian energy community Klimaatpunt, which supports vulnerable households in their neighbourhoods with their 'Klimaatmobiel'.

²² Energy and renovation communities and cooperative projects face specific challenges, such as defining the liability against banks or contractors (see for example the learnings from the [OSR COOP project](#)).

²³ Renewable energy communities are defined in Article 22 of the Renewables Directives (2018). The EU Solar Energy Strategy (2022) set the indicative objective of "at least one renewables-based energy community in every municipality with a population higher than 10,000 by 2025".

[Schockaert, 2022](#)) with citizen-led renovation projects.

OSS could also act as intermediaries between communities and district heating network providers. This would improve the energy performance of buildings, help decarbonise district heating systems, and inform citizens about present and future heating options, as well as other opportunities such as energy sharing.

Finally, more and better use of proactive digital outreach tools through social media channels for branding could help to reach the target population.



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About the foundations

Green European Foundation

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