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# PUTTING THE CART BEFORE THE HORSE?

## PERSPECTIVES ON A POTENTIAL ETS ON RESIDENTIAL BUILDINGS

#GREENDEAL
#CLIMATE
#CARBON
#BUILDINGS

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## Executive summary ■

To tackle climate change and make the EU Green Deal a reality, European buildings need to slash emissions by 60% by 2030, and become climate neutral in the late 2040s. This can be done with already existing technologies and techniques. Key obstacles to buildings' mass renovation are a lack of clear decarbonization strategy, weak regulatory framework, high upfront costs and access to finance.

To trigger a Renovation Wave, the European Commission will propose reforms strengthening existing EU buildings regulations in the upcoming "Fitfor55" energy and climate package. It also considers the introduction of a new instrument: an Emissions Trading System (ETS) on buildings to put an EU-wide carbon price on heating fuels. However, applying the polluter -payer principle to buildings may raise more issues than it hopes to solve.

Most EU buildings are homes, and households would be hit hardest. Due to important non-market barriers, the carbon price would need to be very high (150 to 250€/tCO2) to bring on building renovation. This would have a stronger impact on lowest-income households. A price control mechanism would avoid high prices with too much equity impact. In this case, carbon price will not drive the decarbonization of the housing stock, but simply act as a complementary tool. Fostering social acceptability will require to use 100% of the revenues for social compensation and green investments in renovation. However, policy solutions will never mitigate the full impact of the carbon price. Splitting the burden is a political choice which should be subject to a transparent and inclusive debate.

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To finance a socially-fair energy transition in buildings, there are alternative financing sources, including revenues from strengthening the current ETS. To rebalance heating fuel taxation between those already covered by the ETS (electricity and district heating) and the others (e.g. gas), then a reform of the Energy Taxation Directive could play a similar role while ensuring better price predictability. Finally, an EU-wide carbon price is not necessary for the buildings sector given the lack of cross-border issues: no household would move to another EU Member State to benefit from cheaper heating prices. In any case, social justice and consistency should guide carbon taxation. Removing fossil fuel subsidies also contributes to establish a level playing field with low carbon options.

Establishing a new ETS on buildings is a high risk and low reward policy. It would require considerable administrative and political work, diverting efforts from more impactful decarbonization tools. Given distributional impacts of the carbon price and market failures, instruments such as subsidies and performance standards may be more effective in steering rapid and socially-fair transition of buildings. Lastly, the EU would take a major political risk in introducing an EU measure whose success will eventually rests on national policies' fairness and Member States' effective implementation of ambitious renovation policies that are currently lacking. There is a risk to have the poorest paying the highest price of the energy transition. No need to rush for an EU-wide carbon price on buildings. There is a lack consultation at the EU level (not to say national and local) on a potentially highly socially regressive policy that requires extensive stakeholders' engagement.

This policy paper recommends that:

1. The EU Commission, EU Parliament and Council of the EU should put regulatory and supporting policies first by establishing :

   - An ambitious regulatory framework aligned with climate neutrality, with gradually increasing standards for buildings envelopes and heating systems
   - An EU Renovation Fund fueled by additional revenues from the current ETS, investing in the deep renovation of buildings to the benefit of energy poor families. This could be the core of the 'Climate Action Social Facility' considered by the European Commission.

2. The EU Commission and/or the EU Parliament should open an EU-wide multi-level public debate on carbon price on heating and burden sharing of transition costs, which could on the agenda of the Conference for the Future of the European Union. Besides, an EU Citizen Assembly on Climate could feed-in the debate on whether an ETS on heating fuels should be implemented or not, and if yes, under which design and alongside which policies.

3. If the EU Parliament and the Council of the EU choose to adopt the ETS on buildings the EU Commission will propose, they should ensure that a price control mechanism keeps allowances prices at very low levels at least until the worst-performing buildings occupied by low-income households are renovated and key investment barriers removed. 100% of those newly generated revenues should be used for climate and social action, first to compensate the most affected, and second to fund deep renovation of buildings inhabited by energy poor Europeans. Special attention should be given to consistency of the energy reforms to foster social acceptability.

# INTRODUCTION

In the context of the EU Green Deal, which mandates reaching climate neutrality by 2050, rapidly unlocking the emission reduction potential of the building stock is critical. A genuine building renovation wave would help put Europe on a track to achieving its new climate targets of reducing its greenhouse gas emissions by 55% by 2030 and reaching climate neutrality by 2050, while creating jobs in the industrial and construction sectors and lifting millions of Europeans out of energy poverty.

**With the Renovation Wave, the European Commission signals its intention to make buildings one of the top priorities of climate efforts up to 2030.** In addition to reforms strengthening the existing regulatory framework, the European Commission wants to propose a brand-new instrument as part of the July FitFor55 energy and climate package: an Emission Trading System (ETS) on buildings' (and transport) emissions, similar to the instrument under implementation in Germany[1]. **What would be the implications and the added value of such an instrument on buildings decarbonization?**

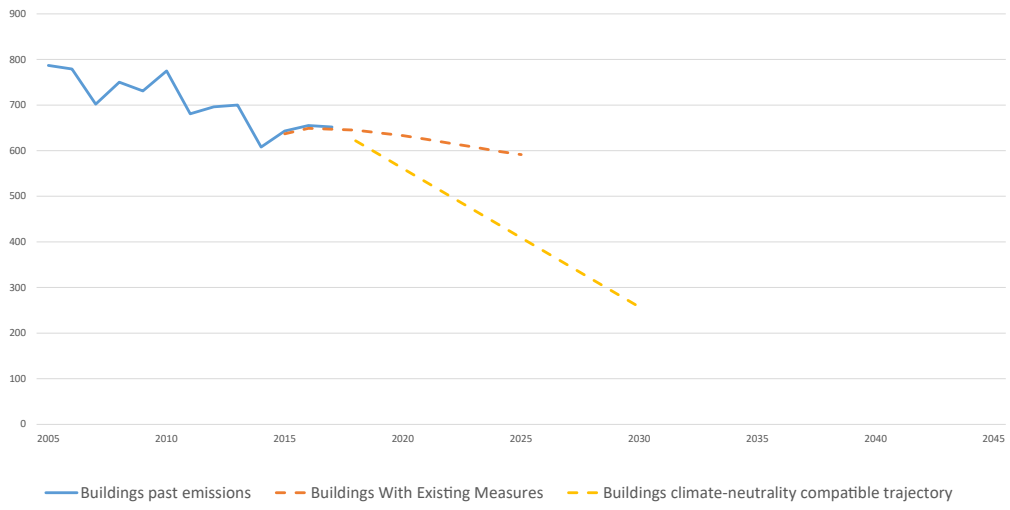
Since most of EU buildings are homes, this paper will focus on residential buildings. Although the housing stock have the greatest greenhouse gas emissions reduction potential, it is also the most difficult segment to address, and households would be hit hardest by the introduction of an EU carbon price. The objective of this policy paper will be to put this instrument in perspective with the current state of the building stock (part 1) and with the reforms needed to overcome barriers to decarbonization (part 2). Finally, it will assess the political opportunity to introduce an ETS on buildings (part 3).

1. Germany just introduced (January 2021) an ETS on heating and transportation fuels. However, the allowances will be traded at a fixed price until 2025, so the system is currently equivalent to carbon taxes already implemented in other Member States (Sweden, France, ect). WETTENGEL, J. 2021. "Germany's carbon pricing system for transport and buildings", *Clean Energy Wire Factsheet*.

# 1 ▪ ACHIEVING OUR CLIMATE OBJECTIVES REQUIRES TO SIGNIFICANTLY ACCELERATE RESIDENTIAL BUILDINGS DECARBONIZATION OVER THE 2020s

Together with the power sector, buildings will be the largest contributor to overall emissions reductions[2] by 2030. The building stock should cut its emissions by at least 60% by 2030[3] to be on a trajectory to achieve net-zero in the late 2040s. However, we are not on track to achieve this target (figure1). What is the scale of the challenge?

**FIGURE 1 ▪ Greenhouse gas emissions coming from the residential and service buildings (MtCO2)**




*Source: European Environment Agency, 2020.*
*GHG emission trends and projections under the scope of the Effort Sharing Decision in the EU. 2005-2030.*

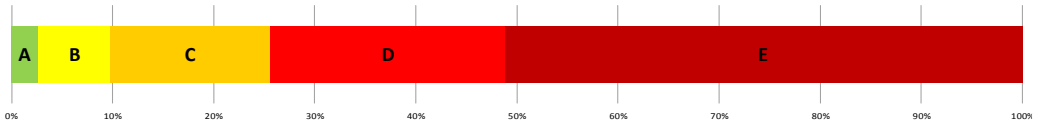
## 1.1 ▪ The EU homes from 2020 to 2050: turning a large consumer of fossil fuels to a highly efficient stock with renewable-based heating systems

**EU buildings consume 40% of EU final energy[4] and represent 36% of total EU greenhouse gas emissions.** To reach climate neutrality in 2050, the sector should cut emissions to zero before 2050. Only 3% of EU buildings are energy efficient (energy class A and above, see figure 2) but it should be close to 100% by 2050. **Since most[5] of the existing building stock will still be standing by this date, deep energy renovation** resulting in 60% to 90% energy

2. In sectors such as industry and transport, technological innovation is yet to reach mass deployment stage –supply chains for electric vehicle are scaling up quickly but still need about ten years to supply 100% electric– so the deepest emissions cuts are expected to take place after 2030.
3. European Commission, 2020. "Green Deal Impact Assessment", SWD(2020) 176 final.
4. Final energy consumption represents the energy consumed by the final customer, so it excludes the energy required for production, storage, transmission and distribution of the final energy.
5. It is commonly estimated that 85 to 95% of existing buildings will still be standing by 2050.

savings[6] **should be massified.** Reaching a high energy performance involves heavy retrofits of all the elements of the building envelope (roof, walls, floors, openings), plus retrofits of in-door air circulation systems and of the heating equipment. About 70% of buildings emissions and consumption originate from EU homes[7], where there is a high potential for energy savings.

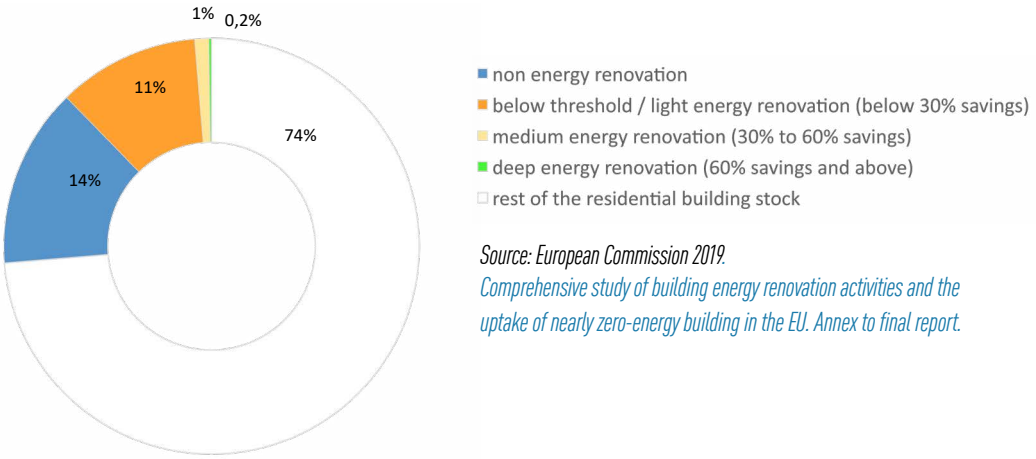
**FIGURE 2 ▪ Distribution of the building stock in the EU per EPC Class**




*Source : BPIE, 2017. 97% of buildings in the EU need to be upgraded. Factsheet.*

**Over the 2020 – 2030 decade, the deep renovation rate should reach 3% annual average[8].** This means multiplying the current rate by 15. Today, although one quarter of the EU housing stock undergoes renovation each year, only 1% result in meaningful savings[9] (see figure 3). **Deep renovation only represents 0,2% of total housing stock every year.** Accelerating housing decarbonization implies first: to aim at deep renovation whenever a renovation is undertaken, and second, to increase the rate of deep renovations[10].

**FIGURE 3 ▪ Annual renovation rate of the housing stock in the EU**

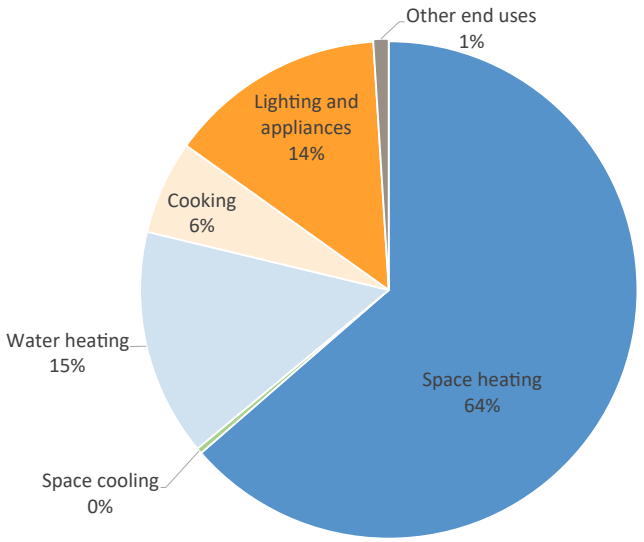



*Source: European Commission 2019.*
*Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy building in the EU. Annex to final report.*

6. No official definition of deep renovation exists, yet the EC commonly used the 60% threshold in past communications. The Commission also considers three types of renovation. Type 1 is a retrofit of the building envelope. Type 2 is a change of heating system. Type 3 is a combination of both.
7. European Environment Agency, 2021. "EEA greenhouse gases – data viewer", The residential sector should cut current consumption by 19 to 23% by 2030 according to European Commission, 2020. "Green Deal Impact Assessment", SWD(2020) 176 final.
8. VITALI ROSCINI, A., RAPF, O. KOCKAT, J. 2020. "Contributions from the building sector to a strengthened 2030 climate target", Buildings Performance Institute Europe.
9. Only 9 on average in the residential sector. SUNDERLAND, L. 2020. "Minimum energy performance standards to decarbonize buildings by 2050", Regulatory Assistance Project 2020, *Factsheet*.
10. THOMAS, S. 2015. "Energy Efficiency policies for buildings. bigEE's recommended policy package, good practice examples and tips for policy design ", Wupperthal Institute.

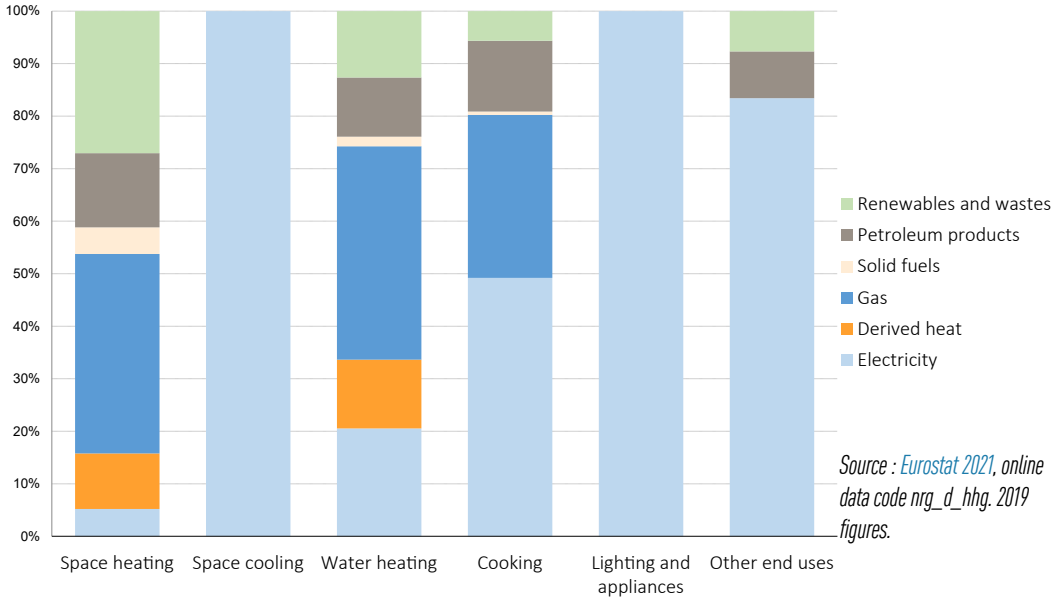
**Besides, we need to decarbonize the remaining energy used by heating systems.** One out of five homes should switch to low-carbon heating supply over the 2026-2030 period[11]. 80% of the energy use in residential buildings come from space and water heating (figure 4). Two thirds the energy supply used for space and water heating comes from fossil fuels (gas, oil and coal). As figure 5 shows, space and water heating are dominated by gas and are far less electrified than other energy end-use. Electricity supplies only 5% of EU homes space heating needs, while gas represents almost 40%.

**FIGURE 4 ▪ 80% of energy used in EU homes comes from heating.**




*Source : Eurostat 2021, online data code nrg_d_hhg. 2019 figures.*

**FIGURE 5 ▪ Fossil fuels dominate final energy consumption for space and water heating in households**




*Source : Eurostat 2021, online data code nrg_d_hhg. 2019 figures.*

11. European Commission, 2020. "A Renovation Wave for Europe – greening our buildings, creating jobs, improving lives", COM(2020)662 final.

With an average technical lifetime of 20 to 25 years, new gas and oil boilers should be phased-out of the market by 2025[12]. Existing fossil-based heating systems should also gradually be replaced. Among the alternatives to gas and oil boilers, a range of solutions already exist and can be adapted to local circumstances:

- **heat pumps** (devices that transfer energy from the outdoor air to indoors using mechanical energy) can use electricity to supply heating and cooling,
- some locations can access **district heating networks** of insulated pipes supplied by renewables and excess heat from industrial processes,
- **solar thermal panels** can be a solution in areas with good solar exposition or when the buildings is mostly used in the summer,
- **biomass** can be a good fit especially for well-insulated homes in rural areas with local access to sustainable biomass,
- **geothermal** can play a role in specific circumstances,
- **direct electrification** is a solution especially for water-heating, and for space heating of small surfaces.

With great emission reduction potential and readily available technologies and techniques, what are the obstacles to massive decarbonization of the building sector?

## 1.2 ■ Overcoming obstacles to large scale buildings decarbonization

Many potential energy savings are not achieved because of market failures. Key barriers to buildings decarbonization are:

- *Knowledge and awareness barriers*: **lack of clear and well communicated decarbonization strategy** from public authorities, **lack of awareness** of households about the benefits of renovation (energy efficiency alone is rarely an investment trigger)[13], **lack of information** about building performance due to lacking or unreliable energy labels.
- *Financial barriers*: **deep renovation is expensive**, estimated at 300€/m2[14] and above depending on the building, resulting in 30 000 € for a 100m2 unit; **lack of adequate financing solutions**, be it a mix of grants and affordable loans for middle class and affluent households, or subsidies for low-income households and energy poors; **split incentives** in the case of rented units (30% of EU households[15]), where the landlord lacks incentives to invest because he/she would not directly benefit from the renovation through reduced energy bills; **lack of clear valorization** of a good energy class in property valuation; **weak price signals**: heating fuels taxation is not aligned with their carbon content, which does not incentivize fuel switch. Europeans pay on average 3,3 times more for electricity than for gas[16].

12. In line with the IEA latest report. IEA, 2021 Net Zero by 2050, see also ZILL, M., BOYE OLESEN, G. TOULOUSE, E. 2020. "*Five* years left. Howe ecodesign and energy labelling can decarbonize heating", ECOS – coolproducts.
13. FABBRI, M. GLICKER, J. SCHMATZBERGER, S. VITALI ROSCINI, A. "A guidebook to European building policy. Key legislation and initiatives", Buildings Performance Institute Europe, August.
14. 300 to 350 €/m2, in EUClac, 2020. Buildings module documentation,
15. Eurostat, 2020. "Housing in Europe. Statistics visualized".
16. European Commission, 2020. "Energy prices and costs in Europe", COM(2020)951 final. In THOMAS, S., SUNDERLAND, L., SANTINI, M., 2021. "Pricing is just the icing : the role of carbon pricing in a comprehensive policy framework to decarbonize the EU building sector", Regulatory Assistance Project, June.

- *Need to streamline quality renovation in a complex supply chain*: a **highly fragmented market** where investment decisions are taken at the household level but involves a complex value chain (public authorities, energy auditors, financers, construction companies, etc.)[17]; **lack of skilled** workforce to undertake **high quality renovation**[18]**; lack of quality insurance** to guarantee high quality renovation.

**FIGURE 6 ▪ Overview of key obstacles to renovation**

| KNOWLEDGE AND AWARENESS | FINANCIAL | SUPPLY CHAIN |
|---|---|---|
| • Lack of well communicated decarbonisation trajectory<br>• Lack of awareness from households<br>• Lack of data and reliable indicators on buildings performance | • High up-front cost of deep renovation<br>• Access to finance<br>• Split incentives<br>• Lack of clear property value differentials<br>• Weak price signals | • Fragmented market with multiple stakeholders<br>• Lack of skilled workforce<br>• Lack of quality insurance for quality renovation |

*Source : Jacques Delors Institute own elaboration*

**To overcome these barriers, the residential sector needs :**

1. **A stronger policy framework that gives all stakeholders legal certainty about renovation timeline and required energy performance**[19]. Minimum Energy Performance Standards (MEPS), acting as renovation obligations, have the highest potential to boost renovation[20]. MEPS would determine minimum performance levels for each building type, and define a deadline where higher energy standards must be implemented. Favourable moments (like rent or sale) can also be used as trigger points for cost-effective renovation works. Setting up MEPS will require to have reliable assessment and information about the energy performance of the building stock.

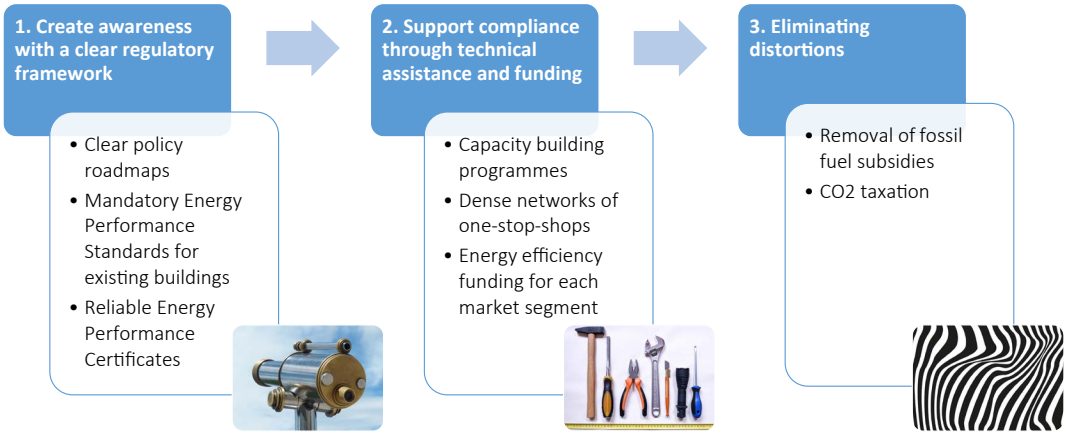
2. **Adequate technical and financing solutions for each market segment.** Once governments introduced an obligation to renovate and set up reliable tools and indicators to monitor compliance, compliance should be supported both through technical assistance and targeted funding. Capacity building programs for national and local authorities and banks, as well as training programs for construction companies, will streamline deep renovation throughout the supply chain. One-stop-shops should be easily accessible to

17. THOMAS, S. 2015. "Energy Efficiency policies for buildings. bigEE's recommended policy package, good practice examples and tips for policy design", Wupperthal Institute.
18. There is a lack of global assessment of skilled workforce needs to perform the Renovation Wave, but a study from the Commission showed that 60% of surveyed contractors struggled to select the right technical measures for energy renovation. European Commission, 2019. "Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy building in the EU", *Annex to final report*.
19. For a more extensive discussion on MEPS, see , SUNDERLAND, L. SANTINI, M. Next Steps for MEPS : Designing minimum energy performance standards for European buildings, *Regulatory Assistance Project report*.
20. European Parliament, 2016. "Boosting Building Renovation: what potential and value for Europe?".

all households to provide guidance through the renovation journey, from the energy audit to selection of contractors, access to funding and final quality checks.

3. **Elimination of price distortions.** Lastly, it can make sense to bolster deep renovations by strengthening the price signal, ie removing fossil fuels subsidies and introducing CO2 taxation. However, there is a wide consensus that raising the energy price cannot trigger deep renovations alone[21], because of barriers mentioned previously.

**FIGURE 7 ▪ Addressing obstacles to deep renovation**




*Source : Jacques Delors Institute own elaboration*

21. STEUWER, S., RIEKE BOOL, J. 2021. "Introducing a carbon price on heating fuels: a effective signal for faster decarbonization in the buildings sector?", *Policy briefing*, Building Performance Institute Europe.

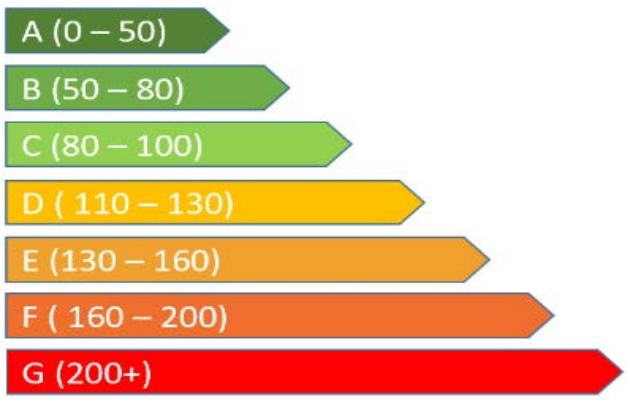
# 2 ▪ A RENOVATION WAVE FOR EUROPE : WHY CURRENT EU BUILDINGS POLICY FRAMEWORK IS TOO WEAK TO TRIGGER MASSIVE BUILDINGS DECARBONIZATION AND SOME OPTIONS TO STRENGTHEN IT

**With the Renovation Wave Communication unveiled in October 2020, the European Commission signals buildings as a flagship area for action as part of the EU Green Deal**, and acknowledges the need to overcome the above-mentioned obstacles with additional policies to accelerate decarbonization in the building sector. The Renovation Wave sets a significant acceleration of renovation rate with at least doubling the current annual renovation rate of around 1% over this decade. This falls short of the required ambition of 3% annual deep renovation rate highlighted above. Annual rate of heating systems replacement should reach 4% for the period 2026-2030, meaning that one out of five homes would have a change in heating system over that timeframe. The next section will present the EU buildings policy framework and the proposed options to strengthen it.

## 2.1 ▪ Overview of EU building policies

**The cornerstone of EU building regulatory framework is the Energy Performance of Buildings Directive (EPBD).** It mandates the establishment of national energy labelling systems characterizing the energy consumption of buildings. Energy Performance Certificates (EPCs) measure energy consumption with ratings from an highly efficient A to very inefficient G, expressed in kWh/m2/year (see figure 8). The EPBD also sets minimum energy performance standards for new buildings. Since 2021, all new buildings must be "nearly zero emissions", according to standards defined at the national level. Minimum energy performance standards also apply to existing buildings undergoing major renovations[22].

**FIGURE 8 ▪ Example of Energy performance certificate rating Scale**




*Source : Jacques Delors Institute own elaboration*

22. Defined as the renovation of a building where the total cost of the renovation relating to the building envelope or the technical building systems is higher than in 25% of the value of the building, excluding the value of the land upon which the building is situated, or more than 25% of the surface of the building envelop undergoes renovation.

**Member States implementation of the EPBD greatly varies in ambition.** National EPCs have been criticized for their lack of quality and reliability, while compliance with minimum energy performance standards for new buildings and buildings undergoing major energy renovation works remains low[23]. Currently, EU minimum energy performance are based on cost-optimal methodologies determined at national level, which sometimes lack sufficient ambition[24]. Besides, low construction and demolition rate means that setting high energy efficiency standards for new buildings is insufficient to reach our climate goals.

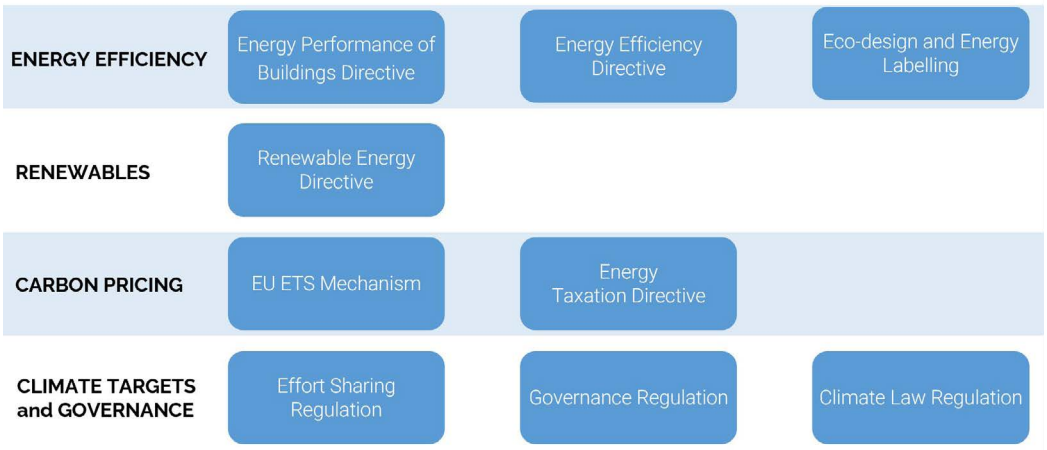
Additional relevant legislation include :

- **The Energy Efficiency Directive** that sets an EU target of a reduction of energy consumption by 32,5% by 2030. However, this target is non-binding (there is no legal obligation to comply with it) and not disaggregated by Member State.
- The **Renewable Energy Directive** that sets a legally binding EU target of 32% renewable energy and requires Member States to :
    * Introduce provisions in their building regulation and codes to foster renewable energy consumption in buildings. Minimum renewable energy shares must be included in new buildings and existing buildings undergoing major renovations.
    * Aim to increase renewable energy in heating and cooling by 1,3% per year on the period 2020 – 2030. The objective is only indicative (no legal obligation to comply).
- The **Ecodesign Regulation** that sets minimum energy efficiency standards for individual heating technologies, while the **Energy Labelling Regulation** defines the energy efficiency scale.
- The **Energy Taxation Directive** that sets minimum tax rates depending on fuel type. However, the rate is not based on fuels carbon content.
- The **EU Emission Trading System Mechanism** which already covers 30% of buildings emissions due to electricity and district heating.
- The **Effort Sharing Regulation** which covers remaining buildings' emissions as part of national binding targets on non-ETS emission that also includes transportation, agriculture, industry and waste.
- The **Governance Regulation** introduced in 2018 requires MS to prepare National Climate and Energy Plan (NECP) for the 2021 – 2030 period, which includes Long Term Renovation Strategies according to EPBD requirements, and which aims to establish long term decarbonization strategies to 2050.
- The **Climate Law Regulation**, which should be adopted by the end of 2021, wrote into law the objective net zero greenhouse gas emissions by 2050 for the EU. It includes monitoring and adjustment measures, including the creation of an independent body of scientific experts to advise EU institutions on climate policies, and the introduction of a greenhouse gas budget for the period 2030 – 2050.

23. The EPBD requires that buildings undergoing major renovations should be upgraded to minimum cost-optimal energy performance levels. However, cost optimality is weakly defined and can be used to circumvent the obligation or lower-down the ambition of the energy renovation. European Commission, 2015. Energy Performance of Buildings Directive (EPBD) Compliance Study.

24. About two thirds of Member States would have potential to improve their approach and half of them have a significant gap between ambitions and cost-optimal level, according to Ecofys 2015. Assessment of cost optimal calculations in the context of the EPBD Final Report. Final report.

**FIGURE 9 ■ EU building related legislation 2021**




*Source : Jacques Delors Institute, based on EU existing regulations*

## 2.2 ■ Unlocking investments: EU funds[25] supporting the Renovation Wave

**While there is currently no EU Fund specifically dedicated to building renovation, there are many existing EU funds that can be used to support building renovation investments.** 30% of the EU budget for 2021 – 2027 and 37% of the recovery fund Next Generation EU are earmarked for climate action[26], meaning that they will have to be invested in the green transition. The five most important category of funds that can be used for building renovation are: the cohesion policy funds (330€ billion)[27], the Just Transition Fund (17,5€ billion), Recovery and Resilience Facility (672,5€ billion), REACT-EU (47,5€ billion) and the Modernisation Fund financed by 2% of EU ETS revenues[28]. However, **in the absence of dedicated earmarking for decarbonization of buildings, no certainty about the amount of EU public support for energy renovation is provided.**

Besides, the EU finances a wide range of facilities to support buildings' renovation public and private investment:

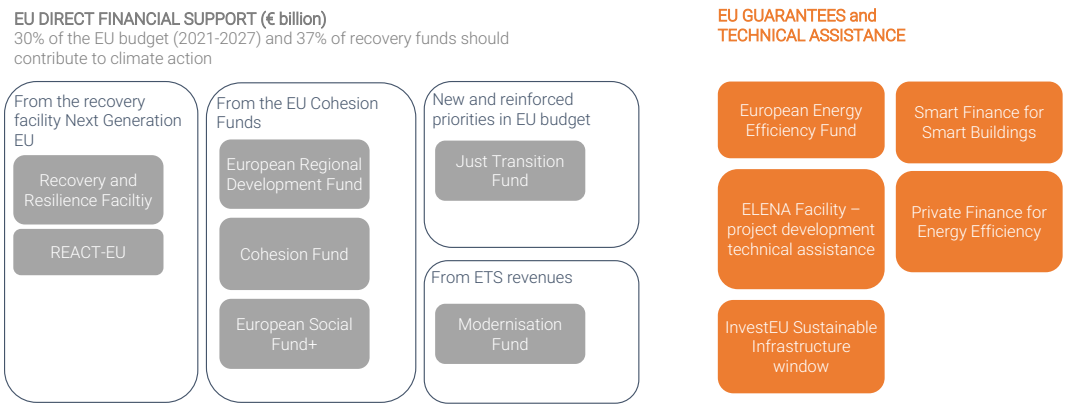
- **InvestEU** is a private investment support facility backed by an EU guarantee. Its Sustainable Infrastructure window (20€ billion) may be mobilized to fund buildings' renovation, especially with dedicated financial products. 75% of the InvestEU guarantees will be implemented by the European Investment Bank (EIB).
- **Smart Finance for Smart Buildings** provides guarantees, grants and technical assistance to foster project development assistance.

25. For a visual overview of EU funds for the 2021 – 2027 period, see European Council Infographic – Multiannual financial framework 2021 – 2027 and Next Generation EU.
26. Which amounts to 600€ billion over the period 2021 – 2026/2027, out of a total budget of 1824€ billion (in 2018 prices) composed of 1 074€ billion for EU's long term budget for 2021-2027 and 750€ billion for Next Generation EU.
27. European Regional Development Fund, Cohesion Fund, European Social Fund+.
28. The Modernisation Fund is dedicated to support 10 lower-income Member States (Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia) in their energy transition, including energy efficiency. The list does not include all lowest-income Member States, like Greece, whose GDP per capita in purchasing power parity is below Romania, or Portugal, which is below Estonia according to the IMF World Economic Outlook Database April 2021 2019 figures.

- **Private Finance for Energy Efficiency (PF4EE)**, managed by the EIB supports financial institutions lending activities in the field of energy efficiency.
- **European Energy Efficiency Fund** provides market-based financing for public sector energy efficiency projects.
- **ELENA (European Local Energy Assistance)** is a technical assistance facility managed by the EIB, that proposes grants to fund large projects preparation, ie preliminary studies, contracting and procurement.

**The implementation of a strengthened regulatory framework with stricter requirements regarding buildings energy performance certifications and mandatory upgrades will create demand for technical assistance and financial support at the local level.** The existing initiatives should be scaled-up to go hand-in-hand with the introduction of more ambitious standards.

**FIGURE 10 ▪ EU funds to unlock investments in buildings decarbonization**




*Source : Jacques Delors Institute, based on existing EU financing*

## 2.3 ▪ Existing EU building policies lack maturity

Current EU legislation requires the introduction of key policy elements in national building codes and relevant law, but Member States retain wide margins of interpretation and may use it to lower the initial ambition. To complement and support EU legislation, **Long Term Renovation Strategies (LTRS)** act as a key EU steering instrument towards more ambitious buildings decarbonization policies.

**Preliminary analysis by the Commission shows that Member States' ambition must be strengthened to decarbonize building stock by 2050**[29]**.** Most submitted LTRS fall short of full decarbonization by 2050[30]. Many identified national best practices are just being introduced. This is the case for mandatory minimum energy performance standards (MEPS) for some existing buildings, which should enter into force for offices in the Netherlands in

29. European Commission. 2021. Commission Staff Working Document. Preliminary analysis of the long-term renovation strategies of 13 Member States. See also STANIASZEK, D., KOCKAT, J., VITALI ROSCINI. A. A review of EU Member States 2020 Long-term renovation strategies. Buildings Performance Institute Europe (BPIE). September 2020.
30. *Ibid*.

2023[31], and for worst-performing rented units in France in 2025[32]. Brussels Capital aims to introduce a roadmap for staged deep renovation in the residential sector this year. **This makes the case for a strengthened EU framework that would support the harmonization of ambitious regulatory requirements to unlock buildings' decarbonization potential.**

## 2.4 ■ Potential regulatory reforms to accelerate the renovation rate and heating decarbonization

**The 2020 Renovation Wave Communication identifies key areas for action, most of which are to be ultimately implemented by Member States (information, funding, capacity building).** Tackling energy poverty and worst performing buildings, as well as decarbonization of heating and cooling are considered as priorities. **But implementing the Renovation Wave necessitates key EU policy elements revision that should be proposed by the European Commission in 2021 as part of the Fitfor55 energy package.** The upcoming reforms should leave Member States some leeway while introducing stricter requirements that would address investment barriers.

**New public financing for buildings' deep renovation and heating fuel switch requires an appropriate regulatory framework to maximize its efficiency**. Making impactful energy efficiency investments in buildings' envelope will require:

- **More reliable and widespread use of Energy Performance Certificates (EPCs).** Currently, the lack of data on buildings hinders buildings decarbonization policies monitoring and worst performing buildings prioritization. Besides, EPCs should better account for operational energy performance. A reliable measure of energy savings and carbon emission reduction is required to tie public and private financing to renovation performance.
- **Introduction of MEPS based on reliable EPCs.** EU should require Member States to set up MEPS with strict implementation principles while allowing MS to tailor the specifics to their building stock[33]. MEPS can support prioritization of worst-performing buildings and give a timeline for renovation and decarbonization of heating. Calendar and ambition should be aligned to climate neutrality objective by 2050. As an example, the Netherlands announced in 2018 that offices should be EPC C by 2023. The clarity about the target and the timeline allowed the banking sector to proactively engage with their clients to meet the standard as early as possible, and integrate this requirement in their investment strategy.

These reforms will concern the Energy Performance of Buildings Directive (EPBD). Another key text to foster buildings' decarbonization is the **Ecodesign regulation, whose standards should be aligned with the need to phase-out fossil fuels**. Energy label could be gradually rescaled to downgrade most of fossil-based appliance to the lowest grades, in the Energy labelling regulation. Then, similarly to MEPS for buildings envelopes, MEPS could be intro-

31. Offices must reach C class by 2023.
32. Inappropriate housing qualification will concern G energy class rented homes from 2025. Classifying the building as "inappropriate housing" is a de facto obligation to renovate if the owners wants to keep renting the house. However, renovation implementation of will rest on tenants, thus limiting the potential impact. Inappropriate housing is likely to concern vulnerable households who lack the resources to go to court and enforce their right to a "not to energy inefficient" home.
33. For further discussion on MEPS, see SUNDERLAND, L. SANTINI. M. 2020. "Filling the policy gap: Minimum energy performance standards for European buildings", *Regulatory Assistance Project*.

duced for boilers, whereby lowest performing heaters would gradually have to be phased out over time.

EPBD and Ecodesign are key elements of a stronger regulatory framework for a decarbonized building stock. However, deep renovation should be streamlined in all relevant building legislation to achieve the Renovation Wave[34], for example by strengthening renewable energy requirements in buildings in the Renewable Energy Directive.

**A more ambitious EU framework will need to be supported by strengthened technical assistance to the local level**, be it local authorities, companies and households, robust enforcement mechanisms[35] and **appropriate financing solutions** for each market segments, especially low-income and energy poor households.

## 2.5 ■ Increasing the national emissions targets under the Effort Sharing Regulation

**In current EU climate policy architecture, 70% of buildings' emissions fall under the Effort Sharing Regulation.** In the EU, greenhouse gas emissions reduction compliance is in part ensured through the EU Emission Trading System (ETS), which sets an emission cap on emissions from power and district heating, manufacturing and intra-European airlines, representing around 40% of EU emissions. Remaining emissions from transport, heating in buildings, agriculture (apart from land use) and waste are covered by the Effort Sharing Regulation (ESR). ESR binding national targets are not disaggregated by sector, leaving Member States some leeway regarding the pathway to achieve these targets.

**ESR targets should be revised and compliance mechanisms strengthened.** ESR targets have several merits: they are subject to infringement procedures, they are already operational, and they foster national ownership of climate policies while preventing freeriding at the same time[36]. Increased compliance mechanism could include penalties such as increased obligations in case of non-compliance, imposing fines that could be recycled into green investments, and linking compliance with access to EU funding[37] .

**To achieve the −55% target by 2030 under the current climate policy architecture, ESR overall target should be raised from 30 to around 40%[38].** The distribution of the additional effort will lead to heated debate among Member States and increases the need to EU-level action in favour of building renovation, through regulation (e.g. a revision of EPBD and Ecodesign mentioned above), and possibly also though an EU carbon pricing mechanism on heating fuels that this paper now turns to.

34. For a detailed assessment of coherence needs, see SIBILEAU, H., 2021. "The Renovation wave strategy and action plan: designed for success or doomed to fail?", *Briefing*, Buildings Performance Institute Europe.
35. THOMAS, S., SUNDERLAND, L., SANTINI, M., 2021. "Pricing is just the icing : the role of carbon pricing in a comprehensive policy framework to decarbonize the EU building sector", *Regulatory Assistance Project*.
36. MEYER-OHLENDORF, N., BART, I. 2020. "Climate Action Regulation 2.0 – EU framework for making non-ETS sectors Climate Neutral", Ecologic Institute.
37. GRAF, A., GÖRLACH, B., UMPFENBACH, K. 2021. "A 'Fit for 55' Package Based on Environmental Integrity and Solidarity : Designing an EU Climate Policy Architecture for ETS and Effort Sharing to Deliver 55% Lower GHG emissions by 2030", Agora Energiewende and Ecologic Institute.
38. European Commission, 2020. Green Deal Impact Assessment, SWD(2020) 176 final.

# 3 ▪ PUTTING THE CART BEFORE THE HORSE? AN EMISSION TRADING SYSTEM FOR HEATING IN BUILDINGS: PROS, CONS AND ADDED VALUE

Next to the above mentioned measures, and as part of the upcoming energy reform package Fitfor55, the European Commission plans to propose "an own, separate emission trading system [on buildings and transport fuels] at a very low scale at the beginning, immediately coupled with a clear social compensation structure.[39]"

**Setting up an Emission Trading System for heating in buildings raises several questions that this section looks at.**

**BOX 1 ▪ How does the current Emission Trading System works?**

Launched in 2005, it covers over 11 000 large installations from the power, industrial and heat production sectors. A cap is introduced on their total greenhouse gas emissions. The cap is reduced over time according to the decarbonization target. Regulated installations must monitor and report on their emissions every year to ensure they do not exceed their emissions allowances (CO2 quota). The installations who exceed their quota have to buy emissions allowances on the market. The price of the emission allowance will rise as emission allowances get scarcer. Under a well-functioning system, the emission cap will ensure that the emission target is met.

## 3.1 ▪ A complementary instrument to a strengthened framework

The objective of an ETS on buildings would be to accelerate emission reduction in this sector. However, characteristics of the building sector make it ill-suited for a carbon trading mechanism that would be the main decarbonization instrument.

**The carbon price on heating fuels would remain a complementary instrument.** It would act as an incentive for governments to implement ambitious renovation programs and fuel-switch policies[40], and would improve cost-effectiveness of renovation. A carbon price will address the cost of using fossil-based boilers to heat inefficient buildings, thus preventing rebound effects[41]. However, a carbon price under a market-based mechanism such as the Emission Trading System will lack the long-term perspective required to create a demand for deep renovation[42]. There is a wide consensus, shared by the European Commission, that introducing a carbon price will require strengthened regulatory policies and enabling environment to address non-market barriers and allow for impactful investments in renovation and low-carbon heating markets[43].

39. VON DER LEYEN, 2021. EUCO Press conference, May 25th.
40. POLLITT, M. DOLPHIN, G. 2020. "Feasibility and impacts of EU ETS scope extension: road transport and buildings", Center on Regulation in Europe.
41. Rebound effect is an increase of energy use (or less than expected energy savings) after the implementation of energy efficiency actions, as greater comfort is accessible for a lower price.
42. STEUWER, S., RIEKE BOOL, J. 2021. Introducing a carbon price on heating fuels: a effective signal for faster decarbonization in the buildings sector?, *Policy briefing*, Building Performance Institute Europe.
43. European Commission, 2020. "Green Deal Impact Assessment", SWD(2020) 176 final • THOMAS, S., SUNDERLAND, L., SANTINI, M., 2021. "Pricing is just the icing : the role of carbon pricing in a comprehensive policy framework to decarbonize the EU building sector", *Regulatory Assistance Project*.

**A potentially very high carbon price due to important non-market barriers.** Key investment barriers in the building sector are not price-driven. Lack of awareness and information, lack of access to finance and split incentives will not be addressed by a carbon price. Besides, heating demand is not very responsive to price (low price elasticity), so using a price instrument to decrease households heating consumption would require a very high price. Recent analysis on the European market estimated that allowance prices as high as 170€/tCO2 would be needed to reach the 2030 target[44]. A study on the German market concluded that a even a of price 200 €/tCO2 might fall short of massive buildings decarbonization objectives[45].

As a result, carbon prices needed to foster buildings decarbonization are expected be higher than in the current ETS, which would justify a separated market to avoid distortions on current ETS.

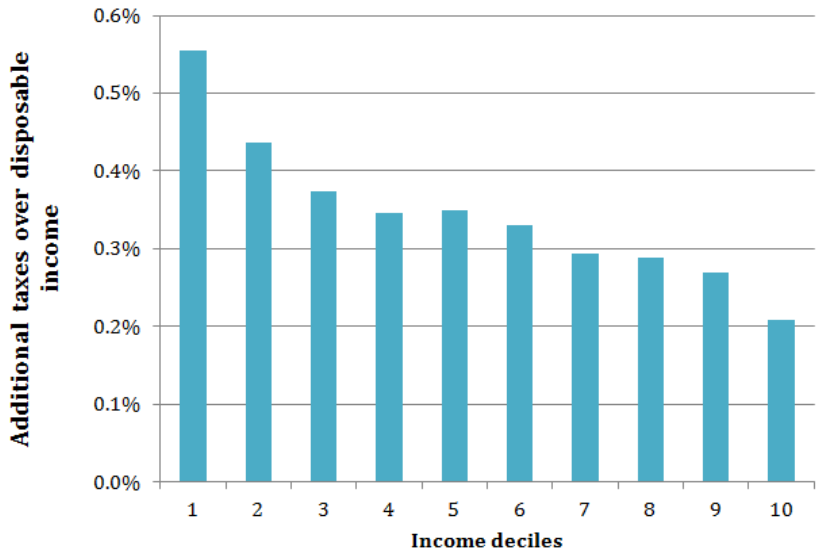
## 3.2 ■ An instrument that raises political and social acceptability issues

**A uniform EU-wide price on heating emissions is a socially regressive policy that will have a stronger impact on lowest income households.** In the absence of social compensation policies, the lowest-income households will be the most affected since they spend a higher share of their revenue on energy bills[46]. A detailed study on the redistributive effects of carbon taxation in France[47] showed that that the latest carbon tax increase from 22 to 44€/tCO2 resulted in an effort rate 2,6 times more important for the lowest income households than for the highest (figure 11).

In the absence of targeted supporting policy, it is unlikely that low-income households will have the financial means to renovate their homes and switch to low carbon boilers. They are also more likely to live in rented homes, hence facing split incentives[48]. In this context, higher prices might lead to under-heating and worsen already existing energy poverty[49]. 7% of EU households declared being unable to keep their home warm in 2019.

44. MAJ, M. RABIEGA, W., SZPOR, A. CABRAS, S., MARCU, A. FAZEKAS. D. 2021. "Cost for households of the inclusion of transport and residential buildings in the EU ETS", Polish Economic Institute, Warsaw.
45. With such a price, only worst-performing buildings with the poorest energy standards would be incentivized to reach higher standards, according to a study on the German market. Ewi/FiFo Köln, 2019. "CO2-bepreisung im Gebaüdesektor und notwendige Zusatzinstrumente". In Matthes, 2020. *Pricing carbon, an important instrument of ambitious climate policy*, Vol. 48 of the Publication *Series Ecology*, Heinrich Böll Foundation Series Ecology.
46. 20% households with the lowest income in the EU spend 7,2% of their total revenue on energy, vs an EU average of 5,9%, in MAJ, M. RABIEGA, W., SZPOR, A. CABRAS, S., MARCU, A. FAZEKAS. D. 2021. "Cost for households of the inclusion of transport and residential buildings in the EU ETS", Polish Economic Institute, Warsaw.
47. DOUENNE, T. 2020. "The vertical and horizontal distributive effects of energy taxes : a case study on a French policy", *The Energy Journal*, Vol. 41, no3.
48. STENNING, J. BUI, H., PAVELKA, A. 2020. "Decarbonizing European transport and heating fuels – Is the EU ETS the right tool?", *Final Report*, Cambridge Econometrics.
49. For an overview of the state of energy poverty in the EU, see MAGDALINSKI, E, DELAIR, M., PELLERIN-CARLIN, T. 2021. "Europe needs a political strategy to end energy poverty", *Policy paper 259*, Jacques Delors Institute.

**FIGURE 11 ▪ Average effort rate from a carbon tax increase from 22 to 44 €/tCO2 as a share of disposable income by income decile in France**




*Source : DOUENNE, T. 2020. "The vertical and horizontal distributive effects of energy taxes : a case study on a French policy", The Energy Journal, Vol 41, no3*

**Besides, low-income Member States will be overburdened by an EU-wide carbon price on heating fuels.** Central and Eastern European countries that face colder climate and have inefficient building stocks will experience higher costs, especially if they rely on high shares of fossil fuels. In this respect, Poland might be particularly affected as its heating mix relies heavily on coal (45%) and gas (15%). At a price of 250€/tCO2, the additional energy cost for the lowest income households (first quintile, or 20% lowest income) was estimated at 50% in the EU[50]. However, in Poland the lowest income households could face an increase of up to 108% of their energy bills.

**A price control mechanism assorted with a price cap would be a safeguard against price hikes that would have too much equity impact.** Under such a design, **no certainty would be provided in reaching the emission target.** In the current ETS, prices are free to reach the level required to achieve a pre-defined emission reduction objective. Capping the prices on the ETS on heating fuels would avoid worst distributional impacts (uneven distribution of the costs across households and countries) but it would not reflect demand and supply for allowances. Compliance with the emission target would remain under the Effort Sharing Regulation.

50. MAJ, M. RABIEGA, W., SZPOR, A. CABRAS, S., MARCU, A. FAZEKAS. D. 2021. "Cost for households of the inclusion of transport and residential buildings in the EU ETS", Polish Economic Institute, Warsaw.

## 3.3 ■ A new revenue stream for a just transition ?

Besides a price control mechanism, another very important element to increase social and political acceptability is to recycle 100% carbon pricing revenues into green and social measures[51]. It should not be used to repay covid recovery debts as a new own resource for the EU.

**Given the highly regressive impacts of the instrument, a high share of revenues (typically 50%) should be redistributed to households to compensate the social impacts.** While the European Commission floats the idea of a "Climate action social fund" to address these concerns[52], it is indeed harder for a supranational organization like the European Commission to organize such distribution. By contrast, national action can recycle carbon pricing revenues by quickly increasing direct financial transfers to citizens, increase existing social policy measures, or decrease taxes in other areas –such as the decrease in electric taxation currently envisioned in Germany[53].

**Ultimately, policy solutions will never mitigate the full impact of the carbon price. Splitting the burden will be a political choice which should be subject to a transparent and inclusive debate.** If vertical redistribution between high and low-income can be tackled through income-targeted taxation or transfer programs, mitigating horizontal redistribution effects between households of similar income might be trickier. Horizontal inequalities within the same income group would originate from differences in the type of fuel used by the building, building age and efficiency, climatic conditions, or family composition. However, the lack of data and the multiplicity of criteria makes it difficult to precisely target households on other criteria than income[54].

**The remaining 50% should be dedicated to financing deep renovation and fuel switch to renewables**, especially targeting worst performing buildings and low-income households. At 25€/tCO2, which is considered to be a rather low price, **revenues from and ETS on heating emissions on buildings would amount to over 10€ billion/year**[55]. After social compensation measures, **this could leave about 5€ billion for an EU and/or national deep renovation funds.**

**If the objective is to finance a fair energy transition in buildings, a strengthened ETS extended to international transportation would be a good alternative financing source.** Revision of the ETS should aim at recycling of 100% ETS revenues (against about 80% currently). Additional revenues thanks to free allocations phase-out and potential inclusion of international transportation could be earmarked to investments targeted at low income households in buildings (and transport), with an explicit link to investments projects and

51. CARATTINI, S., CARVALHO, M., FANKHAUSER, S. 2017. "How to make carbon taxes more acceptable", *Policy Report*, Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science.
52. SIMON, F. 2021. "EU plans 'climate action social fund' to shield citizens from rising carbon prices", *Euractiv*, June 10th.
53. Stiftung Klimaneutralität. 2021. "CO2-Kosten and die Bürger/innen zurückgeben durch Absenkung der EEG-Umlage. Ein Regelungsvorschalg", June 3rd.
54. DOUENNE, T. 2020. "The vertical and horizontal distributive effects of energy taxes : a case study on a French policy", *The Energy Journal*, Vol 41, no3.
55. Based on buildings' emissions under the ESR, European Environment Agency, 2020. "GHG emission trends and projections under the scope of the Effort Sharing Decision in the EU. 2005-2030".

programs already identified in Long Term Renovation Strategies and the National Energy and Climate Plans. As an example, inclusion of maritime transport would already represent **7,6€ billion** at current prices[56]. Similarly, removing free allocations for the industry would represent **38€ billion a year**[57].

## 3.4 ■ A carbon price on heating fuels to rebalance carbon taxation between heating fuels and sources

**The key merit of applying a carbon price on buildings' emissions would be to rebalance taxation between heating fuels. Electricity is always more heavily taxed than fossil gas across the EU**, except in the Netherlands (figure 12). Financing of renewable electricity and climate policies has been passed on consumers through electricity prices, whereas heating gas often benefits from exemptions and lower taxes[58].

**Beyond national taxation specificities, there is also an imbalance at the EU level between emissions from buildings covered by the ETS and those who fall under the ESR.** ETS prices are currently around 50€/tCO2 and are expected to remain at this level and above in the coming decade[59]. On the other hand, only a handful of Member States introduced a carbon tax on heating fuels not covered by the ETS[60], and most of them are lower than current ETS price. Besides, even in these countries gas remains cheaper than electricity[61].

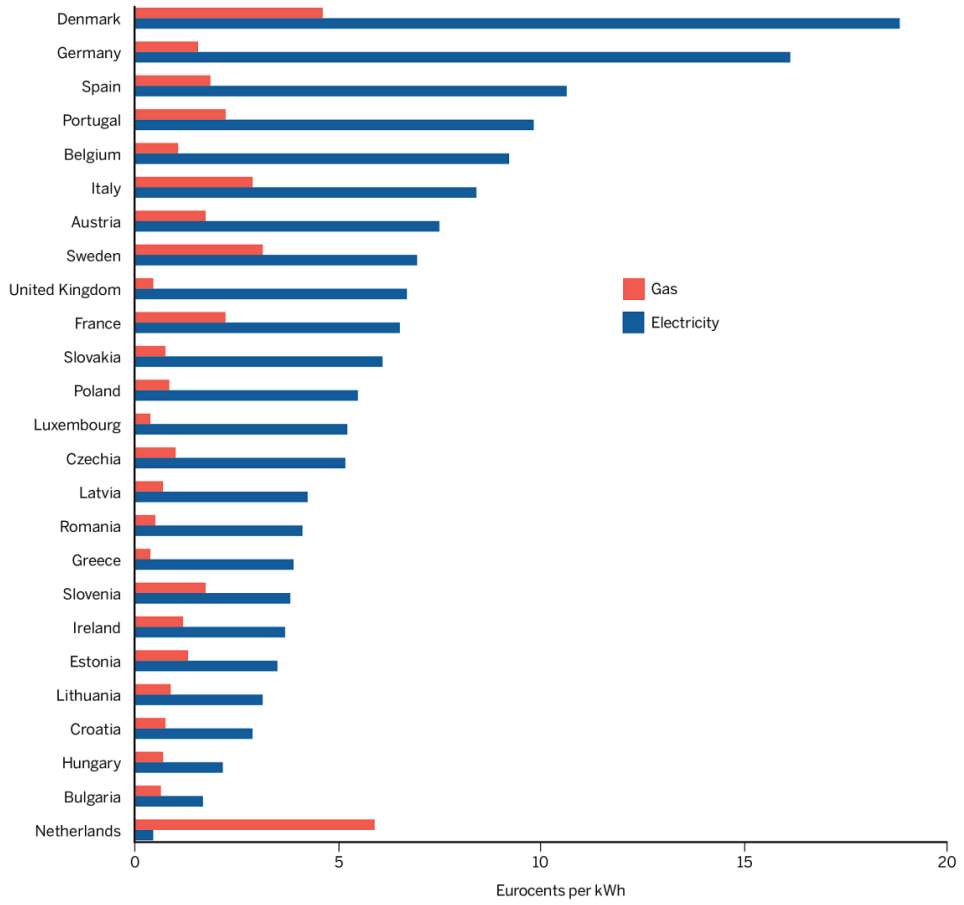
**In a longer-term perspective, the carbon content of different heating fuels will not be equally priced at the EU level as long as the ETS on buildings remains separated from the current ETS. Merging the two ETS would allow to apply a uniform carbon price** across electricity, district heating and other heating sources. This merger is considered by the Commission in the long term. Aside from design considerations[62]**, abatement costs would have to be similar** to avoid sectors distortions, whereby reductions of emissions would be done in the cheapest sector (*e.g.* power) at the expense of the other one (*e.g.* buildings). Such a convergence might take time, if ever possible. Second, **stakeholders would remain very different**. The power sector covered by the current ETS is made up of companies that can integrate carbon price signals in their economic forecasts. An ETS on buildings would apply to fuel suppliers as obliged actors who would pass the costs through to households. In the

56. Based on emissions of 138Mt in 2018, from European Commission, 2020. "2019 Annual Report on CO2 Emissions from Maritime Transport", SWD(2020)82 final, and a carbon price of 55€/tCO2.
57. Industry benefits from about 700 million allowances in 2021, from I4CE "Free allocation for industry in the EU ETS by 2030: a simulation tool".
58. European Commission, 2020. "Energy prices and costs in Europe", COM(2020) 951 final.
59. European Commission, 2020. "Green Deal Impact Assessment", SWD(2020) 176 final.
60. Sweden (equivalent to about 115€/tCO2), Finland (62€/tCO2), France (44,5€/tCO2), Ireland (33,5€/tCO2), Germany (25€/tCO2), Denmark (23€/tCO2), Portugal (23€/tCO2), Luxembourg (20€/tCO2), and Slovenia (17€/tCO2).
61. THOMAS, S., SUNDERLAND, L., SANTINI, M., 2021. "Pricing is just the icing : the role of carbon pricing in a comprehensive policy framework to decarbonize the EU building sector", *Regulatory Assistance Project*.
62. The current EU ETS is a system that applies "downstream", because all obliged installations have to report their emissions for verification and monitoring. However, a potential ETS on buildings would be an "upstream" system that would apply to fuel suppliers. It would not be sensible to monitor emissions at individual boiler level (129 million units in the EU). Merging a downstream and an upstream system would complicate the initial design since double counting emissions would have to be avoided.

end, the investment decision would still be taken by households who face more barriers to adapt in the face of rising carbon allowance prices.

**Whether a uniform carbon price across countries and sectors in Europe is desirable or not remains an open question[63].**

**FIGURE 12 ▪ Electricity is far more taxed than gas in the EU member states. Levies and taxes (including vat) on residential gas and electricity prices (€c/kWh), average in 2020**




European Commission. (2020). *Energy prices and costs in Europe*

*Source : Regulatory assistance Project 2021.*

63. MATTHES, F. 2020. "Pricing carbon. An important instrument of ambitious climate policy", Publication Series Ecology. Vol. 48 , Heinrich Böll Stiftung.

*Pros and cons really depend on the final design of the emission trading system. Each cons goes with a counter-balancing measure.*

**FIGURE 13 ▪ Summary of pros and cons of an ets on buildings**

| | PROS | CONS |
|---|---|---|
| **Compliance with the climate target** | Certainty in reaching climate target if prices can go as high as needed to reach emission target | Without a price cap, price hikes might lead to political unrest. With a price cap, no certainty in reaching the target. |
| **Economic efficiency** | Incentive to fast track ambitious renovation and fuel switch policies, improves cost-effectiveness of renovation and decarbonization of heating | Carbon price will foster cheaper mitigation options, not deep decarbonization. Lacks long-term perspective |
| **Rebound effect vs non market barriers** | Prevent rebound effect : incentivize operating costs reduction of heating systems | Carbon price does not address the important non-market barriers in the building sector. Low elasticities would lead to high market price. |
| **Carbon pricing on energy use** | Rebalance taxation between electricity and district heating covered by the EU ETS and other heating sources not always subject to carbon taxation (depends on national contexts) | An EU carbon tax would play the same role while giving stakeholders better visibility on future prices. But which rationale for an EU carbon price on heating fuels when there is no cross-border issues? |
| **Revenue stream vs equity concerns** | Additional revenue streams: More funds that can be allocated to funding the transition and alleviating distributive impacts. Better social acceptability requires 100% recycling of revenue stream. | Equity concerns. EU-wide carbon price will affect more heavily low-income Member States. Need for well-designed inter and intra Member States compensation and solidarity mechanisms. |

*Source : Jacques Delors Institute, own elaboration*

## 3.5 ▪ Alternatives to an EU ETS

**A reform of the energy taxation directive (ETD) at the EU level could play a similar role than an ETS on buildings with a price control mechanism, while ensuring better price predictability.** Current minimum rates set by the ETD do not consider carbon content of different fuels. The inclusion of a gradually rising minimum carbon tax on heating fuels would have the similar effect of rebalancing taxation between heating fuels, and to generate additional revenues. The same questions on social acceptability and equity could be addressed through lump-sum (direct transfers) payments to protect most vulnerable households and green investments in energy efficiency and low carbon heating systems. The advantage of an EU carbon tax compared to an ETS would be the price trajectory predictability that would ensure that the price signal is better understood by economic actors, especially households and SMEs. The European Commission wants to better align national taxation systems with the objective of climate neutrality through the revision of the Energy Taxation Directive in the upcoming Fitfor55 energy and climate package. However, taxation matters face unanimity

rule on in the Council. Past attempts of introducing an EU-wide carbon tax failed due to this unanimity rule[64]. Whether this obstacle can be overcome remains an open question[65].

**The option to set national carbon prices would have been the most appropriate to take into account Member States income differences and renovation market specificities.** The price triggering renovation may vary from one Member State to the other, hence a national scheme would be more adapted for that purpose. The national level might also be the most appropriate for a political debate on burden sharing, social compensation schemes design and green investments. However, the ETS may have redistribution benefits for low-income Member States. With a solidarity mechanism similar to the one currently implemented in the EU ETS where 10% of revenues are redistributed to low-income Member States, and under the condition that this revenue stream is fully dedicated to alleviating energy poverty and deep renovation of buildings, these Member States might benefit from the new carbon trading mechanism[66].

**Lastly, social justice and consistency should guide fuel taxation rebalancing both at the EU and national level. Removing fossil fuel subsidies can be considered as carbon pricing and would also contribute to establish a level playing field with low carbon options.** In 2018 fossil fuel subsidies still represented 50€ billion in the EU[67]. Only 2% benefited directly to households. The bulk of fossil fuel subsidies benefited industries and companies in the energy (36%), industry (22%) and transportation (22%) sectors. For example, exemption for kerosene fuel taxation could be abolished as part of the ETD revisions and ETS revision should make sure aviation contributes to climate efforts[68]. A reform of the current ETS with the introduction of a Carbon Border Adjustment Mechanism should also allow progressive phase-out of free allocations to energy intensive industries[69].

64. The European Commission proposed in 2011 a uniform CO2-related tax of 20€/tCO2 to be applied from 2013. European Commission, 2011. "Proposal for a Council Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity", COM(2011)169 final.

65. Some actors mention the possibility to mobilize "passerelle clauses" to switch from unanimity to ordinary legislative procedure for taxation matters relate to the environment. Transport & Environment, 2020. "The Energy Taxation Directive. T&E's feedback on the Inception Impact Assessment".

66. Cambridge Econometrics study shows quite similar economic impacts of an "ETS scenario" on buildings and transport compared to a "policy scenario" where no carbon price would be implemented in Poland, under the condition that 100% of the revenues would be recycled towards households and green transition investments. STENNING, J. *et al*., 2021. "Exploring the trade-offs in different paths to reduce transport and heating emissions in Europe", Cambridge Econometrics. However, detailed impacts in all Member States should be analysed. The advantage of the current ETS solidarity provision is that it would also benefit to Southern low-income Member States currently excluded from other funding mechanism like the Modernization Fund. Energy poverty reaches higher levels in Portugal and Greece than in Poland.

67. A relatively stable figure over the past decade. As a comparison, 50 billion Euros corresponds to two times the investment in new wind and solar capacities in the same year. European Commission, 2020. "Energy subsidies in the EU, Annex to the 2020 report on the State of the Energy Union", COM(2020)950 final.

68. Transport & Environment, 2020. "The Energy Taxation Directive. T&E's feedback on the Inception Impact Assessment".

69. LAMY, P., PONS, G., LETURCQ, P. 2020. "Verdir la politique commerciale de l'UE. Une proposition d'ajustement carbone aux frontières de l'Union Européenne", *Policy Paper*, Europe Jacques Delors. • LAMY, P., PONS, G., LETURCQ, P. 2021. "GT6 - Vers un Mécanisme d'Ajustement Carbon aux Frontières : Trois D pour surmonter le 'désavantage du précurseur' de l'UE", *Policy paper*, Europe Jacques Delors.

## 3.6 ■ A high-risk / low-reward instrument

According to the 2017 Report of the High-level Commission on Carbon Prices chaired by Stern and Stiglitz[70], key conditions for the introduction of a robust carbon pricing mechanism are: 1) an enabling environment and 2) continuous engagement with stakeholders.

**A low-reward instrument diverting scarce time and administrative resources from setting-up an enabling environment?** Without a comprehensive set of enabling policies, introducing a carbon price on buildings is likely to have very limited effect on buildings decarbonization. Besides, establishing a new ETS on buildings would require considerable administrative and political negotiation work. It would be operational in 2026 at best. The risk is to divert efforts from more impactful decarbonization measures and eventually to postpone the critical transformation of our building stock. Given distributional impacts of the carbon price and market failures characterizing the EU building sector, instruments such as subsidies, public guarantees and performance standards may be more effective in steering rapid and fair transition (and can be interpreted as an implicit carbon price)[71].

**A high-risk policy? Continuous engagement with stakeholders is still in its infancy.** Carbon pricing being one of the most regressive climate policies, it is critical to take time for thorough concertation and discussions with and within Member States, *i.e.* at the national and local level, especially as there is currently a lack of assessment of potential impacts in different national contexts. Besides, stakeholders should include European households which will be directly impacted. The EU has low access to national public spheres and would be at risk of being held responsible of national wrong-doing, such as badly designed and insufficient recycling of revenues. **Implementing an EU measure whose success eventually rests on national policies' fairness and effective implementation of ambitious renovation policies –that are currently lacking– is a major political risk for the European Union.** An EU carbon price would oblige Member States to accelerate national efforts on buildings decarbonization in order to mitigate energy poverty impacts. But national enactment and implementation of such policies may vary greatly from country to country, with a **risk to have the poorest paying the highest price of the energy transition, both financially and in terms of comfort and health**[72] for the energy transition.

70. STERN, N. STIGLITZ, J. (Commission Chairs), 2017. "Report of the High-level Commission on Carbon Prices", Carbon Pricing Leadership Coalition, World Bank.
71. *Ibid*.
72. STENNING, J. BUI, H., PAVELKA, A. 2020. "Decarbonizing European transport and heating fuels – Is the EU ETS the right tool?", *Final Report*, Cambridge Econometrics.

# CONCLUSION & POLICY RECOMMENDATIONS

**There is no need to rush for the creation of an EU-wide carbon price on buildings.** An EU-wide carbon price on buildings would not trigger a deep renovation wave, but it could bolster it once an enabling framework is established. Political and administrative efforts should first focus on setting up such an enabling environment, and engage civil society on an issue that can be politically extremely divisive.

**At the national level, carbon prices can be implemented more easily because Member States have many tools to address distributional effects (e.g. by reducing specific national taxation), and several already do.** Raising national climate ambitions through the Effort Sharing Direction (ESR) would lead Member States to do more in favour of the decarbonization of buildings, including through national carbon taxes[73] that governments can tailor to their country income level and renovation market. It could also facilitate national appropriation. Contrary to electricity which flows freely through a well-interconnected EU grid, there is no cross-border issues with heating fuels: households will not move out to another country to enjoy lower heating prices. In the absence of cross boundary issues, EU decision makers should really think about the rationale and justification of an EU wide carbon price on buildings. Finally, and most importantly, **there is a lack consultation** at the EU level (not to say national and local) on a potentially highly socially regressive policy measure that requires extensive stakeholders engagement.

**In a nutshell, creating an EU-wide carbon market to price greenhouse gas emissions from the buildings sectors is a high-risk / low-reward policy option.** The political risk is high, as this measure will re-ignite national debates on energy prices and social justice that already occurred in the past and led to social unrest in countries like Bulgaria and France. The potential reward is low, as this policy would only be implemented from 2026 onwards, start with low price levels, and will not directly address the key obstacles to building renovation that will be tackled by other tools, especially EU building regulation. There is little to gain, at a potentially high social cost for the poorest EU citizens.

Yet, given that the European Commission has decided to propose the creation of a new EU carbon market that will cover buildings (and road transport), this policy paper recommends that:

1. The European Commission, European Parliament and Council of the EU put regulatory and support policies first, as carbon pricing in building will not address key investments barriers.

2. the European Commission and/or the European Parliament engages with civil society through its representative and through innovative tools like deliberative polling (Citizen Assemblies), in order to better understand citizen preferences vis-à-vis the role of carbon pricing and its potential role in buildings' decarbonization.

73. THOMAS, S., SUNDERLAND, L., SANTINI, M., 2021. "Pricing is just the icing : the role of carbon pricing in a comprehensive policy framework to decarbonize the EU building sector", *Regulatory Assistance Project*.

3. if the European Parliament and Council of the EU choose to adopt the creation of an EU-wide carbon pricing on buildings, they must ensure that it includes a mechanism that avoid high prices as long as key investment barriers are not removed, and earmark 100% of those new revenues to social and climate action.

## Policy recommendations

### 1 Put regulatory and support policies first by establishing :

- **An ambitious regulatory framework aligned with climate neutrality, with gradually increasing standards for buildings envelopes and heating systems.**
    * As part of the EPBD revision, the European Commission should propose the introduction of mandatory Minimum Energy Performance Standards (MEPS) for all existing buildings. EU policymakers must ensure that MEPS are designed in a way that is consistent with the 2030 and 2050 EU climate objectives by fostering deep renovations and leading to full decarbonization of the building stock before 2050. More reliable and widespread use of Energy Performance Certificates should be encouraged in the EPBD revision, to support implementation, monitoring and compliance.
    * Special effort should be made to identify, map and prioritize worst-performing buildings occupied by low-income and energy-poor households, drawing from available data on EPCs and Long Term Renovation Strategies. In this respect, the EPBD revision should foster a more widespread use of Energy Performance Certificates, and ease public access to datasets. The EPBD should introduce definitions of worst-performing buildings and deep renovation to allow for effective targeted funding.
    * The European Commission is in the process of reviewing the Ecodesign and Energy labelling regulations and should publish draft revised regulations for space heaters at the end of July. The European Commission should aim at banning new fossil-based boilers by 2025, while energy labels could be gradually rescaled to downgrade most of fossil-based appliance to the lowest grades[74]. Then, similarly to MEPS for buildings envelopes, MEPS could be introduced for boilers, whereby lowest performing heaters would gradually have to be phased out over time.

- **An EU Renovation Fund** only dedicated to funding buildings deep renovation targeted to low-income families suffering from energy poverty would ensure that financing is effectively earmarked towards those you need it most to deliver a fair and just Renovation Wave. This should be the core of the 'Climate Action Social Facility' the European Commission is considering. The fund would be fueled by additional revenues earmarked from the ETS, similar to the Innovation Fund, and could also bundle existing climate funding. For example, part of the cohesion funds could be earmarked for renovation specifically, within the 30% already dedicated to climate action in the EU budget. The EU Renovation Fund would provide grant programmes for low-income households. Access to funding should be based on Member States' assessment of energy poverty and identified invest-

74. ZILL, M., BOYE OLESEN, G. TOULOUSE, E. 2020. "Five years left. Howe ecodesign and energy labelling can decarbonize heating", ECOS – coolproducts.

ments needs in their National Energy and Climate Plans and Long-Term Renovation Strategies. EU funding should be tied to minimum energy savings thresholds to maximize efficiency and effectiveness[75].

- **Scale-up EU technical assistance to local authorities and financial institutions**, building on the success of existing projects such as ELENA (European Local Energy Assistance) at the EU level, but also Horizon project ORFEE (Office of Renovations and Financings for Energy Efficiency), and initiatives such as Private Finance for Energy Efficiency. A dedicated envelope within the EU Renovation Fund facility would ensure that funds are earmarked towards technical assistance and would give them a better visibility.

**2 ■ Therefore, the European Commission and/or the European Parliament should take time to open an EU-wide multi-level public debate on carbon price on heating (and transport) and burden sharing of the transition costs.**

- The discussion should be at the agenda of the on-going Conference for the Future of the European Union, where one of the four randomly-chosen representative citizens panels will be dedicated to discussing climate change and health[76]. The final report of the Conference will be submitted to the Commission, the Parliament and the Council. However, there is no obligation for the EU institution to take the conclusions of the Conference into account, even in a non-binding text.
- An EU deliberative polling (a kind of "EU Citizen Assembly on Climate") could be organized with a clear mandate to feed-in the debate on whether an ETS on heating fuels should be implemented or not, and if yes, under which design, especially regarding social compensation and investment in the transition. Deliberative polling consists of creating a panel representative of the EU citizens (age, gender, country or region, income level, education, ect) randomly chosen. Over 20 deliberative polling have already been organized at the EU level since 2007[77]. The European Economic and Social Committee and the European Committee of Regions could take up the subjet and adopt own-initiative opinions. The European Parliament and the Council could commit to discuss the propositions and endorse key elements of the outcome in a joint Resolution.
- If a deliberative polling at the EU level is organized, citizens' mobilization at the national and local level should be encouraged to support knowledge-sharing and exchange of ideas. Special attention should be made on involvement of the EU' vibrant civil society organizations at all levels[78]. Links could particularly be drawn with national deliberative polling experiences on just energy transition and Citizen Assemblies on Climate, such as the recent Irish[79], French[80] and German[81].

75. European Court of Auditors, 2020. "Energy efficiency in buildings: greater focus on cost-effectiveness still needed", *Special Report*.
76. For a detailed description of the Conference of the Future of Europe, see VERGER, C. COUTEAU, B. 2021. "Fonctionnement de la conference sur l'avenir de l'Europe", *Infographics*, Jacques Delors Institute.
77. PELLERIN-CARLIN, T. VINOIS, J-A., RUBIO, E., FERNANDES, S. 2017. "Making the energy transition a European Success. Tackling the democratic, innovation, financing and social challenges of the energy transition", *Policy paper*, Jacques Delors Institute.
78. RICARD-NIHOUL, G., 2020. "Representation and participation. Reinventing European Democracy", *Policy paper*, Jacques Delors Institute.
79. The Irish Citizens' Assembly, https://2016-2018.citizensassembly.ie/en/
80. The French Citizens' Convention on Climate https://www.conventioncitoyennepourleclimat.fr/en/
81. The German Bürgerrat Klima https://buergerrat-klima.de/

### 3 ■ If an ETS on buildings is implemented:

- To avoid the worst distributional effects, a **price control mechanism** should ensure that allowances prices are kept at very low levels (well below current EU ETS price) at least until the worst-performing buildings occupied by low-income households are addressed and key investment barriers removed. This would probably lead us after 2030.
- **Earmark 100% of new revenues** for social compensation towards most affected households and for green investments in renovation.
- **Consistency of the energy reforms would foster social acceptability**, ie a carbon price on heating fuels should be introduced as part of a more global rebalancing effort of carbon taxation, be it at the EU (Energy Taxation Directive, ETS Directive) or the national level. The ETD should review minimum taxation rates taking into account fuels carbon content, and mandate gradual phase-out of fossil fuel subsidies for industries and businesses. Gradual phase-out of industry free allocations thanks to the implementation of the Carbon Border Adjustment Mechanism should be enacted as well.

L'Europe pour les citoyens

PREMIER MINISTRE



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