



Carbon pricing for buildings and industry: the missing link to decarbonise heating

EHPA position paper

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Executive summary

The European Heat Pump Association (EHPA) supports the introduction of a European CO2 price for heating fuels as essential to correct the price mechanism for heating of buildings and industrial processes. The EU Emissions Trading System for Buildings and Transport (ETS2), as proposed by the Commission in the July 2021 Fit-for-55 package, is an appropriate step towards a more balanced energy price system, but a careful design is necessary. In combination with the new Social Climate Fund, we believe that a European-wide carbon price will help to accelerate the decarbonisation of the building sector while reducing energy poverty levels across Europe. Careful attention must be given however to the execution and implementation of a new ETS and the Social Climate Fund, notably on the compensation of poor households, provision of advice and investments support in renovations as well as considering regional disparities between member states.

Introduction

The current Emissions Trading System has proven to be an efficient instrument in the fight against climate change. Since its introduction in 2005, the ETS has resulted in a reduction of 1 billion tonnes of CO2 emissions in the EU.¹ As the current system only covers a part of the economic activities in Europe (mainly large-scale electricity and heat generation, energy-intensive industry, and aviation) an imbalance has occurred with regards to transport and buildings.

Focusing on buildings, **28% of all energy used in the EU goes to space and water heating, contributing to 12% of greenhouse gas emissions.**² This is unlikely to change soon, as

warming Europe's outdated building stock with fossil energy remains relatively cheap and these artificially low cost of heating do not trigger renovation in significant numbers of buildings or at the necessary depth. An ETS2 for heating can meaningfully augment and accelerate other policy tools, notably from the renewables, energy efficiency and energy performance of buildings legislation. Heating therefore

EHPA position in a nutshell

- The introduction of a carbon price for heating fuels is an essential part of the policy mix to decarbonise buildings
- Carbon pricing systems work
- Policy measures, such as minimum renewable shares or efficiency standards should be complemented by carbon pricing
- Carbon pricing is the only viable instrument to reach emission reduction targets and create a revenue stream to finance it
- More discussions are needed on the design of the ETS2, notably on its pricing mechanism and implementation
- A well-defined SCF is needed to effectively supporting building renovation including of poorer households, potentially with a higher earmarking of ETS2 revenues for redistribution
- Fears for Yellow Vests are unfounded and hijack the policy debate with a fair and proper re-distribution of fundings and the right supports in place.

¹ <https://www.pnas.org/content/117/16/8804>

² And 75% of heating of the residential sector is still done with fossil fuels, mainly gas and oil. Source: [Eurostat](#) webpage 'Energy consumption in households'



should be a top priority for targeted and ambitious decarbonisation efforts. The Commission's proposal to put a price on carbon including on heating fuels and providing support via the Social Climate Fund, is a first step to address this challenge.

In order to avoid unwanted spill-over effects from the ETS pricing in electricity generation and transport, it is important to allow an ETS2 system for the building sector with its own rules, a separate price level and an earmarked revenue stream. This revenue stream can be used to:

- A) directly compensate poor households for higher energy costs through the SCF;
- B) finance large-scale renovations and the transition to low-carbon heating;
- C) support the introduction of competence centres to provide advice to end-users.

According to the Commission's own calculations³, €275 billion of additional investment in building renovation is needed annually to achieve the -55% target by 2030. The ETS2 can partly cover the funding needs and will also be used to deploy large-scale clean infrastructure solutions.

This paper stresses the need for a significant carbon price signal and explains why the ETS2 in combination with the Social Climate Fund potentially is an appropriate tool to make it work. A functioning, well-designed ETS2 in combination with the SCF, can achieve the target of building decarbonisation without risking enhancing energy poverty or negative social impacts. Among the alternatives on the table to decarbonise the heating sector, it is the only option, that will achieve at the same time the decarbonisation target and provide financing to do so.

The missing piece in climate legislation

From the perspective of the European heat pump industry, the pricing of carbon is not a panacea. On its own, it cannot create the conditions or incentives needed for house owners to switch from fossil fuel-based boilers to renewable heating (and cooling) alone. It is however an important first step to apply the cost of using fossil energy to the energy carrier and to balance taxation of energy based on its CO2 content (the "polluter pays" principle.) Hence it is a crucial (and currently missing) piece of the legislative and market puzzle. **Carbon pricing can help bridge the price gap between heat pumps and fossil boiler technologies, creating a level playing field for both types of heating.** The least polluting and most renewable solutions should become economically attractive if we want to activate demand. Together with other measures, such as higher targets for energy efficiency and renewable energy, rebalancing energy taxes, minimum energy performance standards, one-stop shops and renovation financing, the EU can set the right scene for a quick and painless transition to decarbonising Europe's building stock.

The proposed ETS2 needs to be considered part of a wider set of policy measures, because of the inelasticity of energy demand. Even though ETS2 will be targeting fuel suppliers the additional cost will (at least partially) be passed on to end consumers. But this will not per se nudge the end consumers into the direction of more sustainable solutions. It could even hit them in a financially tense situation, without alternatives. Research shows that for electricity and gas, the price elasticity is relatively low, meaning that it requires steep price increases to encourage people to search for alternatives. A clear proof of this is the 2021 energy price spike, with sales in heat pumps in some markets doubling.⁴

³ https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_1836

⁴ According to [research](#) from the Öko Institut and Agora Energiewende, a CO2 price of €145-€245 would be needed to trigger consumers to switch to renewable heating.



Carbon pricing works in Europe

Carbon pricing for heating and transport fuels is not new. 64 carbon pricing instruments are in place around the world. Carbon taxes have successfully been introduced in Sweden and in Finland, but also in Switzerland and more recently in Germany – in some cases already in the early 1990s. In Sweden, residential and commercial heating has undergone a fundamental transformation since the introduction of the tax. Both heating and district heating have largely been decarbonised and heat pumps are deployed *en masse*, making Sweden and Switzerland some of the leading markets in Europe for renewable heating. The concept works, without exacerbating energy poverty.

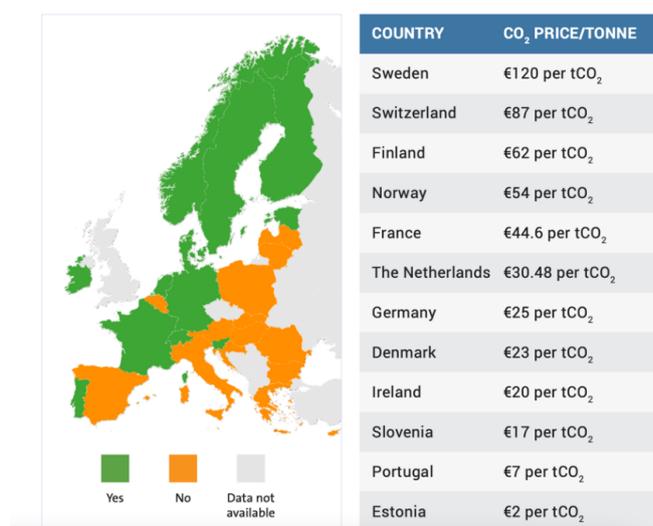


Figure 1: EU countries with a CO₂ tax in place (source: Energy Taxation in Heating report of EHPA, September 2021)

There is a strong link between carbon pricing and energy taxation. According to the EHPA’s September 2021 [report](#) on energy taxation, decarbonising heating is made difficult as a result of taxation levels and levies applied on electricity prices. They are often less burdensome on fossil energy and give a disadvantage to electricity-based solutions.

Therefore, the Fit for 55 package is crucial: the revision of the Energy Taxation Directive combined with the ETS2 will ensure that customers are guided towards the cleanest, greenest and most sustainable solution. A CO₂ price signal for heating and cooling can only work if the taxation level of all energy carriers is also being reviewed and adjusted based on their inherent CO₂ emissions, thus creating a level playing field for all heating solutions.

Social Climate Fund and the fear for yellow vests

The European Commission rightfully combines the introduction of the ETS2 with a Social Climate Fund (SCF) worth 72.2 billion euros for the period 2025-2032. The SCF aims to support households in Europe that will be most affected or at risk of energy or mobility poverty. The Commission expects that most households will be hardly affected by a (modest) raise in energy prices due to the introduction of a carbon price. But around a third of households will have trouble or even be unable to cope with a higher energy bill. Already between 31 and 50 million Europeans are currently living in energy poverty. For those people, the SCF will act like a cushion from any impact they may experience from carbon pricing.



In many discussions the proposed carbon pricing system is seen as a trigger for negative social impacts, translating into a 'yellow vest' movement across Europe. Energy prices are sacred; if governments push these upwards, citizens will riot. But this is flawed thinking. First, the *gilets jaunes* did not come into action just because of a rise of transport costs, that measure was the last straw that broke the camel's back for the French protestors, who were already very unsatisfied with a previous tax reform.

at one point in the energy transition and the fight against climate change, *all* actors in society need to play a role – not just 'big business has to pay the cleaning bill'. We cannot walk around the challenge of decarbonising heating in homes, it is one of the biggest single sources of greenhouse gas emissions and it needs to be tackled as an absolute priority.

Carbon pricing combined with a financial cushion for poorer households, a 'cap-trade-&-dividend' system is by far the best solution. It disincentivises the use of CO₂ based fuels, while change in all of society; advising those that can and supporting those that can't afford to decarbonise heating.

Are there alternatives to carbon pricing?

The EHPA is aware of alternatives to the ETS2 currently being discussed and proposed, including:

1. The definition of minimum energy performance standards (MEPS) as part of the review of the **Energy Performance of Buildings Directive**. This is an important tool to decarbonise buildings, but it should be seen as complementary to the existing policy mix.
2. Setting of higher CO₂ emission reduction targets as part of the **Effort Sharing Regulation (ESR)** mechanism or renewables targets to be set in the **Renewable Energy Directive (RED III)**. Both are set targets, but neither define tools on how to achieve them nor do they provide financial means to do so. As Diederik Samsom, Head of Cabinet of Vice-President Frans Timmermans stated publicly: "You cannot replace water with a bucket." According to Mr Samsom, people advocating for a stricter ESR do just that. The ESR sets a goal, while the ETS2 is an instrument. Defining goals will not give you the tools to achieve them. For instance, if a Member State gets a stricter ESR of 60% greenhouse gas emissions reductions by 2030, it will probably raise the ambition of decarbonisation the heating sector. But this Member State will not have any funds at hand to stimulate the transition to renewable heating.
3. The **outright banning of fossil energy or technologies used for heating, and also stopping incentivising them**, will help us to decarbonise, without providing funding. Some countries like the UK, France and Germany are considering such measures, which should clear the way for a massive uptake of renewable heating solutions. The International Energy Agency also has called for a ban on fossil fuel fired boilers as from 2025, in its latest flagship report [Net Zero by 2050](#).⁵ Sensible though such bans⁵ may sound, they don't generate a revenue stream to make the transition possible. And that is vital as the upfront costs of installing heat pumps are currently higher than for gas boilers. Consumers should have access to affordable alternatives thanks to the revenues generated by the SCF.
4. Learning from transport by introducing a **CO₂ limit for fossil fuel boilers**. Such a limit could be executed similar to Regulation 2019/634, that sets a fleet-wide CO₂ emission target for passenger cars of 95g CO₂/kWh to be reached by 2021. An emission target per kWh of thermal

⁵ They are comparable with the EU's phase-out of the internal combustion engine for cars by 2035.



energy could be applied on the average emissions of the fleet of heating equipment through existing energy efficiency policies. But even here it is an option question how to find financial resources to help people switch to clean heating solutions.

The below table summarises the various options that are now being floated by stakeholders. The ETS2 + SCF is the only option triggering revenues that could support decarbonisation of heating.

Table 1: Decarbonisation of heating alternatives

Measure	Intended effect	Likely outcome
Stricter Effort Sharing Regulation	Member States take national actions to reduce GHG emissions	Lack of funding, fragmentation of market solutions
EPBD sets targets for low or zero carbon heating	House owners will switch to renewable heating	Lack of funding and increased energy poverty
Ban on fossil fuel heaters	Gas and oil boilers are phased out	Member states reject the ban as they decide on their own energy mix
CO₂ limit on emissions	Phase-down of gas and oil boilers	Gradual transition to zero-emission heating systems, but no ETS funds available
ETS2 + SCF	Limit CO ₂ emissions inside the trajectories defined by limiting global warming to 1.5°C	Supply / demand-based determination of a CO ₂ price Funding to finance the decarbonisation of heating

Considerations for review and improvement of the ETS2 and SCF

Even though we are confident that the two new instruments have great potential to deliver the right results, there are some issues that need to be investigated carefully.

One of the main sticking points of the ETS2 will be **its market design and impact on the heating market**. The change of energy sources for building heating needs reliable framework conditions and the ETS2 entails certain risks in its current design. For instance, as supply and demand for the certificates for heating fuels define the price, slow changes in heating patterns may lead to a relative oversupply of these certificates on the market, resulting in low prices for the certificates and ensuing few incentives for change. But a very quick increase in demand could result in high costs for the ETS2 certificates and this will overwhelm the unprepared end consumer. Such a scenario is highly undesirable from the point of view of a socially acceptable energy transition.

Another point of consideration is its **cost level**. Just as with the current ETS, the carbon price for transport and heating fuels will be set at EU level. Member states fear that they cannot control this level and that it will be an extra burden for those member states that have a lower purchasing power per capita. A €30 per tonne CO₂ price may be easily dealt with by Dutch and Belgian citizens, but for the



consumers in European countries with a lower purchasing power, this carbon price implies a high surcharge on their energy bills. Of course, such real income disparities and consequential 'carbon price impact' can be overcome with clever design of for instance the SCF and the national Social Climate Plans, but safeguards are needed to ensure a proper functioning of the ETS2 without putting unequal burdens on Europeans.

We also see here the importance of **equal taxation of energy** across Europe: in member states that have a different price-ratio for electricity and gas, the carbon pricing may not work because gas remains relative cheap – even if ETS2 results in a surcharge on the gas bill. And how is the new system going to relate to existing, national carbon pricing schemes such as the one in Germany? These issues only underline the need for the ETS2 to be part of a cohesive set of policy measures; making the energy transition a success including the decarbonisation of heating!

Currently the Commission does not foresee a **limit to the price of carbon** within ETS2, though it does plan to have a Market Stability Reserve to avoid sudden price spikes. More discussion is needed on this particular point, because the goal of ETS2 is to stimulate long-term investments in buildings in order to achieve decarbonisation. Investment decisions like these will be difficult to take if the carbon price for heating fluctuates all the time. This is why in Germany for instance, the national carbon pricing scheme has started with a fixed price which is going up every year with a predetermined amount until 2026. After that, the scheme could evolve into one with a variation in the price within a price corridor (or alternatively a classic cap-and-trade system). Such a bandwidth currently is not foreseen in the ETS2 proposal.

A final important point is the **insufficient funding** that the ETS2 will generate. Under the current proposal, only a quarter of the ETS2 revenues goes to the SCF, which should then be doubled by matching funding by Member States. According to the Commission's calculations the total sum should be sufficient to compensate poorer households. The EHPA would like to see a larger part of the revenues to be earmarked, for investments in energy efficiency, building renovations and electric mobility. Potentially 50% or even 75% of the ETS2 revenues should be earmarked for redistribution, also making it easier for Member States to accept the ETS2 and SCF.

Conclusions

- Carbon pricing and the SCF are **essential building blocks** of the policy house of the European Green Deal. Without an adequate and targeted carbon pricing system for heating and transport fuels, the EU will not be able to achieve its own emissions reduction targets, nor the targets for renewable heating and cooling.
- Currently discussed **policy alternatives** can be considered complementary, but cannot replace a carbon price, as they do not create their own revenue streams.
- The continued scepticism of Member States and the European Parliament towards the ETS2 has to be addressed by a proper design of the system and the income distribution schemes. If executed correctly, **the proposed ETS2 will accelerate the green transition and reduce the risk of energy poverty** as our current dependency on fossil energy will be greatly diminished.
- Fears of social impacts, such as the Yellow Vest movement, should be addressed by introducing incentives to poorer consumers such as assistance to switch to clean alternatives.
- **The Social Climate Fund** needs to be structured in such a way that it does not **facilitate energy efficiency improvements of buildings and the switch to renewable heating solutions, including through advice, but also** supports poorer households to pay for operating costs of heating.
- Further considerations are needed on the income distribution of the **ETS2, the equal taxation of energy and the predictability of the ETS2 price.**