

The potential carbon cost of transport and residential buildings for EU27 households in 2025-2040 is EUR 1.112 billion

The potential annual carbon costs per household in the EU27 is estimated at EUR 373 for transport and EUR 429 for residential buildings. Significantly, the average rise in energy spending due to transport emission costs for EU27 households in the 1st income quintile could reach 44%, while that due to residential building emission costs could reach 50%. In the case of Poland, emission costs linked to residential buildings will increase the energy spending of the poorest households by 108%, according to the Polish Economic Institute's report *Cost for households of the inclusion of transport and residential buildings in the EU ETS*.

In this report, we present the impact on EU households' budgets of applying carbon pricing to the transport and residential building sectors. We evaluate the potential costs of introducing an ETS mechanism in the transport and residential building sectors based on different scenarios. We use two approaches. The first uses an exogenous EUA price drawn from two different scenarios to evaluate the potential costs of the extension. In the second approach, the price is calculated endogenously within the model as the ETS price needed to deliver the desired emission reduction (-40%) in the transport and building sectors, in line with an overall 62% target for the whole ETS. We compare the reduction in emissions obtained and the corresponding CO₂ prices.

"Our analysis showed that moving transport and heating out of the ESR (Effort Sharing Regulation) would make decarbonisation of transport (in particular) more difficult as there would be little incentive for member states to keep current fuel taxes in place. Incorporating these sectors into both the ESR and the ETS would lead to an unclear shared responsibility for reducing emissions there. At the same time, an EU-wide carbon price would require very high allowance permit prices to decarbonise these sectors equally rapidly by 2030, reaching EUR 180 per tonne (in 2015 prices) by 2030," says Magdalena Maj, a senior analyst on the Polish Economic Institute's energy and climate team.

Advantages and disadvantages of different scenarios

As the building and transport sectors are relatively unresponsive to the carbon price, an extended ETS would force companies in the existing ETS sectors to do more to compensate. This would lead to a loss of competitiveness in these sectors, resulting in small decreases in output and employment.

Without the revenue recycling the parallel ETS scenario would have a negative impact on output and employment. With 100% of revenue recycled the ETS scenario could increase economic activity in Europe while delivering the same emission reductions. If a share of the revenues is used for low-carbon technologies and to improve energy efficiency, it reduces the costs of low-carbon technology for all consumers and leads to lower carbon prices. If revenues are recycled back to consumers (through tax cuts or lump-sum transfers), it leads to higher consumer spending and economic activity.

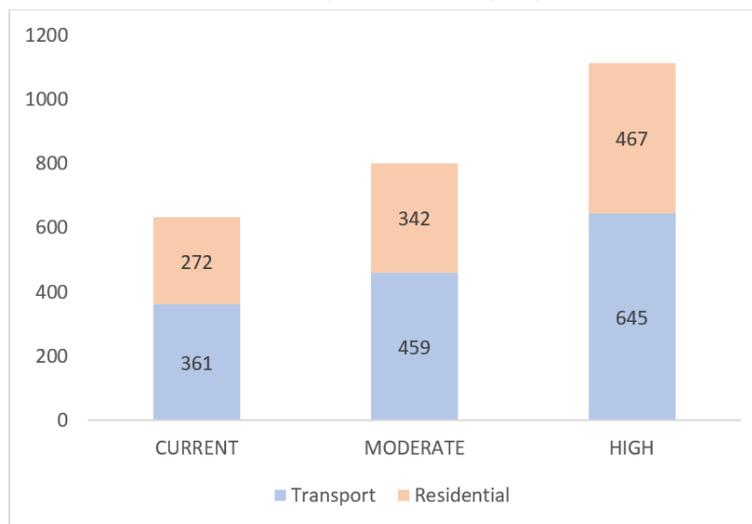
Low-income households and the poorest states are the most vulnerable to extended carbon pricing

Introducing an ETS system in transport and residential buildings would significantly improve the effectiveness and feasibility of reducing emissions. However, modelling exercises show that, to achieve the required 40% reduction, it would be necessary to reach EUA prices of almost EUR 180/t CO₂ (in 2015 prices). At the EU27 level, such high prices would lead to an enormous cost for households – EUR 1112 billion in 2025-2040 – and have a potentially devastating impact on EU industry under the current EU ETS.

Higher prices would disproportionately affect poorer households. It is estimated that emission costs would impose an average annual cost increase in energy spending of 44% in transport and 50% in residential buildings for households in the first (poorest) income quintile.

The poorest EU member states are more vulnerable to the impact of the extension of carbon pricing. In Poland, in all of the analytical scenarios for the carbon pricing paths in the transport and residential building sectors, the costs for households compared to the BASELINE scenario is higher than in the EU27. In the MODERATE scenario for Poland, the total cost is 84% higher than in the BASELINE scenario, while in the HIGH scenario it is 163% higher. Residential building emission costs account for 57% of the total costs in Poland, around 15 percentage points higher than in the EU27.

Chart 5 Costs of charges for CO₂ emissions (carbon prices) from transport and residential buildings for all households in the EU27 in 2025–2040 (in EUR billion, 2015 prices)



Source: prepared by the PIE.

What should be done to make the extension economically effective and socially viable

Several tools and actions should be implemented if carbon pricing is extended to road transport and buildings. They include offering revenue recycling schemes to assist vulnerable people. For residential buildings, this could consist of transfer payments, direct

energy bill assistance or targeted energy efficiency programmes for the poorest households. In the transport sector, revenues can be recycled by providing consumer rebates for low-carbon and electric vehicles and tax breaks for lower-income households to offset the increase in fuel prices due to carbon pricing.

Secondly, we recommend implementing new energy efficiency and renewable energy policies and improving existing ones, as well as legislation specifically targeting the residential building and transport sectors, which has the potential to accelerate the use of renewable energy solutions and lower energy demand, thus putting downward pressure on equilibrium EUA prices. To that end, EU tools, such as the solidarity mechanism that redistributes resources in favour of poorer member states, should be maintained and strengthened. With this, it should be required that 100% of the revenues generated by solidarity allowances be spent on energy and climate purpose. The extension of carbon pricing to new hard to abate sectors makes the strengthening of the Innovation and Modernisation Funds even more important, both to offset the carbon price impact on households and to facilitate the uptake of innovative clean technologies

The Polish Economic Institute is a public economic think-tank dating back to 1928. Its research spans foreign trade, macroeconomics, energy and the digital economy, with strategic analyses on key areas of social and public life in Poland. The Institute provides analysis and expertise for the implementation of the Strategy for Responsible Development and helps popularise Polish economic and social research in the country and abroad.

Media contact:

Ewa Balicka-Sawiak

Press Spokesperson

T: +48 727 427 918

E: ewa.balicka@pie.net.pl