Commission services non-paper

The role of the new ETS for road transport and buildings (ETS2) in achieving the 55% target

The introduction of emissions trading in the road transport and buildings sector has raised some questions in the legislative discussions on the Commission proposals to implement the EU binding target of an at least 55% reduction of net greenhouse gas emissions by 2030. This note contains some elements of reflection on possible consequences of any amendments suggesting not to introduce the new ETS for the overall achievement of the agreed 2030 target, as well as economic and social costs.

Summary

- The new ETS plays a very significant role in achieving the at least 55% emission reductions by 2030. Its contribution is in the range of around 45%[1] of the emission reductions needed in buildings and road transport by 2030 relative to current policies.
- Not opting for emissions trading in these sectors means that national policies and/or regulatory requirements of other Fit for 55 initiatives would need to be strengthened substantially to, combined, drastically increase their contribution to the emission reduction efforts. I.e. at least around 55 million tons CO2 would need to be reduced by other means (around 10% of the additional reduction effort required) without the guarantee over emission reductions that a cap and trade system provides.
- In practice this means that extra upfront investment efforts would need to be made by Member States and by all households, and in particular lower income households, with additional capital costs for the 40% lowest income households buildings estimated at EUR 5 billion – without additional revenue available for redistribution that could support this investment.
- Without a new ETS, the level of ambition of other policies in the same sectors would also need to be strengthened significantly, e.g. earlier phase-out of the internal combustion engine, or higher Energy Performance of Buildings renovation requirements/ stronger Energy Efficiency Directive targets and obligations.
- When opting for emissions trading in the new sectors, the combination of economically efficient investments and fuel price increase due to the carbon price signal is expected to result in a net reduction of fuel consumption (e.g. you change your heater so even if fuel is more expensive, you consume less). For household fuel consumption, the average net fuel cost reduction is 0.12 percentage points of household income.
- Buildings and vehicles of the 20% richest households are responsible for 32% of the emissions covered by the new system, while the 20% poorest households are only responsible for 9% of emissions. While increased prices due to the new system put a burden on these households, this can be compensated if redistribution of resources takes place, which is exactly what emissions trading, the Social Climate Fund (SCF) and the EU budget can enable.
- The SCF aims to address the social impacts on the most vulnerable households, transport users and micro-enterprises that may arise from ETS2. If only static fuel costs are looked at, for the 20% lowest income households in low-income Member States, the impact with the SCF turns a fuel cost burden of 3.4% of income into a benefit of 18.4%.
- The SCF revenues in addition allow for fundamental investments e.g. to improve energy efficiency, which have been identified as effective in alleviating energy poverty. The volume of the SCF would be sufficient to co-finance around 40% of the estimated annual capital costs for all

[1] Commission internal analysis based on the Climate Target Plan Impact Assessment (SWD(2020) 176) and the Impact Assessment accopnying the proposal for a revised ETS (SWD(2021)601).

necessary household investments of the two poorest income quintiles in each Member State. To ensure certainty about the SCF size, it is key to embed it in the EU budget and to finance it through new own resources, including 25% of the revenues generated by ETS2.

1. The need to introduce emission trading for road transport and buildings

- Through the **Climate Law, the EU committed to achieving the Union-wide binding target** to reduce net GHG emissions by at least 55% by 2030. **All sectors of the economy need to contribute to it**. In the Commission proposals forming the Fit-for-55 package, this is achieved through a combination of targets, standards, carbon pricing and support measures (to which must be added infrastructure spending by the EU and MS under programmes funded under the Multiannual Financial Framework (MFF) and NextGenerationEU, in line with their objectives and scopes).
- **Buildings and road transport are, alongside industry, the main energy users and source of emissions**. Both sectors have not reduced but rather increased their direct emissions between 2014-2019 (buildings 2%, road transport 7%).
- The **Effort Sharing Regulation (ESR)** proposal establishes national binding emission reduction targets for the sectors currently not covered by the ETS in line with the net 55% GHG reduction target for 2030. This translates into at least 40% emission reductions in the ESR sectors compared to 2005. Compliance with the national ESR targets will ultimately depend on the level of ambition and effective implementation of national measures.
- **The current ESR 2030 target (of -30% compared to 2005) would just be achieved if all additional policies reported and planned so far by Member States were fully implemented.** In some areas (notably energy consumption in the buildings sector and the renovation of the worst performing buildings) there are still important gaps to the existing targets. This underpins the strong and imminent need for Member States to plan and implement additional climate and energy policies in the effort sharing sectors. Further efforts are needed to achieve the proposed more ambitious ESR target. With buildings and road transport constituting the majority of emissions in the ESR sectors, reducing emissions in these sectors is key.
- Past discussions at the time when the current legislative package was being shaped showed a growing consensus that **the achievement of ESR targets by Member States must be facilitated and supported by additional EU level measures** to ensure effectiveness of national measures.
- **The existing ETS has shown to be very efficient in reducing GHG emissions** in the sectors it covers. It has successfully brought down emissions from power generation and energy-intensive industries by 42.8% in the past 16 years. It offers the guarantee of achieving the emission reductions by limiting the quantity of allowances. This system also ensures that emission reductions take place at the lowest possible cost and shortens the payback time for energy saving investments.
- Moreover, and most relevant, **emissions trading generates revenues that can be used to foster decarbonisation and enable compensation.** These revenues, part of which will accrue to the EU budget as an own resource, allow for social transfer, replacing or complementing fiscal transfers, and carrying out energy efficiency improvement measures in particular for vulnerable households. As such, the use of ETS revenues can make carbon pricing policies progressive (putting relatively less burden on lower income groups)[2].

[2] E.g. https://guidehouse.com/insights/energy/2022/addressing-social-impacts-of-carbon-pricing-eu and https://guidehouseinsights.com/news-and-views/recycling-carbon-pricing-revenue-to-substantiate-a-just-transition

- As specified in the 2030 Climate Target Plan[3], the **building sector** has a large cost-effective potential to reduce emissions. More than half of its total emissions and 30% of heating emissions are already covered by the existing ETS, notably the provision of electricity for use in buildings and most emissions of district heating. However, many homes are still heated with outdated systems that use polluting fossil fuels such as coal and oil.
- **The road transport sector** also has a significant cost-effective reduction potential, the technologies exist and many have successfully entered the market already. They now need to be deployed at scale. Increasing the cost of fuels alone has not been effective in the past. Nowadays, however, we have regulation that acts on the supply of clean vehicles (CO2 standards) and we are ready to invest in the recharging and refueling infrastructure (Connecting Europe Facility and other MFF programmes for the EU transport backbone, Recovery and Resilience Facility and national measures for the national networks and to support private investment at the local level, to be backed by requirements under the Alternative Fuel Infrastructure Regulation). The EED recast, the revised Eurovignette Directive and the revision of the Energy Taxation Directive will also contribute to the decarbonisation of the sector.
- Thus, the conditions to offer users a clean alternative to traditional vehicles are there now. What is missing are sufficient **incentives on the demand side** providing clear medium and longer term signals to bring the user to switch, overcoming the well-known tendency to focus on initial price and on short-term resale value rather than on longer term overall value. These incentives could come from higher prices of conventional fuels, coupled with market support schemes to facilitate the uptake of clean vehicles and the creation of sales and production volumes sufficient to bring down the price of vehicles. Emissions trading would combine this price effect with the resources to make the switch to clean vehicles affordable.

- Pursuing emission reductions in these sectors through a **mix of regulation and carbon pricing** ensures that:

    - Part of the effort is achieved through **common measures at EU level**: MS are not "left alone" to design and implement policies;
    - We can **generate and redistribute revenue to support vulnerable households** in the transition, with no new national taxes;
    - We **prioritise cost-effective measures** and thus minimize costs for the system;
    - We **mutualise the responsibility** for these necessary measures.
    - We support a **just transition** and ensure more **convergence** of all Member States towards further emission reductions needed post-2030 with a view to reaching climate neutrality by 2050.

2. The importance of a policy mix and the contribution of the new ETS

- The Commission's impact assessments accompanying the proposals in the Fit-for-55 package have highlighted the importance of **regulatory policies in the mix.** Based on the Commission's calculations such policies **account for up to a half of the needed emissions reductions in the buildings and road transport sectors.**

- **The ESR incentivises national action in the covered sectors, including buildings and road transport**. It provides an ultimate safeguard and incentivises national action to provide a conducive regulatory framework by tackling market failures and non-market obstacles in buildings and road transport (e.g. infrastructure needs for recharging and heat networks or policies that address split incentives in the residential sector). This improves the functioning of

[3] COM/2020/562 final: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0562

emissions trading (alongside EED, EPBD, Regulations setting CO2 standards for new light and heavy duty vehicles, AFIR and Renewable Energy Directive) and will reduce the impact of the carbon price on individual customers.

- **For the transport sector, CO2 standards for new cars and vans supported by the rollout of the recharging infrastructure are estimated to provide a contribution in the range of 30 to 40% of the additional emission reductions needed in road transport. For the buildings sector, a strong EPBD as part of a wider policy mix could provide a contribution in the range of up to 50% of the additional emission reductions in buildings.** This estimate includes not only the strengthened standards, but also synergies with other policy instruments, notably the action on building renovation taken to achieve the energy savings obligation set out in Article 8 of the EED recast.

- The new **ETS plays a very significant role to achieve -55%: further Commission analysis[4], indicates that its contribution is also in the range of around 45% of the emission reductions** needed in buildings and road transport.

- Achieving the overall -55% target would require the buildings and transport sector combined to reduce their 2030 emissions to around 765 Mt instead of the 885 Mt to be achieved with policies in line with the former 2030 target. **The new ETS could provide 45% of those additional 120 Mt emission reductions required**. While the current high energy prices also provide incentives to reduce consumption of fossil fuels and thus reduce emissions in the short-term, a carbon price signal affecting heating and road transport fossil fuels that could increase over time in line with the EU climate neutrality objective will provide an additional, strong incentive for many investment decisions e.g. on heat pumps, buying an electric car, shifting to other transport models or the degree of depths of building renovation. **45% is a conservative estimate** for the new ETS contribution, as other policies are assumed to contribute as intended and the carbon price would in particular incentivise cost effective measures.. As such, it helps minimising the overall costs of the transition.

- **The Commission's analysis confirms the similarly important and very complementary roles for regulatory instruments such as CO2 standards forcars supported by AFIR, EED and EPBD, and the new ETS in delivering the additional CO2 reductions.** For example, CO2 standards for cars and vans act on the new vehicles supplied to the market, while the new ETS would incentivise emission reductions for the whole vehicle stock. Furthermore, according to the projections underpinning the Fit for 55 package, the share of zero- and low-emission cars in the new cars fleet in 2030 is estimated between 52% and 60%, so it remains equally important to act also on the reduction of the emissions of the conventional engine vehicles. The revision of the EPBD aims to strengthen the legal framework for the energy performance of buildings, in particular through a higher renovation rate and depth. The carbon price creates incentives for new businesses (e.g. energy service companies or new activities by fuel suppliers) to help consumers and businesses to reduce emissions, and benefit from the economic advantages of saved carbon and fuel costs. Examples are energy services such as maintenance contracts, home energy assessments matching estimated savings with the cost of hire or purchase of insulation or appliances. A thriving energy services market will in turn increase energy efficiency investments, accelerate the adoption of new technologies such as heat pumps.

- **We need BOTH regulation AND carbon pricing to achieve the 2030 target: only one of those tools will not be enough and in a sound policy mix addressing emissions from buildings and road transport, each type of instrument is estimated to deliver around half of the emission reductions needed**. This is particularly important since emissions in these sectors have been increasing instead of reducing.

[4] Based on the CTP and ETS IAs

- The necessary upfront energy **investments from households would be higher in a regulatory-only approach than with a policy mix including carbon pricing** (even before redistributive impacts). A policy mix as proposed would require an increase of annual capital costs in 2030 for households by 0.71% compared to current policies (57bn Euro), while a policy mix without the new ETS would require a stronger annual increase of investments of 0.85% (69 bn Euro).

3. The contribution of the new ETS to addressing social impacts

- The Commission's analysis shows that a carbon price of around 48€, as in the proposed policy mix modelling for 2030, could increase fuel prices by 11 cent/l (petrol) to 13 cent/l (fossil diesel). For buildings, ETS 2 could increase the fossil fuel price between 10-30%, and less with current high fuel prices, depending on the fossil fuel used and the Member State. The **combination of economically efficient investments and fuel price increase results in a net reduction of fuel consumption** (e.g. you change your heater so even if fuel is more expensive, you consume less). For household fuel consumption, **the average net fuel cost reduction is 0.12 percentage points of household income.**

- Further Commission analysis shows that the 20% poorest households are responsible for only 9% of ETS2 emissions, while the 20% richest households are responsible for 32% of ETS2 emissions (see Figure). An external study came to similar results: carbon emissions for buildings and road transport are estimated to rise steadily from around 350 kg/capita/year in the 1st quintile of the lower-income MS group (40-70% of average EU net equivalent income) to over 3000 kg/capita/year in the 5th quintile of the high-income country group (120-175% of average EU net equivalent income)5.

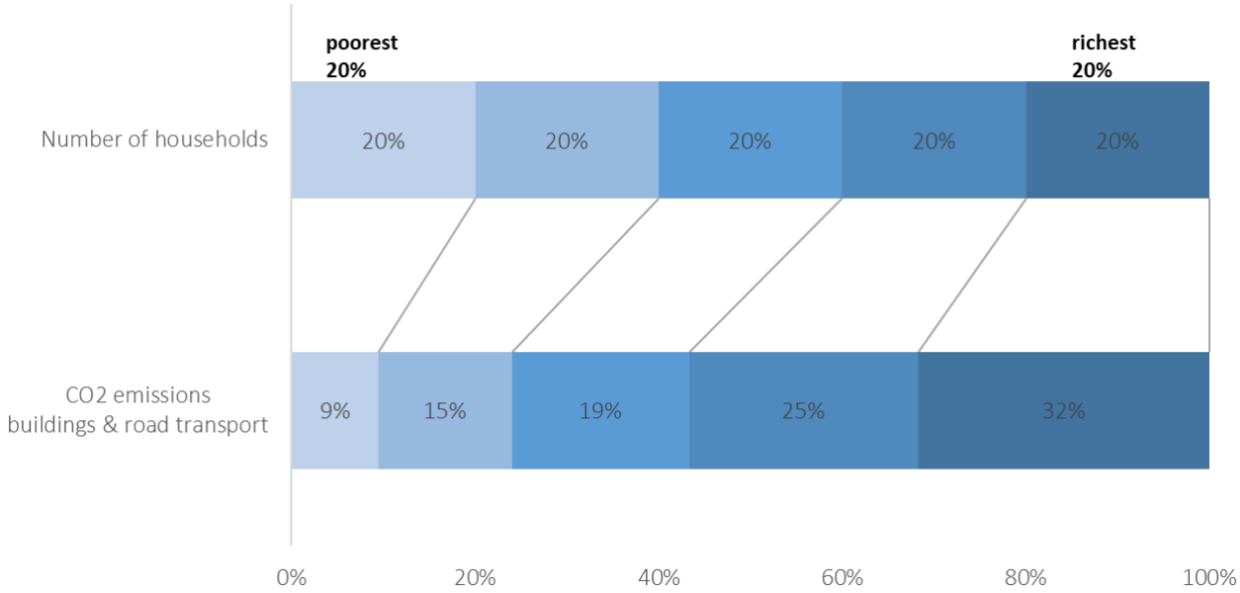
- This means that with **the new ETS, households that can better afford it would bear higher costs, while the burden on the poorer households can be compensated if redistribution of resources takes place**[6], and that is exactly what emissions trading combined with the Social Climate Fund enables. Without revenue generated from ETS2 to redistribute via the EU budget, the Social Climate Fund could not be financed.

- Social impacts will arise also if there is no new ETS. For example, the current high energy prices providing similar short-term incentives as the ETS also constitute a challenge for vulnerable households as fossil fuels become more expensive. The additional expenses, however, are not available for social compensation.

[5] It must be noted that the results are subject to some uncertainties (static calculations based on the data available) and should therefore not be over-interpreted, but the basic statement is considered to be reliable. Source for the external study: https://foes.de/publikationen/2022/2022-01_Study-Assessment-EU-ETS2.pdf.

[6] See also https://ieep.eu/uploads/articles/attachments/7a9ac44a-fa75-4caf-9db5-76d55110217c/Can polluter pays policies in buildings and transport be progressive_IEEP (2022).pdf?v=63813977582)

Figure: Distribution of estimated share in emissions of households for heating and road transport by income quintile, EU*



Source: Commission own calculations. Based on data available for 26 MS.

- Regarding investments in buildings, household related additional annual capital costs in 2030 for the 40% lowest income households in every Member State, to achieve their contributions to the 2030 target, are estimated at 25bn Euro annually. **Without the new ETS and relying only on regulatory measures, the 40% lowest income households would need to bear 5 bn Euro higher annual capital costs (in total 30bn Euro), while no revenues would be generated to enable supporting them**.

- The **SCF** addresses the social impacts on the most vulnerable households, transport users and micro-enterprises that may arise from ETS2. This is even more relevant in view of the pre-existing energy and transport poverty issues. Both proposals are interlinked since the size of the proposed Fund corresponds to an amount in principle equivalent to 25% of the expected revenues from the ETS2 in 2026-2032, while expenditure will be available from 2025 in order to anticipate the related effects. The Fund would be embedded in the EU budget, and a key requirement for its establishment is the adoption of new own resources and notably the own resource based on emissions trading.

- A static analysis[7], assuming that households do not change investment decisions nor heating and mobility behavioural patterns, provides **interesting insights on the immediate impacts on low-income households of the ETS2 combined with the SCF**. In fact, comparing the static fuel costs to the SCF allocation, the analysis shows that **lower-income households in all Member States can on average be better off with ETS2 and SCF** (when compared with only ETS without SCF). As shown in the table below:

[7] The starting point for this analysis are the results presented in the Figure on the share of households' greenhouse gas emissions from heating and road transport per quintile. Based on these shares, the estimated static fuel consumption cost increase is calculated taking into account the estimated carbon price underlying the SCF calculation (about EUR 45 over the period 2026-2032 in 2020 prices).

a. **For the 20% lowest income- households, the effect turns from a fuel cost burden of 3.4% of income to a benefit of 18.4% in low-income MS**[8], from a 1.5% burden to a 5.5% benefit in middle-income MS[9] and from a 0.9% burden to a 1.5% benefit in rich MS[10].

b. **In low-income MS, the three poorest income quintiles, hence 60% of the households, would be better off on average with ETS2 and SCF compensation** (and 40% in middle-income MS and 20% in rich MS, subject to the assumed SCF spending pattern by MS group[11]), as the SCF would more than compensate for the cost increase.

[8] BG, HR, EL, LV, RO, SK, PL, HU.
[9] PT, LT, EE, CY, CZ, SI, ES, MT (missing data for IT).
[10] FR, FI, BE, SE, DE, AT, NL, DK, IE, LU.
[11] For analytical purposes, the analysis makes assumptions on how MS would spend the SCF funding across income quintiles. We have categorised MS into three groups: in the first group of MS with a GNI per capita below 75% of EU average, the first three income quintiles benefit from the SCF; in the second group (above 75% but below 100% of EU average), the first two income quintiles benefit; and in the third group (above 100%) only the first quintile.

Table: Change of static fuel cost position per income quintile in % of income through the SCF

per household per year, in % of 2019 income, Commission own calculation based on Eurostat data, - denotes additional burden, + denotes net benefit

Member States grouped by GNI per capita	the 20% poorest households		2nd household quintile		3rd household quintile	
	without SCF	with SCF	without SCF	with SCF	without SCF	with SCF
EU*	-1,2%	3,3%	-1,1%	-0,3%	-1,1%	-0,8%
< 75%	-3,4%	18,4%	-2,8%	4,9%	-2,7%	1,2%
[75%-100%]*	-1,5%	5,5%	-1,4%	0,3%	-1,4%	-1,4%
> 100%	-0,9%	1,5%	-0,9%	-0,9%	-0,9%	-0,9%

** without Italy.*

- This is a **conservative analysis**, overestimating the cost increase for households as well as understating the possibilities of the auction revenue use. As regards the cost increase, this is due to the mentioned static nature of the analysis abstracting from the implementation of investments which would reduce households' emissions and in turn energy bills. As regard the auction revenue use, this is due to the focus on the SCF. Accordingly, the analysis only takes into account the 50% of ETS revenues channelled via the SCF (25% via the Union budget and 25% via national contributions), not making any assumptions for the remaining 50% of national auction revenues, which could also be used by Member States to address social impacts. In addition, it is assumed that the cost resulting from the auctioning of allowances paid by heating and road transport fuel supplying companies is entirely passed on to the consumers by an increase in prices. It therefore does not account for any additional measures of Member States to limit the cost pass through.

- From an investment perspective, **the volume of the SCF would be sufficient to co-finance around 40% of the estimated annual capital costs** for all necessary household building investments of the two poorest income quintiles in each Member State, and to finance them completely in low income Member States. Without the new ETS (and the corresponding own resource), such co-financing would need to be provided from other sources.

- Furthermore, to complement the SCF and other substantial spending on climate in the EU budget, Member States should spend the entirety of their new emissions trading revenues on climate and energy-related projects. This includes financial support in order to address social aspects.

4. Can we still achieve 55% without ETS2?

- Removing emissions trading from the policy mix will mean that the reductions in the buildings and transport sectors will have to be achieved only through regulatory tools.

- Since carbon pricing and regulation are estimated to each account for roughly 50% of the additional effort in these sectors, eliminating emissions trading means that national policies and/ or regulatory tools will need to nearly **double their effective part of the efforts.**

- The Commission's calculations show that, in terms of contributions to the overall -55% target, **at least around 55 million tons CO2 would need to be reduced by other means (around 10% of the additional reduction effort required**). And while the new ETS would create effective certainty

that buildings and road transport provide the emission reductions needed, this is much more uncertain without such a cap and trade system.

- In practice this means regarding investments in buildings that **extra upfront efforts will need to be made by MS and by all households, and in particular lower income households, with additional capital costs for the latter estimated at 5 bn Euro – without additional revenue at EU level available for redistribution that could support this investment.**

- The level of ambition of other policies in the same sectors would also need to be strengthened, **e.g. earlier phase-out of the internal combustion engine, or higher renovation rates through strengthened EPBD measures or higher overall EED and energy savings obligation targets**. In this context, it should be noted that even with additional measures, **under Member States' 2020 National Energy and Climate Plans, there is a shortfall of about 3%** compared to the Union's 2030 target for energy efficiency of 32.5%[12].

[12] The gap is 2.8% for primary energy consumption and 3.1% for final energy consumption.