



LIFESTYLE CHANGES ARE NEEDED TO ACHIEVE 1.5°C TARGET

POLICY BRIEF #1



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INTRODUCTION

Global efforts to limit warming to 1.5°C hinge on multiple strategies to reduce greenhouse gas emissions. Although substantial progress can be made through technological innovations, this brief emphasises that without **significant lifestyle changes**, we will not meet necessary emissions reduction targets (Fig. 1). The findings presented here draw from a scenario model that assesses household carbon footprints across 49 countries/regions, focusing particularly on the EU27, developed in the EU 1.5° Lifestyles project.

FINDINGS

- 1. Technological change alone is insufficient:** The scenario analysis shows that while technological changes could lead to notable emission reductions, they are alone inadequate to maintain the 1.5°C trajectory by 2050. By 2030, only a few countries are on track, but this shifts dramatically by 2050, where no country is projected to remain within the target limits.
- 2. Lifestyle change presents huge opportunities:** Current projections indicate that EU27 household footprints may reach an average overshoot of 2.2 tCO₂e/cap in 2030 and 3.1 tCO₂e/cap in 2050. The global overshoot figures, while more moderate, still reflect a significant gap that lifestyle changes can help address.
- 3. Direct emissions from households must be reduced:** The model highlights that even with extensive reductions in indirect emissions - i.e. those resulting from intermediate consumption during production induced by household final demand - emissions associated with household activities remain considerable if direct emissions from cooking, heating, and mobility are also not addressed. Targeting direct household consumption of fossil fuels is crucial for achieving meaningful reductions in emissions, as it could mitigate approximately 40% of future carbon footprints, provided rebound effects are avoided.
- 4. High-impact lifestyle options must be discouraged:** The analysis underscores the necessity of addressing demand for high-emission products and services such as car and air travel and certain foods (meat and dairy). Technological improvements in these sectors will not be sufficient to offset increasing demand, highlighting the dual need for lifestyle transformations alongside technological advancements.

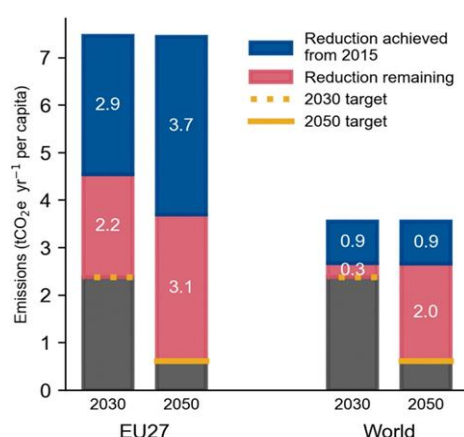


Fig. 1. Total household carbon footprint reductions achieved from 2015 through background system changes and emissions reduction remaining in 2030 and 2050 to be compatible with a 1.5°C target, global and eu27 average. Technological change alone is insufficient to reduce household carbon footprints to 1.5°C-compatible levels. Lifestyle changes are needed.

Source: cap, s. Et al. (2024) "(in)sufficiency of industrial decarbonization to reduce household carbon footprints to 1.5°C-compatible levels" *sustainable production and consumption*, 45, 216-227.

POLICY RECOMMENDATIONS

These findings make clear that lifestyle transformations are necessary – as part of a wider set of strategies – to meet the 1.5°C target. This requires modal shifts and sufficiency solutions that tackle overconsumption to be developed in parallel to efficiency improvements – despite the latter often taking central stage in policy agendas.

- **Lifestyle changes must be part of a policy mix:** policymakers must develop integrated strategies that include not only technological improvements, but also initiatives aimed at lifestyle changes. This dual approach can help bridge the gap between current trajectories and necessary emission reductions.
- **Changing provisioning systems:** changing provisioning systems (how goods and services are delivered to meet societal needs) is fundamental to making sustainable choices in key lifestyle domains – like healthy food and clean energy – accessible, affordable, and desirable for all.
- **Changing aspirational systems:** regulating advertising, marketing, and media depictions of consumption is essential to promoting sustainability values and highlighting the impact of lifestyle choices on greenhouse gas emissions. The research emphasizes that reducing demand for high-emission products and services, such as car and air travel or certain foods (e.g., meat and dairy), is critical. Incorporating these insights into educational programs can foster an early understanding of sustainability principles, equipping future generations to adopt low-impact consumption patterns and make informed choices that directly reduce household emissions.
- **Reducing inequalities:** policy must target disparities in household greenhouse gas emissions, with a focus on addressing the disproportionate impacts of high-income countries and groups. Wealthier people, as identified in the research, bear a greater responsibility to reduce emissions given their higher climate impact. Such efforts not only align with equity principles but also enable low-income groups to access essential needs such as affordable food, mobility, and housing. Bridging these inequalities is key to achieving the necessary lifestyle and consumption changes to meet the 1.5°C target.
- **Policy inaction on lifestyles escalates the challenge:** policymakers should recognize that failing to reduce lifestyle greenhouse gas emissions implies that the remaining carbon budget allowed for achieving the 1.5°C target is continuously shrinking. The lack of effective policy action for enabling sustainable lifestyles makes climate change mitigation more difficult and costly each year, increasing threats to human health and ecosystems in the process. Action for addressing lifestyles is needed now, and the policy level of ambition should match a changing carbon budget.

ANNEX 1

DETAILED METHODS SUMMARY

The EU 1.5° Lifestyles project evaluates the carbon footprint of household consumption with a focus on the EU27. To highlight the need for changes in lifestyles to achieve the 1.5°C climate target of the Paris Agreement, the project explores the potential emissions overshoots arising from a 'Decarbonization Divergence' scenario with industrial decarbonization but no household decarbonization.

Scenario design: The model uses the Shared Socioeconomic Pathway 1 (SSP1) framework with Representative Concentration Pathway 1.9 (RCP1.9), representing rapid decarbonization with economic growth in 49 countries/regions. Technological developments include reduced fossil fuel use, increased energy efficiency, and shifts to renewable energy, alongside sector-specific interventions like carbon capture and electrification.

Carbon footprint calculation: Household carbon footprints consider both emissions from direct household energy use and embedded emissions in consumption goods. Benchmarks were set using per-capita 1.5°C-compatible emissions pathways for 2030 and 2050. This comprehensive modelling approach highlights the limits of technological solutions and underscores the need for complementary lifestyle changes to achieve the 1.5°C climate target.

DETAILED RESULTS

Contribution and drivers of EU27 household carbon footprint:

By 2030, Slovakia (2.11 tCO₂e/cap), Croatia (2.22 tCO₂e/cap), and Slovenia (2.36 tCO₂e/cap) are the only EU countries expected to have household carbon footprints below the global 1.5°C threshold (Fig. 1). Among these, all except Slovakia also align with their differentiated household emissions targets for 2030. Meanwhile, Romania (2.86 tCO₂e/cap) meets its national household emissions targets but falls short of the global threshold due to a relatively higher share of household emissions compared to other sectors, such as governments, non-profits, or investments. No country is anticipated to achieve the 2050 household emissions target.

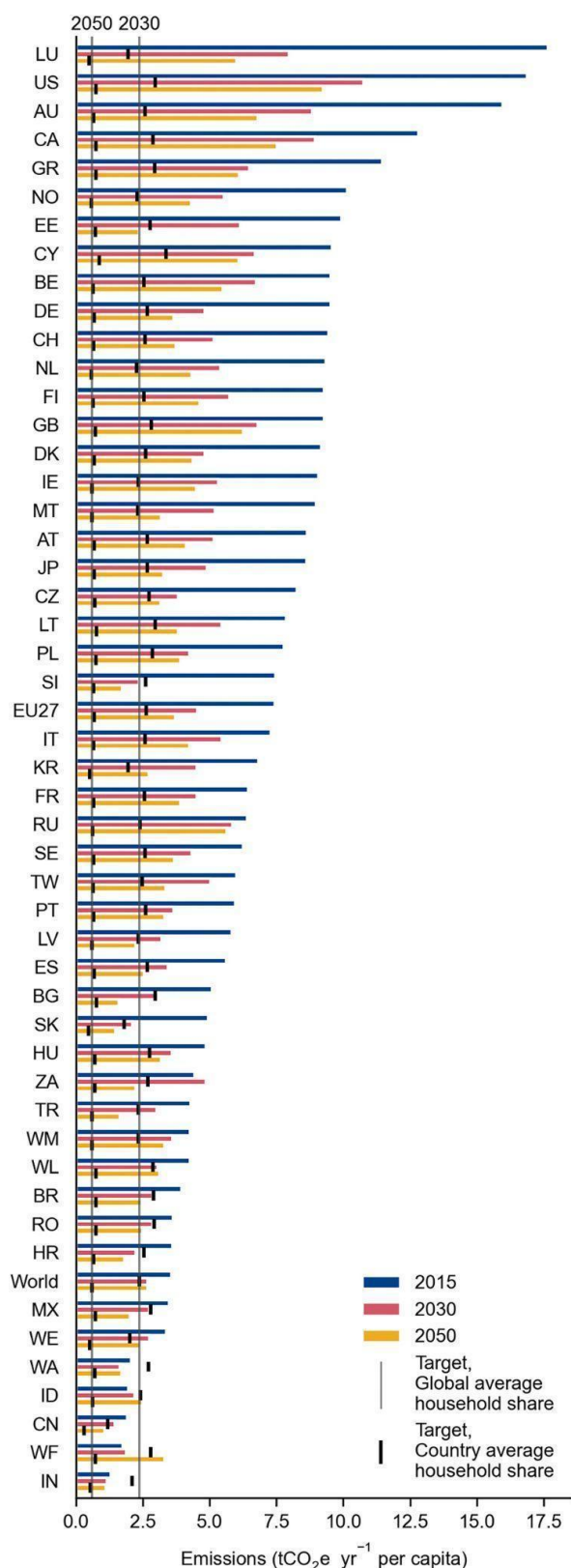


Fig. 1. Per-capita household carbon footprints in 2015, 2030, and 2050 for 49 countries and regions of EXIOBASE and the EU27 and global average, ordered by descending total emissions in 2015. Vertical lines indicate thresholds for 1.5°C in 2030 and 2050: the continuous lines (grey) represent a universal global target calculated using the global average household share of emissions, and the thicker individual lines (black) represent differentiated targets calculated for individual countries using the share of household emissions in total emissions for each country. Countries are identified by ISO2 code; aggregated regions identified by EXIOBASE code: WA, RoW Asia and Pacific; WE, RoW Europe; WF, RoW Africa; WL, RoW America; WM, RoW Middle East.

Source: Cap, S. et al. (2024) "(In)Sufficiency of industrial decarbonization to reduce household carbon footprints to 1.5°C-compatible levels" *Sustainable Production and Consumption*, 45, 216-227.

The reduction in emissions intensity drives shifts in the composition of carbon footprints across the EU27. On average, emissions intensities across all products and countries are projected to decline by 79% between 2015 and 2050. Within the EU27, indirect household emissions are expected to decrease relative to 2015 levels in the modelled scenarios, while direct emissions associated with household energy use show a slight increase. The share of direct emissions within the EU27 household footprint grows from 19% in 2015 to 31% in 2030 and 43% by 2050, with absolute direct emissions rising across all EU27 regions except in the Eastern EU.

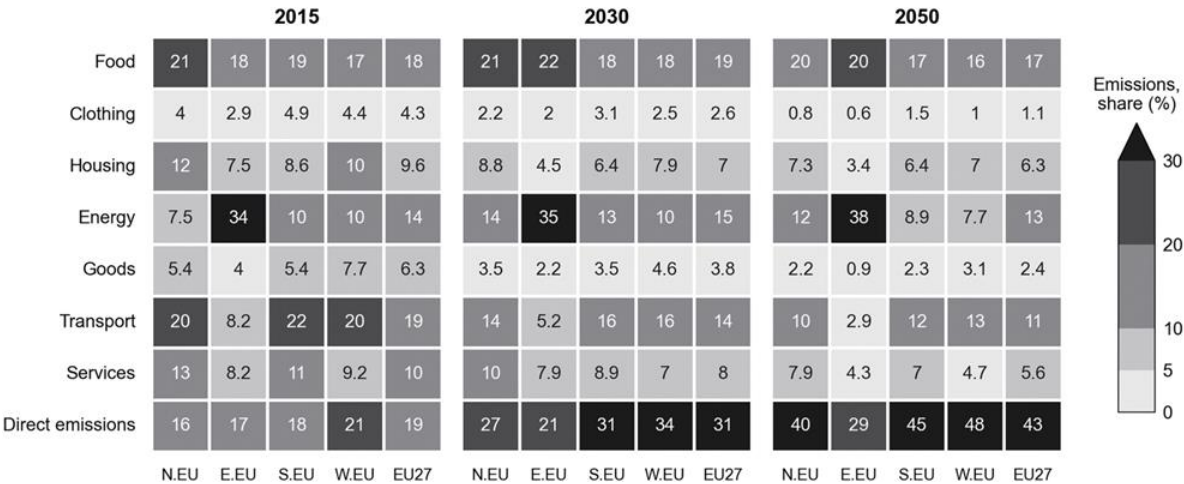


Fig. 2. Contribution of major consumption categories to carbon footprints of EU27 households by percent of total emissions. N.EU, Northern EU; E.EU, Eastern EU; S.EU, Southern EU; W.EU, Western EU; EU27, European Union average.

Source: Cap, S. et al. (2024) “(In)Sufficiency of industrial decarbonization to reduce household carbon footprints to 1.5°C-compatible levels” Sustainable Production and Consumption, 45, 216-227.

Scenario emissions compared to 1.5°C benchmark:

Most of the necessary household footprint reductions to reach the 2030 1.5°C-compatible target of 2.38 tCO2e/cap are achieved in the EU by technological changes – although by a small margin (2.2 tCO2e/cap, 57%)(Fig. 2). By 2050, a share of emissions similar to 2030 (3.7 tCO2e/cap, 55%) is unmitigated.

FURTHER READINGS

Cap, S. et al. (2024) “(In)Sufficiency of industrial decarbonization to reduce household carbon footprints to 1.5°C-compatible levels” Sustainable Production and Consumption, 45, 216-227.

ABOUT US:

The EU 1.5 LIFESTYLES consortium includes ten research partners (universities, research institutes, enterprises and NGOs) from **Germany, Finland, Hungary, Latvia, Netherlands, Spain and Sweden.**



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