

German research institute delivers draft for a socially balanced heat transition

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In order for Germany to reach its climate goal of net neutrality by 2045, the heating systems in more than 40 million private households will need to function without climate gas emissions, i.e., without gas and oil. How

can the extensive effort required for a transition in the heating sector be politically kick-started?

Taking the real heating expenditures as a reference point, the Berlin-based [climate](#) research institute MCC (Mercator Research Institute on Global Commons and Climate Change) quantifies the potential additional costs of carbon pricing, and calculates various options for the redistribution of the corresponding revenues to relieve the [financial burden](#).

The study is now available on the MCC website. "In essence, we suggest embedding the current regulatory proposals for the heating sector in a significantly higher carbon price than planned, while also compensating households," explains Max Kellner, postdoc in the MCC working group Economic Growth and Human Development, and lead author of the study.

"A compensation paves the way for the use of carbon pricing as the core instrument of climate policy without overburdening individual households. In this comprehensive policy package, strong regulation of new fossil [heating systems](#) has the function of protecting poorly informed households from investments which will come in very costly down the line."

The study uses expenditure data provided by the official large-scale Sample Survey of Income and Expenditure which samples 80,000 representatively selected German households. In order to depict the sheer scale of the required change, it assumes carbon prices that are in line with the EU climate goals when CO₂ emissions are not significantly reduced by other policy instruments: 275 euros per ton of CO₂ in 2030, and 400 euros in 2040. These high price levels may not be reached in practice. However, the researchers point out that lower prices would not make the transition cheaper for the country as a whole; instruments such

as subsidies, standards, and bans entail [indirect costs](#) at least as high as the carbon prices assumed here.

Prices of this magnitude result in an average aggregate burden of 13,400 euros for private households affected by carbon pricing in the heating sector from 2023 to 2045, unless households adapt their consumption patterns and invest in clean technologies. The burden corresponds to 2.1% of their total consumption expenditures over the same period.

In their study, the researchers use machine learning to identify the most affected population groups, revealing that owners of one/two-family homes with below average or middle incomes are especially vulnerable. Comparing various relief options funded by the revenues of pricing carbon emitted by private households, the study shows that a uniform per-capita climate money may not be nuanced enough to effectively function as the only relief instrument in the heating sector. The study therefore conceives a complementary compensation specifically aimed at particularly affected population groups.

"With the heat transition, the issue of climate protection is moving closer to the citizens than ever, right down to the boiler room," says Ottmar Edenhofer, MCC Director and a co-author of the study. "Even if we can't get by completely without regulatory requirements, the core instrument must be [carbon](#) pricing. If this is smartly designed, with appropriate redistribution of the revenues to private households, then the climate transition in the boiler room will be socially acceptable and politically feasible. Our analysis provides the German government with a socially balanced draft."

More information: Systematische Verteilungsanalyse zur Wärmewende: Welche Haushalte tragen die Kosten und wie kann die Entlastung aussehen? MCC working paper (German)
[www.mcc-berlin.net/Publication ... zur Waermewende.pdf](http://www.mcc-berlin.net/Publication...zur_Waermewende.pdf)

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