

# Technology alone won't save us from the climate crisis, researcher says

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If European countries rely solely on technological advances, they won't be able to limit global heating to  $1.5^{\circ}$ . Households will also need to change their lifestyles. This "inconvenient truth" is the result of calculations done by industrial ecologist Stephanie Cap. "It's not a popular message, but it does show that individual actions matter."

It would be reassuring to think that technology, such as [wind turbines](#), [solar panels](#), batteries, and green hydrogen, will save us from the worst consequences of [climate change](#). It would mean we could sit back until science provides us with the solution. Unfortunately, that's not the case. However important these new technologies are, relying on them alone will not be enough.

Cap calculated for the first time how far technology alone would bring us in combating climate change, excluding [lifestyle changes](#). She focused on Europe, using one of the more optimistic scenarios by the Intergovernmental Panel on Climate Change (IPCC) of the United Nations as a basis. The research is [published](#) in the journal *Sustainable Production and Consumption*.

## **Only three countries are on track by 2030**

The data shows that by 2030, only three EU countries will be on track to meet the 1.5° target if they rely on technology alone. 1.5° is considered the threshold under which climate change is damaging but manageable. By 2050, none of the 27 EU member states will be able to limit the emission of greenhouse gases in line with the 1.5° target, relying solely on technology.

Cap calculated that without changing our lifestyle, by 2050, there will be a yearly "overshoot" of 3.1 metric tons of CO<sub>2</sub>-equivalent for every EU citizen. That's about a third of the average footprint of a Dutch citizen in 2022, which was 9.6 metric tons of CO<sub>2</sub>.

## **Not a popular message to bring**

The Ph.D. candidate at the Industrial Ecology department, understands that her research "doesn't bring a popular message." But she says

policymakers need to know that bringing down industry emissions is not all that matters. "It's important to encourage households to bring down their emissions too," she suggests, mentioning laws or incentives.

On the other hand, her research makes clear that individual actions do make a difference. Even more so: Without them, we will not be able to achieve our goals. Cap thinks that's a significant realization for people who are discouraged by the idea that only structural change matters. "The truth is that we need both," she says. "Only one or the other will not be enough."

For now, Cap only calculated what excluding lifestyle changes means for our common footprint. As a next step, she is already researching the actual potential of those lifestyle changes. That will shed light on which individual actions matter most.

## Sources remain the same

Cap realizes her calculation only reflects a snapshot of our trajectory to a low-carbon economy. Technology keeps on improving, and some lifestyle changes might happen faster, or slower, than predicted. Still, she believes the underlying message remains the same.

"The structure of our carbon emissions in 2015, the year the Paris Climate Accord was agreed, is similar to what it will be in the coming decades," she says. Cap points to emissions from heating, transport, and diet, among others. "Changing those will remain an essential part of limiting further climate change."

**More information:** Stephanie Cap et al, (In)Sufficiency of industrial decarbonization to reduce household carbon footprints to 1.5°C-compatible levels, *Sustainable Production and Consumption* (2024). [DOI: 10.1016/j.spc.2023.12.031](https://doi.org/10.1016/j.spc.2023.12.031)

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