

MCC Press Release

How carbon removal fits into the architecture of EU climate policy

Research team, including MCC Director Ottmar Edenhofer, presents an economically sound governance concept. Key role for a European Carbon Central Bank.

Berlin, 28/03/2024. The EU has recently taken far-reaching decisions on rapid greenhouse gas emissions reduction. For example, from 2027, like in the energy and industry sectors, it will also cap emissions in the problem sectors of heating and transport through emissions trading, and gradually reduce them towards zero. But how can the EU also realise rapid growth in “negative emissions”, i.e. large-scale carbon removal from the atmosphere, without which its goal of “climate neutrality 2050” cannot be achieved? A study by the Berlin-based climate research institute MCC (Mercator Research Institute on Global Commons and Climate Change) and the Potsdam Institute for Climate Impact Research sheds light on this. It has now been published in the renowned journal *FinanzArchiv*.

“Carbon removals as the second pillar of climate protection will be very costly in the second half of the century – estimates range from 0.3 to 3 percent of global economic output,” says [Ottmar Edenhofer](#), Director of MCC and PIK and one of the authors. “Yet the scientific literature on this topic has so far revolved around technological aspects rather than the economic issue of efficiently tackling this Herculean task. In the meantime, this is precisely what is being discussed intensively in the EU capital Brussels. We now provide a theoretically sound and very specifically elaborated governance concept.”

The study gives a brief overview of technical methods with costs and conceivable quantities, but then starts with a fundamental economic consideration: just as the state makes CO₂ emissions more expensive in order to limit their negative consequences, it should subsidise CO₂ removals. As a basic principle for cost minimisation, the same price should be used for each tonne of CO₂ removed and permanently stored as for the emission of one tonne of CO₂ into the atmosphere. Furthermore, the research team analyses the consequences of a natural inadequacy: since removals are not always permanent, the climate gas must frequently be removed again.

Seemingly cheap land-based options, such as afforestation or carbon sequestration in farmland, can thus become decisively less attractive compared to, for example, air filter systems with permanent underground storage. To illustrate this, the study calculates that if a non-permanent CO₂ storage lasts only ten years, with the costs of this storage increasing by 1 percent annually and the real interest rate being 2 percent, then the provider of such a procedure should actually set aside ten times the original investment sum for follow-up investments.

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This poses challenges for policymakers, for example with regard to the point of regulation for carbon pricing and removal subsidies, as well as in terms of risk management and liability. It is against this background that the research team develops its governance concept. For example, it seems sensible for the EU to initially link subsidies to the permanence of removals from the outset (“upstream pricing”). Only when CO₂ emissions in the land sector are also comprehensively monitored and subject to pricing can removals be promoted equally.

“For such governance to be successful, it is important that the responsibilities are transparently and robustly anchored in the EU power structure,” says [Artur Runge-Metzger](#), MCC Fellow and also one of the authors. “The four crucial levers are quantity control of net emissions, regulation of liability for non-permanent removals, financial support for expansion and innovation of carbon removal, and certification of providers.” For the first two tasks, the study proposes a European Carbon Central Bank, plus two further authorities for financing and quality control. Runge-Metzger has served as Director in the EU Commission's Directorate-General Climate Action for many years, and has been [strengthening MCC at the interface with policy since 2022](#). He emphasises: “We think this proposal is viable within the current EU policy architecture.”

Reference of the cited article:

Edenhofer, O., Franks, M., Kalkuhl, M., Runge-Metzger, A., 2024, On the Governance of Carbon Dioxide Removal – A Public Economics Perspective, *FinanzArchiv*
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MCC explores and provides solution-oriented policy portfolios for climate mitigation, for governing the global commons in general, and for enhancing the many aspects of human wellbeing. Our six working groups are active in fields like economic growth and development, resources and international trade, cities and infrastructure, governance, and scientific policy advice. Co-founded by the Mercator Foundation and the Potsdam Institute for Climate Impact Research. | www.mcc-berlin.net/en | https://twitter.com/MCC_Berlin

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