

2nd JPI Climate Scoping Forum Symposium 9/10 December 2020

Providing Knowledge for a climate neutral and resilient Europe

Session B. Scoping new Horizons – Understanding the issue of negative emissions

Format: Alternation of presentation and question/discussion parts followed by development of joint statements for research policy based on interactive discussion of controversial theses

Carbon dioxide removal (CDR - also referred to as “negative emissions”) refers to anthropogenic activities removing carbon dioxide from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. In the past decade CDR has gained increasing attention as a possible new element in the response portfolio to counter climate change. Initially CDR methods have been introduced as a possible hedge against unpleasant surprises in the climate system that could result in humankind wanting to reduce the carbon load in the atmosphere and/or reduce the global temperature increase already reached. Presently, the goal of the Paris Agreement to reach “greenhouse gas neutrality” within the second half of the 21st century is being implemented by the new European Climate Law and by national laws with target dates to reach this state ranging between 2030 (Norway) and 2050 (EU-wide and several EU-member states and the UK). In addition, more and more private sector companies are devising plans to reach climate neutrality (e.g. Microsoft).

Reaching these goals will very likely require CO₂ to be actively removed in order to compensate for some hard-to-abate greenhouse gas emissions (e.g. methane and N₂O from agricultural activities, and also some industrial processes). All evidence indicates that reliance solely on natural CO₂ sinks would not be sufficient. Any delays in rapid greenhouse gas reductions would further increase the need for CDR. In addition, the majority of cost-optimized scenarios assessed by the IPCC Special Report on Global Warming of 1.5° C that are compatible with the Paris goals of limiting global warming to “well below 2° Celsius” above pre-industrial times and all compatible with the 1.5°-goal include significant amounts of CDR. CDR estimated in 1.5°-compatible scenarios typically amounts to several GtCO₂ annually by mid-century and several hundred GtCO₂ cumulatively until 2100. However, the IPCC also acknowledges that CDR deployment at these scales “is subject to multiple feasibility and sustainability constraints”.

Currently there is high attention for the move of the European Commission and Parliament for higher mitigation targets. What has escaped most people's attention is that for the first time there is also talk of the possible need for a negative emissions target in addition to the climate target, in order to ensure that the greenhouse gas balance of the EU and all Member States is net negative after 2050. In a way it seems as if the technologies and potential for negative emissions are already being priced into political equations to a certain extent. However, we do not yet have these technologies. In many cases, we can assess neither the risks nor the full set of conditions for actual implementation of the various technologies and approaches listed under CDR. The whole field has not yet been adequately researched and we are still a long way from being able to make really valid decisions on the basis of the available knowledge: whether to invest in development or to regulate the use of individual technologies. Reliance on large amounts of negative emissions realized mainly during the second half of the century thus comes with a considerable risk, which is why it is perceived by critics as an “unjust and high-stakes gamble”. Research on CDR is therefore

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faced with a dilemma: While significant amounts of negative emissions appear to be almost unavoidable, research on CDR could fuel hopes that in the end are not (fully) achieved, but could act as an excuse for avoiding emission cuts today.

This session aims at providing an overview on the status-quo of research into CDR options and opening the discussion on how a multidisciplinary research effort or should or could be coordinated or supported through JPI Climate.

Moderator: Gregor Laumann

0 – 10 Introduction: Overview and research policy perspective on the issue of CDR

What are the challenges in the political arena and where do we stand with research?

Speaker: Rolf von Kuhlmann

10 – 15 Get to know each other (mentimeter survey)

Where do the participants come from?

To what extent have they dealt with the issue so far?

To which degree do they agree to the following theses:

- Governments should invest massively into research on CDR?
- We need an EU target for negative emissions?

15 – 30 Toward Net-Zero: challenges, barriers and alliances for knowledge on CDR

Speaker: Sabine Fuss, MCC Berlin

Discussion / Questions from the Chat

30 – 45 CDR side effects and how to prevent them

Speaker: Duncan McLaren, University of Lancaster

Discussion / Questions from the Chat

45 – 60 A global viewpoint: CDR as major governance challenge

Speaker: Janos Pasztor, Carnegie Climate Governance Initiative (C2G), New York

Discussion / Questions from the Chat

60 – 85 Have your say: interactive discussion of controversial theses with regard to research on CDR and the role of JPI (virtual whiteboard)

Moderators: Gregor Laumann, Rolf von Kuhlmann

85 – 90 Wrap up

Moderator: Gregor Laumann