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Science to Policy: CDR assessments for informing the national long-term strategy on negative emissions in Germany

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The German Ministry for Economic Affairs and Climate Action (BMWK) tasked the German Energy Agency (dena) to develop a national long-term strategy on negative emissions –the so-called Nationale Langfriststrategie Negativemissionen. It is the goal of the strategy to provide a national framework for guiding the implementation and upscaling of carbon dioxide removal (CDR). Based on UFZ research on the feasibility of CDR options, the German Energy Agency (dena) incorporated the CDR feasibility criteria developed by Förster et al. (2022), which now serve as guidance for determining the feasibility of CDR options in Germany.
This policy impact is a result of a broader activity on CDR at UFZ. As part of the Helmholtz Climate Initiative, the UFZ lead a major research effort across multiple Helmholtz Centres on identifying CDR options that are feasible within Germany. First, a scoping of CDR options with different degrees of readiness for implementation was conducted (Borchers et al. 2022). Second, for assessing the feasibility of these CDR options with a holistic perspective, an assessment framework was developed including six feasibility dimensions: environmental, technological, economic, social, institutional and the systemic contribution to mitigating climate change (Förster et al. 2022). Third, through funding from BMBF in the frame of the BioNET project, a feasibility assessment of 13 CDR options was conducted across the six dimensions and a total of 68 indicators (Borchers, Förster, [⋯] Mengis 2024). This activity involved a process of co-design and high degree of interdisciplinary expertise provided, among others, by scientists of the UFZ Research Unit "Environment & Society" from the Departments on Bioenergy (BEN), Environmental Politics (UPOL), Environmental and Planning Law (UPR), and Economics (OEKON).
From the start, policy relevance was at the centre of the work, which has proven to be highly successful due to the direct integration into the national long-term strategy on negative emissions. In stakeholder consultations organized by the German Energy Agency (dena) with representatives from industry, science and NGOs, the criteria developed by Förster et al. (2022) were confirmed. They now serve as guidance for determining the feasibility of CDR options under the national strategy in Germany.
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