

## Policy Brief

# Enhancing EU legal frameworks for Carbon Dioxide Removal

# TECHETHOS

FUTURE ◦ TECHNOLOGY ◦ ETHICS

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## Highlights



This policy brief provides legal and policy recommendations at the European Union (EU) level on the governance of Carbon Dioxide Removal (CDR). Together with Solar Radiation Modification (SRM), CDR can be understood to fall within the category of 'climate engineering', or 'geoengineering'. To protect and uphold ethical, fundamental rights and sustainability considerations in the research, development and deployment of CDR, the Horizon 2020-funded [TechEthos](#) project encourages EU policymakers to:

- Clarify the **EU's terminology** and rationale for the use of terms, including climate engineering, geoengineering, carbon removal and CDR, and **pursue the harmonisation of terms** to bring them in line with the terminology of the Intergovernmental Panel on Climate Change (IPCC);
- Clarify what role – if any – CDR has to play in meeting the **EU's legally binding target of net-zero by 2050**;
- Explicitly **incorporate EU fundamental rights** into policies and decision-making processes governing CDR techniques in the EU;

- Clarify the **legal status of carbon removals** and recognise them as **distinct from emission reductions**;
- Define the **sustainability requirements for CDR**, particularly those in the context of the Sustainable Development Goals (SDGs), the EU Taxonomy Regulation, and the Carbon Removal Certification Framework (CRCF) initiative;
- Pursue **greater international collaboration** in relation to CDR to **promote the standardisation of removal accounting** to avoid double counting, and the enforcement of such standards;
- Review the adequacy of **environmental liability regimes** in relation to CDR activities in the EU, including research and deployment.

## Who is this for?

This brief is primarily aimed at EU institutions, including the European Commission, the European Parliament, the Council of the European Union, and the European Council. The brief seeks to inform EU policymakers and officials involved in the preparation of legislative or policy initiatives related to **climate action, climate technologies, climate engineering, geoengineering, carbon removal, and CDR**.





## Introduction

CDR is a type of climate engineering technique, also known as “negative emissions techniques”, that removes atmospheric CO<sub>2</sub> and stores it in geological, terrestrial, or oceanic reservoirs. Whilst the objective of CDR is to alleviate impacts of climate change, CDR techniques also present certain risks and regulatory challenges. This policy brief sets out recommendations based on the regulatory challenges related to CDR identified through an analysis of EU laws and policies as part of the TechEthos project. In particular, these recommendations are considered in the context of the European Climate Law, the CCS Directive, the European Green Deal, and the European Commission’s recent CRCF initiative.

on the other. This distinction is particularly relevant in the evaluation of existing EU laws, such as the EU Emission Trading Scheme (ETS), governing CCS.

- Furthermore, the EU should evaluate the **applicability of existing EU laws**, such as the regulatory frameworks for waste and chemicals, and clarify the definition of geological storage of CO<sub>2</sub> in the context of waste disposal and ocean dumping, similar to the 2006 amendment to the London Protocol on ocean dumping.

## Clarify what role – if any – CDR has to play in the EU’s legally binding target of net-zero by 2050

- In implementing the **legally binding objective of net-zero by 2050** set out in the European Climate Law, the EU should clarify what role – if any – CDR has to play in achieving this target. This should be investigated in light of the IPCC emission pathways compatible with achieving carbon neutrality by 2050, which assume some form of CDR in the future. The EU should investigate and clarify whether, if at all, different forms of CDR are to be considered as part of its mitigation strategy alongside the evaluation of alternative pathways to achieving net-zero.
- In doing so, the EU should carefully evaluate **wider socio-economic implications of CDR**, including but not limited to fundamental rights, biodiversity, international development, international trade, food production and food security, short- and long-term cost implications, and energy security, and look for forms of CDR that benefit multiple, wider policy goals.
- Furthermore, the EU should **evaluate potential resource competitions**, such as competing uses of biomass, land, water, low-carbon power and heat, emerging within and between ensembles of CDR and other mitigation measures in pathways to net-zero emissions.

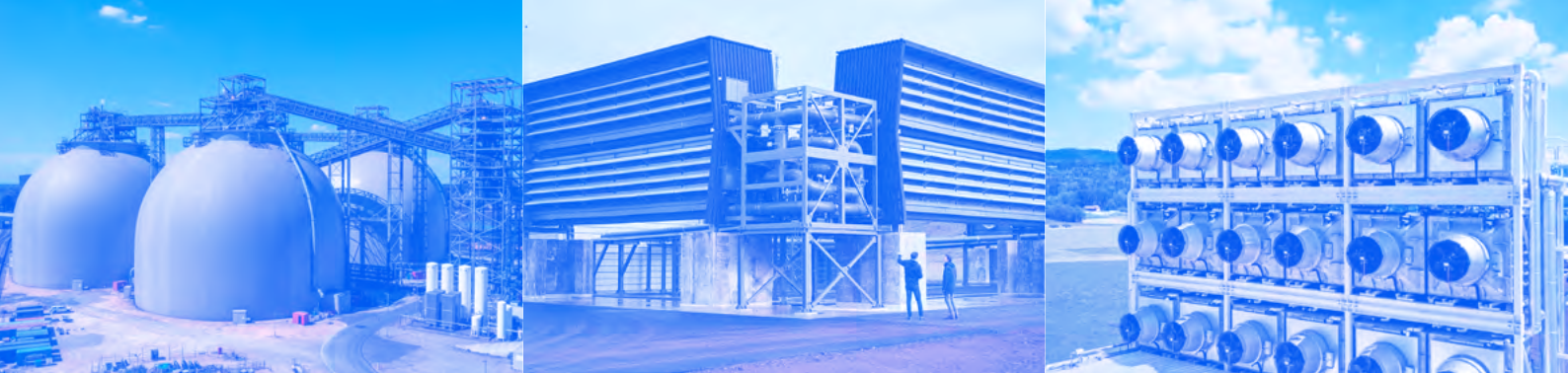
## Recommendations



### Clarify the EU’s terminology and rationale for the use of terms related to CDR, and pursue the harmonisation of terms

- The EU should **clarify its terminology** and rationale for the use of terms related to CDR, including climate engineering, geoengineering, and carbon removal, and define the types of methods that are considered CDR. In doing so, the EU should seek to harmonise with the terminology of the IPCC.
- The EU should **recognise the distinction between two types of Carbon Capture and Storage (CCS)**; CCS capturing CO<sub>2</sub> emissions from fossil fuel combustion or cement kilns and therefore constituting emission reductions, on the one hand, and CCS from direct air capture (DAC) or bioenergy processes achieving the removal of CO<sub>2</sub> from the atmosphere (CDR),





## Explicitly incorporate EU fundamental rights into policies and decision-making processes governing CDR techniques in the EU

- In governing and facilitating CDR activities and research, the EU should adopt a **holistic approach to protect fundamental rights and the environment**. The EU should incorporate fundamental rights in the development of sustainability requirements for the assessment and approval of CDR projects, such as through existing EU law related to environmental risk and impact assessments, and the European Commission's Carbon Removal Certification Framework (CRCF) initiative.
- In facilitating and funding further research into CDR, the EU should evaluate the effective governance of CDR research in respect of **rights related to scientific research**, such as the right to freedom of scientific research, the right to enjoy the benefits of scientific progress, moral and material interests resulting from scientific production, and the rights of research participants, stretching beyond the borders of the EU.
- The EU should evaluate the **effectiveness and inclusivity** of existing **processes for public participation** for all parties and individuals involved in and/or likely affected by CDR activities. The EU should evaluate and promote the **legitimacy, inclusivity and transparency of CDR** activities and decision-making processes, facilitate access to information, encourage public and stakeholder consultation, and promote access to environmental justice in line with relevant international environmental agreements such as the Aarhus Convention.

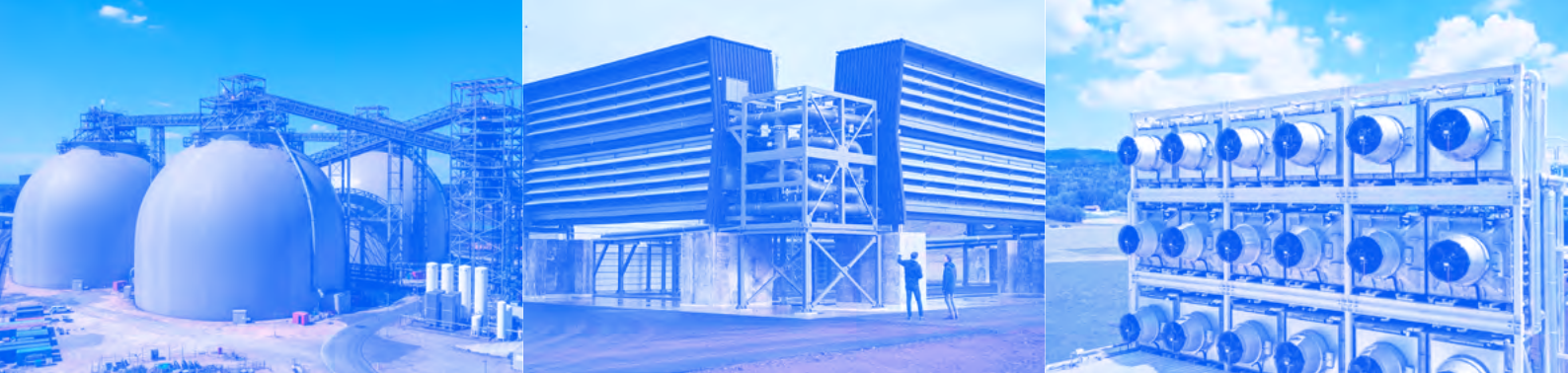
## Clarify the legal status of carbon removals and recognise them as distinct from emission reductions

- In clarifying what constitutes carbon removals, the EU should also clarify the **legal status of such removals**, taking into account the extent

to which the legal status of carbon removals may give rise to any monetary value, and any rights or obligations.

- Considering the **asymmetric climate impacts** of carbon removals and emission reductions, the EU should **recognise carbon removals as distinct from emission reductions** in relevant laws and policies. Failure to recognise their distinct characteristics by awarding an equivalent legal status may create a **moral hazard** and unduly legitimise a delay in emission reductions, which would impede the EU's ability to achieve net-zero.
- In considering the possible integration of CDR governance into existing EU laws and policies, such as the EU ETS, the EU should recognise and incorporate the **distinct characteristics of carbon removals and emission reductions** and prevent risks of double counting. Existing and emerging governance frameworks of CDR must be capable of accommodating the temporal element of carbon removals and take into account the intermediate climate risk. In other words, account for the climate impact of CO<sub>2</sub> emissions before their removal through CDR.
- In negotiating the European Commission's CRCF initiative, the EU institutions should consider the **varying permanency and quality** of carbon removals and explore the need for a tiered approach to certification of such removals based on their durability and as a function of the foreseen usage of the resulting certificates.
- The regulation of carbon removals requires a **clear and robust definition** to help create a standard and guarantee the quality of carbon removals. The EU should explore the best ways to develop, assess and enforce the Q.U.A.L.I.T.Y (Q.UANTIFICATION, A.DDITIONALITY AND baselines, L.ONG-term storage and sustainABILITY) criteria as proposed by the European Commission's CRCF initiative, to enable effective and high-quality certification and accounting of carbon removals, avoid risks of double counting, and the reversal of stored removals.





## Devise robust sustainability requirements for CDR, particularly those in the context of the SDGs, the EU Taxonomy Regulation, and emerging climate laws and policies including the European Commission's CRCF initiative

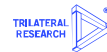
- In negotiating a regulatory framework for the certification of carbon removals such as the Commission's CRCF initiative, the EU should take a holistic approach to the development of **sustainability requirements beyond the borders of the EU** to ward against the offshoring of rights impacts and biodiversity harms. The EU should also expand the sustainability requirement of the Q.U.A.L.I.T.Y criteria of the CRCF initiative to include the consideration of fundamental rights impacts.
- Furthermore, the EU should **define the additionality requirement in the Q.U.A.L.I.T.Y criteria** of the CRCF initiative and consider the extent to which certain carbon removals occur naturally or as part of ongoing activities, particularly in the context of the land use, land use change and forestry (LULUCF) sector.
- The EU should work closely with international trade partners and governments to promote and enforce the EU's sustainability requirements and **avoid double counting** of carbon removals.
- The EU should pay particular attention to the risk of greenwashing and adapt its policies to mitigate the **risk of greenwashing** in the context of various possible use cases of CDR certificates and carbon removal accounting. In doing so, the EU should evaluate the role of the fossil fuel industry engaging in CDR.

## Pursue greater international collaboration in relation to CDR to promote the standardisation of removal accounting and the enforcement of such standards

- Considering possible international trade aspects of CDR activities, the EU should **collaborate internationally** to develop and promote the standards for the certification of carbon removals and associated criteria under the CRCF initiative, the requirements for effective and inclusive public participation, and the accounting of carbon removals.
- Furthermore, the EU should **encourage the monitoring and communication of environmental harms or risks of harm** at the international level, promote access to information related to CDR research and deployment, and facilitate wide-ranging and inclusive public participation.

## Review the adequacy of environmental liability regimes in relation to CDR activities in the EU, including research and deployment

- In governing CDR activities in the EU, the EU should review the **adequacy of environmental liability frameworks** related to CDR to provide legal certainty to researchers, developers, investors and operators, and allow for adequate redress in the event of environmental harm.





## Final take-aways



A key takeaway is the need to clarify key terms and the role CDR will play in the EU's climate strategies and legally binding net-zero target. In particular, the EU should **recognise carbon removals as distinct from emission reductions**, to avoid creating a moral hazard that would legitimise delayed emission reductions.

The following actions would further strengthen the existing and emerging legal and policy frameworks applicable to the governance of CDR:

- **Harmonise the EU's terminology with the IPCC** and clarify what role – if any – CDR has to play in meeting the EU's net-zero by 2050 climate target;
- Recognise **CDR activities as distinct from activities involving emission reductions** in existing legal frameworks, such as the EU ETS;
- Explicitly **incorporate fundamental rights** in CDR policies and decision-making processes and identify and implement more **effective means of public participation**;
- Develop **clear and robust sustainability requirements** for CDR, such as in negotiation of the Commission's CRCF initiative;
- **Increase international collaboration** on CDR to promote standardisation in removal accounting and prevent double counting;
- **Review the adequacy of existing EU legal frameworks**, including environmental liability regimes, to provide legal certainty and enhance access to environmental justice.

## Further reading



- Adomaitis, L., Grinbaum, A., Lenzi, D. (2022). TechEthos D2.2: Identification and specification of potential ethical issues and impacts and analysis of ethical issues of digital extended reality, neurotechnologies, and climate engineering. TechEthos Project Deliverable. Available at: [www.techethos.eu](http://www.techethos.eu); and <https://doi.org/10.5281/zenodo.7619852>.
- Bernstein M.J. and Mehnert E.W. (2022) Policy note: Analysis of expert scenarios addressing ethical implications of the selected technologies. TechEthos Project Deliverable to the European Commission. Available at [www.techethos.eu](http://www.techethos.eu); and <https://doi.org/10.5281/zenodo.7615250>.
- Santiago, N., et al. (2022). TechEthos D4.1: Analysis of international and EU law and policy. TechEthos Project Deliverable. Available at: [www.techethos.eu](http://www.techethos.eu); and <https://doi.org/10.5281/zenodo.7650731>
- Vinders, J., et al. (2022). TechEthos D4.2: Comparative analysis of national legal case studies. TechEthos Project Deliverable. Available at: <https://www.techethos.eu/national-legal-cases-on-emerging-technologies/>.

This policy brief is based on the results of the legal analysis of the TechEthos project. Further policy briefs on wider ethical project results will be provided at [www.techethos.eu](http://www.techethos.eu).

## Keep in touch



@ [www.techethos.eu](http://www.techethos.eu)

✉ [info@techethos.eu](mailto:info@techethos.eu)

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