

Putting people and
communities into
greenhouse gas removal:
**COMMERCIAL AND
SOCIO-LEGAL EVIDENCE**

Executive Summary
September 2020

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Acknowledgements

The report was made possible with the support from ClimateWorks Foundation. Additional support with the publication was provided by Atkins.

The authors would like to extend a special thanks to Andy Gouldson and the Leeds Climate Commission, West Yorkshire Combined Authority, Leeds City Council, and the Imperial College MSc students who contributed to the analysis. And, to all who helped with the stakeholder mapping and contributed through the workshops and interviews, recognising that many were interviewed in confidence and unattributed.

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About Foresight Transitions

Foresight Transitions was set up in 2017 and provides bespoke analysis based on fundamental research around financial modelling, user perceptions and experiences, technological development and regulatory and policy risks in possible futures accommodating for deep uncertainty.

We also offer a unique level of research to assist decision making under deep uncertainty across the technology transitions, resource systems, environmental and climate change issues.

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There is a growing interest in Greenhouse Gas Removal (GGR) as businesses, industry, local authorities and individuals come to terms with what net-zero carbon emissions means.

EXECUTIVE SUMMARY

Even with aggressive mitigation effort achieving the Paris climate ambitions of remaining below 1.5°C means the UK will need a portfolio of GGR techniques to draw down about 100 million tonnes of CO₂ per year by 2050. Globally the GGR economy needs to become a multi giga-tonne scale sector. At present, the combined global negative emissions stand at less than a few thousand tonnes per year.

New global industries will be created, expanding rapidly to reach the scale of some of the world's largest activities, such as the oil and gas sector and agriculture, in the next 30 years. Deploying carbon removal technologies at this rate and scale will raise significant social, cultural and environmental issues in the local communities and regions. However, it is widely recognised that the governance frameworks to enable this transformation and ensure its appropriate use are fragmented and inadequate.

This project explores what deploying the various carbon removal options will look like on the ground to understand the implications from the bottom up. It sought to:

- » Explore how participation and social co-production influence social legitimacy of carbon removal technologies and the implications for governance.
- » Build a database of non-financial values for deploying each option.
- » Map the complex value-chains for the options for the region.
- » Develop a participatory engagement toolbox and lessons learnt from the bottom up study.

Using Yorkshire, in the United Kingdom, as a case study, the project undertook over 100 interviews with the communities, stakeholders and interested parties to generate an evidence base of the attitudes and responses to local deployment of carbon removal options. It also undertook two participatory workshops with over 30 participants with broad representation.

The approach is as important as the issues

The values and perspectives that will arise from deploying the multiple carbon removal technologies will need to be negotiated and addressed for each location and region. It is imperative that these new technologies are evaluated from a variety of framings and viewpoints rather than purely a technical and least cost basis in order to gain approval. Perspectives are already becoming polarised. Evidence from forestry already shows that societal aspects will define the potential scale at which the technologies will be deployed.

How the issues are addressed is as important as the issues themselves. Other sectors have already shown that failure to invest time and effort into early engagement with local communities around large infrastructure proposals can lead to disruption, for example, onshore renewables and fracking. Building public trust will be vital, requiring a proactive, participatory approach that works with the local communities and national publics to develop solutions and realise opportunities. Existing frameworks are inadequate.

The lack of awareness and understanding of CDR amongst the public is a substantive risk to deployment. Uncertainty about new technologies undermines social acceptance and questions the motives of the developers. Provision of open and honest information, combined with a participatory approach, will allow a more informed debate of the issues. Developers along with national and local governments need to raise awareness and build capacity to allow engagement on the carbon removal as a matter of priority.

¹ 1000 Million tonnes

Recommendations

Embed participation into governance

Government departments for energy, industry, transport and aviation, agriculture, food and land use, and environment² should adopt an Anticipatory Governance approach to the development and deployment of carbon removal and achieving the net-zero target. A

proactive and participatory approach to public engagement will identify issues early, allowing a balanced consideration of concerns and opportunities. This will inform the governance frameworks that will be needed.

- » **Carbon Dioxide Removal is integral to achieving the net-zero target, but a clear understanding is needed of the role it will play in abating climate change and how it integrates with reducing emissions.** Clear definitions will be needed for how removals and GGR options should be incentivised and supported and who will be able to access them.
- » **Strategic guidance and governance are needed on how GGR integrates with other policy priorities particularly agriculture, biodiversity, and energy.** Developments will be contested with decisions and trade-offs between the objectives made at a local level. They will need to integrate with top down strategic guidance and scientific input.
- » **Local and regional authorities will need to value carbon removal and sequestration and integrate it into local and regional development plans, to avoid conflicting objectives.**
- » **A proactive participatory approach should be integrated into planning law, with clear guidance for developers and local authorities on how public engagement should be undertaken. Integrating procedural justice into proposals is fundamental to social legitimacy.** Planning law is the primary point of engagement, but current specifications do not promote building public trust.

Raising awareness is a priority for participation

- » **Technology developers, along with central and local governments, should focus on raising awareness and understanding of carbon removal and the options.** This capacity building is essential to enable more informed decision making.
- » **A national level discussion led by leading government departments², is needed to explore the assumptions about carbon removal and its role in mitigating climate change.** Multiple dimensions need to be explored using a range of tools and media and informed by national, regional and local perspectives. National discussions should inform the strategic governance frameworks.
- » **Technology development and demonstration should incorporate local engagement to enhance the technical and commercial learning.** Local engagement would identify issues that affect deployment and potential new commercial opportunities.

Strategy and implementation agency

- » **Establishing an independent Agency with responsibility for carbon removal should be a high priority. It should oversee the development of a carbon removal strategy, manage its implementation and monitor its impact.** Stimulating deployment will require a coordinated effort across local and national government with broad engagement and participation from industry, civil society and the wider public.
- » **The Agency would report to Government and interact internationally to harmonise policies and standards.**

² In the UK this is Business, Energy & Industrial Strategy (BEIS), Department for Transport (DfT), and Department for Environment, Food & Rural Affairs (DEFRA)

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