

Social License to Operate (WP C1)

Co-Investigator: Clair Gough
 Key researchers: Sarah Mander
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Project overview

With the potential to support decarbonisation across the whole energy system, including industry, heat and transport, and the prospect of delivering carbon dioxide removal (CDR) through coupling biomass energy with CCUS (BECCS), CCUS is key to achieving the UK's net zero greenhouse gas emissions target and the global 1.5°C aspiration set out in the Paris Agreement. The CCUS Action Plan (BEIS, 2018) focuses on the deployment of CCUS for industrial applications, concentrating initially on industrial clusters where the co-location of high concentration of emitters offers opportunities for cost reductions through shared infrastructure. The focus of our work is two-fold. Firstly we apply the concept of 'protective spaces' from sustainability transition management to the five industrial clusters (fig 1) to explore the extent to which this approach will effectively enable the wide-scale deployment of CCUS. Secondly we explore the conditions necessary for establishing a social license to operate (SLO) for CCUS and the implications for future within industry and for BECCS.



Figure 1: CCUS industrial clusters (BEIS, 2018)

Key objectives

To conduct case studies of the five CCUS Industrial Clusters to explore whether these will enable the deployment of CCUS by:

1. Building a social license for CCUS at regional and national scale
2. Shielding CCUS from mainstream market pressures
3. Nurturing CCUS through the development of: robust technology expectations; social networks; and learning about the technology
4. Empowering CCUS through the development of socio-technical narratives which align with socio-political agendas

Emerging findings

A submitted paper has assessed the state of the art in social science related to BECCS, and considers the applicability of research on CCS to other CCS applications including BECCS and industrial CCS (see research highlights).

We have developed five hypotheses to frame analysis of the extent to which industrial clusters will enable the wide-scale deployment of CCUS:

- To support CCUS, technology advocates need to actively develop protective spaces where the technology can be developed away from mainstream market pressures
- Technology advocates must develop shared and robust technology expectations which present a consistent narrative for the role of CCUS and what is required to support deployment
- Learning initiatives within the clusters must go beyond technical learning to encompass ways to value and support the deployment of CCUS beyond the clusters
- Institutional reforms will be required to allow for the novel function of whole system decarbonisation enabled by CCUS
- There must be an alignment between socio-technical narratives and socio-political agendas presented by advocacy networks comprising multiple perspectives and resource commitments

Next steps

Documentary analysis, stakeholder interviews and social network analysis

Research highlights

Beyond social acceptability: applying lessons from CCS social science to support deployment of BECCS, Gough and Mander, 2019; in submission, Current Sustainable/Renewable Reports, Section: Deep Decarbonization: BECCS. Edited by Mac Dowell and Patrizio.

- The paper sets CCS within the broader context of BECCS and the potential for carbon dioxide removal
- BECCS as a means of 'extending mitigation' is vital in the context of a net zero framing - BECCS is not an alternative to 'conventional mitigation'; without very deep cuts in emissions, CDR measures will not be sufficient to bring atmospheric concentrations down in line with 1.5°C or to deliver 'net' CO₂ removal at a global scale.
- The contexts and details of deployment are critical and without an understanding of the consequences of these wider effects, CCS, and ultimately BECCS, will struggle to become acceptable.