

# WP C1 Social License to Operate

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# WP C1 Overview

1. Explore the conditions necessary for establishing a social license to operate (SLO) for CCUS and the future implications for industry and BECCS
2. Explore the role of the five industrial clusters to enable CCUS deployment, applying the concept of 'protective spaces' from sustainability transition management

# 1. Social license to operate

*“informal permission given by the local community and broader society to industry to pursue technical work”* (Thomson and Boutilier 2011)

Important factors:

- Social context and scale
- Trust
- Stakeholder relationships
- SLO is a dynamic process: depends on the evolving social, industrial and political landscape

# WPC1 Research Highlights



## “Beyond social acceptability: applying lessons from CCS social science to support deployment of BECCS”

Paper under review: Current Sustainable/Renewable Reports, Section: *Deep Decarbonization: BECCS*. Mac Dowell and Patrizio, Eds) (July 2019)

- Assesses state of the art in social science related to CCS & BECCS, setting CCS within the broader context of BECCS and the potential for carbon dioxide removal (CDR)
- Considers the applicability of research on CCS to other CCS applications including BECCS and industrial CCS

# WPC1 Research Highlights



An understanding of the contexts and details of deployment, CCS, and ultimately BECCS, is critical to achieving acceptability:

*technologies, geographic context / place-based concerns; ethics; governance implications and policy responses; framing;*

BECCS as a means of 'extending mitigation' is vital in the context of a net zero framing

without very deep cuts in emissions, CDR measures will not be sufficient to achieve 1.5°C goal

.....or to deliver 'net' CO<sub>2</sub> removal at a global scale

## 2. Sustainability transitions

*“the long-term, multi-dimensional and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption”* (Markard et al, 2012)

# Sustainability transitions



A transition takes place due to the interactions between three levels:

- The landscape – external factors which place pressure on the existing ways of doing things, requiring them to change
- The regime – the existing social-technical system (ways of doing something); this includes the existing actors and social networks, rules and institutions and associated technology and infrastructure
- The niche - the space where innovation takes place, and where innovations are protected from dominant rules  
*‘protective space’*

# Sustainability transitions



Landscape

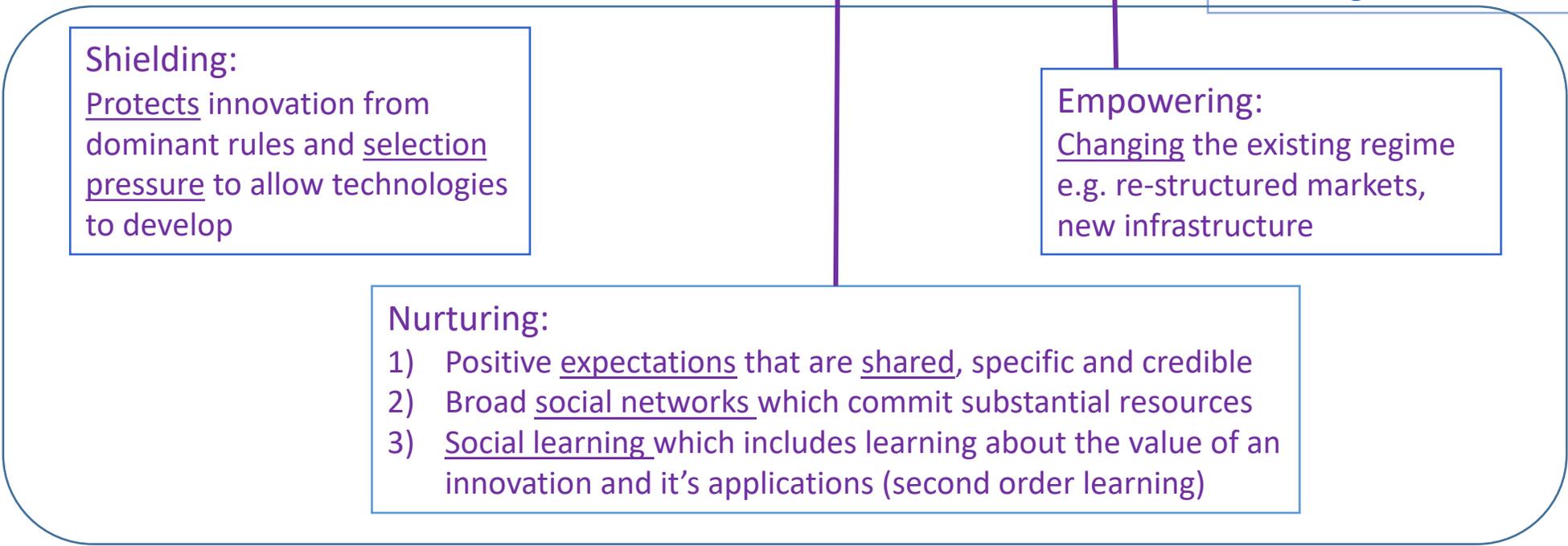
Paris Agreement, UK Climate Change Act

Regime

CO<sub>2</sub> emitted by industry, low value of CO<sub>2</sub>, international competition for manufacturing

Low industrial CO<sub>2</sub> emissions, T&S infrastructure, captured CO<sub>2</sub> has value, UK competitive advantage

Niche



# Key objectives



Case studies of the five CCUS Industrial Clusters will explore their potential to enable 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

# Methodology

Case studies of the five CCUS Industrial Clusters undertaken through:

1. Documentary analysis, including reports, consultation document and print media produced by and about the CCUS clusters
2. Interviews with key actors within and external to the cluster
3. Social network analysis to map the advocacy networks



# Methodology



Analysis framed around five hypotheses:

1. To support CCUS, **technology advocates** must **actively develop protective spaces** where the technology can be developed away from mainstream market pressures
2. **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
3. **Learning initiatives** within the clusters must go **beyond technical learning** to encompass ways to value and support the deployment of CCUS **beyond the clusters**
4. **Institutional reforms** will be required to allow for the novel function of whole system decarbonisation enabled by CCUS
5. There must be an **alignment** between **socio- technical narratives** and **socio-political agendas** presented by advocacy networks comprising multiple perspectives and resource commitments

# Planned papers



1. Draft: 'CCS industrial clusters as protective spaces' adopts a case study approach informed by documentary analysis and stakeholder interviews
2. Planned: 'CCS industrial clusters and their role in building a social license to operate'

# Poster outside:



## Social License to Operate (WP C1)

Co-Investigator: Clair Gough  
Key researchers: Sarah Mander  
Funded by the UKCCSRC as part of its Core Research Programme  
Dates: 2018 - 2022

### 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 *Subsidiary, Current Sustainable/ Renewable Reports, Section: Deep Decarbonisation: BECCS*, Edited by Max Dowell and Patrick Worsfold

- The paper sets CCS within the broader context of BECCS and the potential for carbon dioxide removal
- BECCS as a means of 'loosening 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' CO<sub>2</sub> 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.