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Place Matters: Insights from Social Science on the Transformative Potential of UK's Net Zero Industrial Clusters

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On behalf of the IDRIC 'Net Zero Sense of Place' research team

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Introduction

Industrial decarbonisation

- Multiple sectors, multiple geographical scales & diverse places and spaces
- New research topic for geographies of low-carbon transitions

UK's competitive cluster-based approach

- 2018 – present
- Aim: 1 net zero industrial cluster by 2040 + 4 low-carbon industrial clusters by 2030
- “SuperPlaces”: CCUS & H₂ deployment
- Industrial decarbonisation + Clean Growth (e.g. addressing regional inequalities, green recovery, revitalise industrial heartlands)



(Source: (2018) Delivering Clean Growth: CCUS Cost Challenge Taskforce Report, p.17)

Project Overview

IDRIC MIP3.4 Net Zero Sense of Place

- Key assumption:
 - industrial decarbonisation is **a contested process that 're-makes' existing places.**
- A Place-based Research Agenda:
 - Reveals geographical dimensions of industrial decarbonisation
 - Recognises the lived experiences of local communities
 - Enables a more just and inclusive approach

Review of the 'sense of place' and 'geographies of low-carbon transitions' literature

Phase 1

(04/2022-01/2023)

- **Stakeholders' sense of place in 3 industrial clusters**
- Secondary data collection & analysis, 5 site visits, and 33 interviews

Phase 2

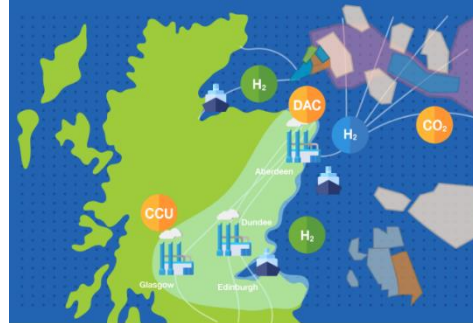
(02-06/2023)

- **Community lived experiences and local perceptions**
- 6 focus groups in 3 industrial areas & supplementary interviews

Phase 3

(07-09/2023)

- **Synthesis analysis & integrating framework**
- 3 multi-stakeholder workshops in 3 industrial clusters



Case 1 The Scottish Cluster



Case 2 The South Wales Cluster

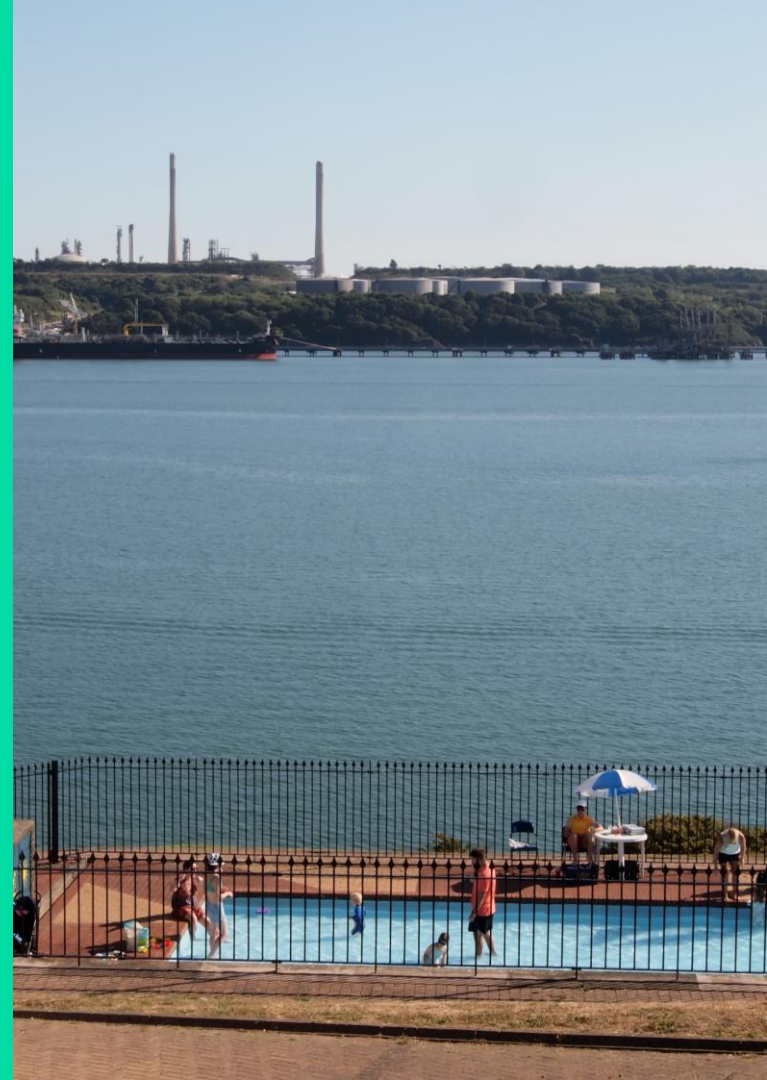


Case 3 The North West Cluster



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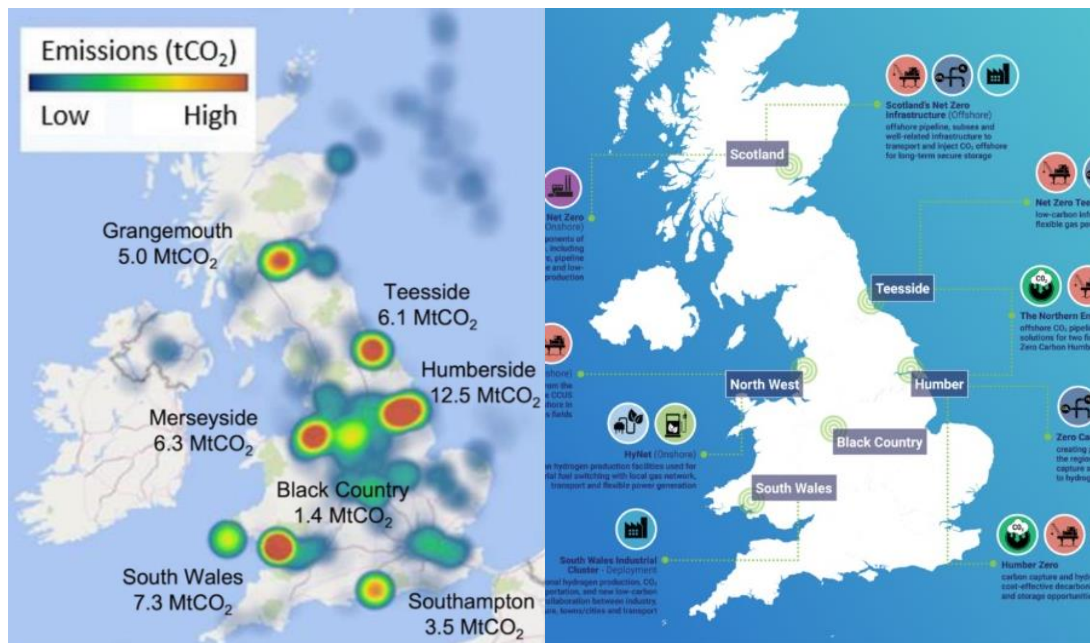
4 Key Findings (Phase 1)



1. UK industrial clusters are not self-evident, but are varied across cases and policy contexts, and sometimes contested.

- What a cluster means, focuses, and the purpose it is created for can differ across stakeholder communities
- Different place-based naming entails different geographical implications

“We don't like the fact that it's called the Merseyside Cluster because most of the cluster is actually in Cheshire and then government will end up trying to talk to Liverpool City Region officials about it. But they don't know a great deal about it, whereas we in Cheshire know more about it and are more connected with it.” (NW)



(Images: IDRIC websites)

Policy-induced confusion

Programme	Industrial Decarbonisation Challenge (IDC Clusters)	CCUS Cluster Sequencing (Track-1 Clusters)
Duration	2019-2024	2021- present
Policy foundation	2017 Industry Strategy 2021 The Grand Challenge policy paper	2020 Ten Point Plan
Initiator	- UKRI	- BEIS (now DESNZ)
Focus	<ul style="list-style-type: none"> - Region-based decarbonisation actions as economic boosters - Key industrial emitters + key decarbonisation projects - Green growth for the UK and cluster regions 	<ul style="list-style-type: none"> - Technology-oriented - Comprising a CO₂ transport and storage network and an associated first phase of at least two CO₂ capture projects
Dimension	Cluster Plans & Deployment Projects	
Winners	6 IDC clusters <ul style="list-style-type: none"> - North West, South Wales, Scotland, Teesside, Humber, Black Countries 	2 Track-1 clusters <ul style="list-style-type: none"> - HyNet Cluster (North West), East Coast Cluster (Teesside + Humber) - Scottish Cluster as the reserved cluster

Consequences

- Confusion in communication among stakeholders who may have different experiences and understanding about a cluster.
- Difficulty for outsiders to figure out what and who represents a cluster in each case.

Lesson

Sensitivity to these plural understanding of clusters is needed to achieve effective communication and accurate knowledge production.

“in my current day-to-day world, I would say that **the cluster is HyNet** in the form of, you know, the boundaries of the project.” (NW)

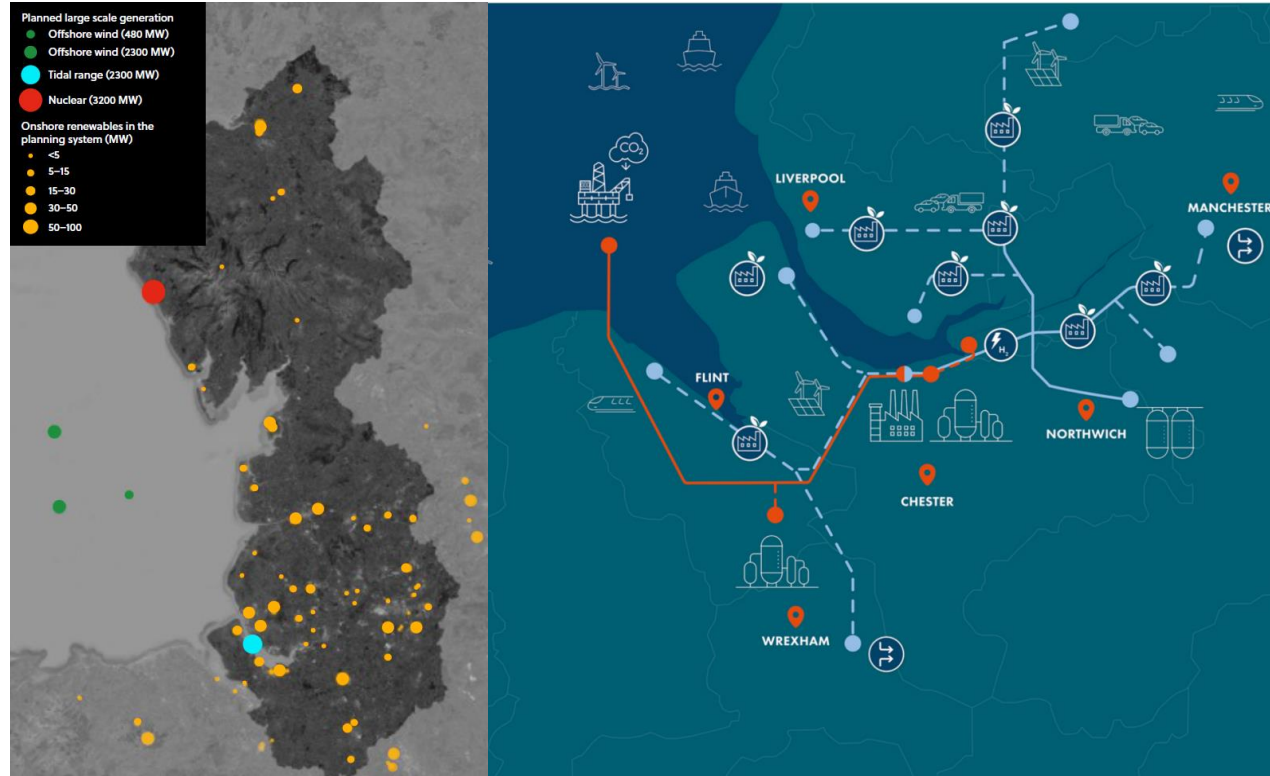
“often people see HyNet as the kind of the start and end point of everything that’s going on in the North West cluster. And really, and truthfully, yes, **it’s a big part of it. But it’s just one project, and there is a lot more going on**” (NW)

“I have to always keep in mind they’re talking about something slightly different to the Scottish Cluster that I think about as a sort of industry” (SC)

“It's confused everybody right from the start” (SWIC)

2. Cluster boundaries are continuously evolving and span existing political boundaries.

- **No consensus** over the geographical boundaries, centre/core area, future expansion, and best visual representation of a cluster
- **3 common features of cluster maps**
 - 1) Heuristic illustration
 - 2) Only temporary
 - 3) Administrative boundaries vs. project boundaries



(Images: NZNW (2022) Interim report, p.4 & 8)

Decarbonizations projects

- tend to involve multiple and multi-scalar political spaces
- follow geo-historical and economic logics more than political ones
- necessitate the (re)grouping of existing regional trade unions, economic organisations, and local authorities

Lesson

A flexible governance and policy framework is necessary to remove political hindrance and achieve climate mitigation across scales.

“We’re very clear that conversations can’t stop at the border. Makes it slightly more complicated because it’s a different regulatory regime and government sort of support regime on the other side of the [national] border. But **from an industrial perspective, those borders shouldn’t matter or can’t matter**, because, you know, they’re just administrative boundaries.” (NW)

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(Images: NZNW website)

3. Different types and structures of decarbonisation emerge from diverse geographical contexts.

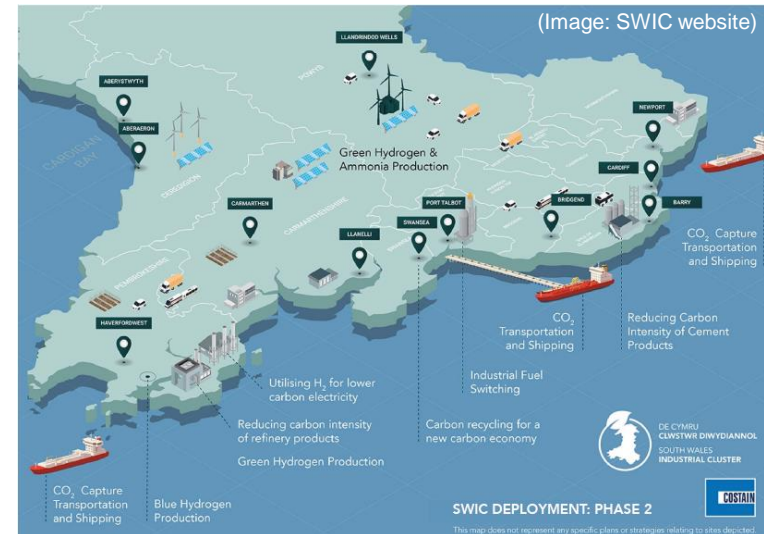
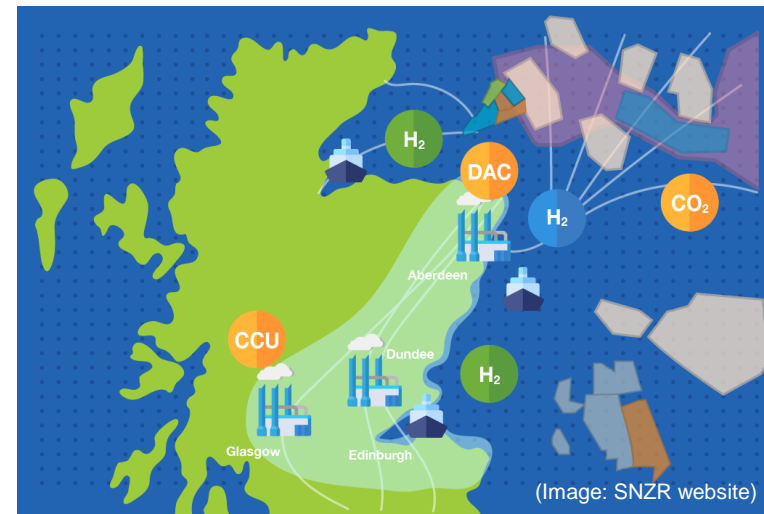
Type	Project-based	Site-based
Condition	CO ₂ storage and a gas industry in situ	No feasible CO ₂ storage space available
Spatial configuration	Pipeline-oriented <ul style="list-style-type: none"> - Largely shaped by the pipeline network of one CCUS and hydrogen megaproject - Connected first with key emitters and then potentially expand to smaller and dispersed emitters - Sources and solutions of industrial emissions may or may not co-locate 	Polycentric <ul style="list-style-type: none"> - Composed of several sub-clusters that carry out site-based decarbonisation plans simultaneously - To be linked through shared infrastructure (e.g. CO₂ shipping, hydrogen backbone) in the future
Outward connections	Depending on the capacity and commercial viability of the CO ₂ storage	Strong, esp. for exporting CO ₂
Examples	North West Cluster (spatially concentrated) Scottish Cluster (L-shape)	South Wales Industry Cluster

Risks of funding schemes that targeted on specific technology solution (e.g. pipeline-based CCUS & domestic emissions)

- overlooking the geographical specificities that co-define the spatial structure and decarbonisation strategies of a cluster
- falling short in addressing the borderless, multi-scalar characteristics of greenhouse gas emission

Lesson

Policymaking must attend to the geographical variation in cluster designs to establish an effective 'UK-wide cluster plan'.



4. Communities lack a strong voice in cluster decarbonisation. This puts their ‘social license’ at risk.

What a net zero industrial place looks like?

- Largely technology-driven
- Community engagement: **fragmented, limited, reactive, instrumental, not prioritised**
- Often focus on messaging and PR: informing place changes and framing the project as positive for the communities

“So in terms of industry, I would expect that by that time we would see **all of carbon being captured**, sequestered, you know, removed at source, etc. And I expect that we will see a number of different... **low carbon energy sources** become part of the energy mix, low carbon or zero carbon energy sources become part of the energy mix for the manufacturers in the region, and that will include increasing **electrification, more hydrogen**, umm, probably more emphasis on nuclear technology than we currently have at the minute.” (NW)

	Technology-driven	A whole system approach/ industrial synergies	Green economy	Circular economy	Localization of industrial activities	Place-based	Social embeddedness	Community engagement		Cognitive/ behavioural change	Little disturbance and change
								Reactive	Proactive		
NW	8	0	1	2	0	2	1	3	0	2	3
SWIC	5	6	2	4	2	2	1	3	1	0	0
SC	4	0	0	0	0	1	1	2	0	1	2

Risks of the lack of meaningful, systematic and pro-active communitive engagement

- public misunderstanding and distrust
- weakening the purchasing power of the industrial cluster & individual decarbonisation projects in the eyes of local residents
- hindering the delivery of a just transition by disrupting local communities' positive relations with the place
- losing the opportunity to build a more reciprocal industry-community relationship

Lesson

Cluster stakeholders need to consider local community not merely recipients of place changes, but key actors/partners in place-making.

Takeaway Message

A place-sensitive policy mindset is necessary to establish an effective 'UK-wide cluster plan' and achieve net zero.

This could draw inspiration from multiple ways of imagining the geography of each industrial cluster & local communities' feelings and thoughts of the industrial place.



Thank you

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