



Labour market and other wider economy challenges in decarbonising the UK's industry clusters [LAB-CLUSTER]

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Funded by the IDRIC Wave 2 Funding Call

Dates: 1st February 2023 - 31st January 2024

Summary

Through its Industrial Decarbonisation Strategy and specific mechanisms UK Government has committed to scale deployment of solutions such as Carbon Capture, Utilisation and Storage (CCUS) to decarbonise the UK's industry clusters and to meet mid-century Net Zero ambitions. Understanding how these can be delivered in economically and politically feasible ways will be critical to the success of decarbonisation efforts and the realisation of wider economy benefits.

This research aims to understand how persisting labour market supply constraints and other cost pressures may impact decarbonisation project delivery and sectoral/wider economy outcomes. Our research, focussing here on CCUS in the UK's regional clusters, will enable consideration of how investment and deployment of industrial decarbonisation actions can be effectively delivered in a dynamic and challenging economic environment, where multiple net zero projects must compete for resources. It will also make a vital contribution to the evolving UK Government CCUS and Hydrogen business models that underpin decarbonisation in the industry clusters.

Objectives

The aim of this project is to provide original insight and evidence-based clarity on how and to what extent supply constraints in the UK and regional labour markets, interacting with other prevailing economic conditions, may affect the delivery and operation of decarbonisation projects in and across the UK's regional industry clusters.

We identify three linked and interacting objectives:

- Our central objective is to explore the labour market drivers and implications of the deployment and operation of CCUS projects within and across the UK's industry clusters.
- To focus in on the regional economy impacts associated with the relocation of workers and potential displacement of employment across clusters and industry therein.
- To examine how external and/or domestically induced energy price shocks may influence the potential sectoral, regional and economy-wide outcomes associated with the operation of CCUS activity in UK industry clusters.

Method

We have developed a Computable General Equilibrium (CGE) model of the UK economy (UKENVI) in ways that distinguish the different economic requirements and implications of carbon capture within clustered industries and new/transitioning activity (particularly through existing oil and gas supply chain and labour force capacity) in delivering transport & storage services. Our method is displayed in the below diagram.

Data inputs/Scenarios framing: SAM, 'top down' scenario and /or 'bottom up' scenario information from policy, industry, and other researchers.

Economy-wide CGE model (UKENVI)

Outputs

Other statistics (ONS, DESNZ)

Results: Outcomes reporting on activities, prices, employments, incomes, and fiscal variables in different sectors of the economy, a range of social welfare indicators-*policy narrative development drawing on model outcomes.*

Expected results

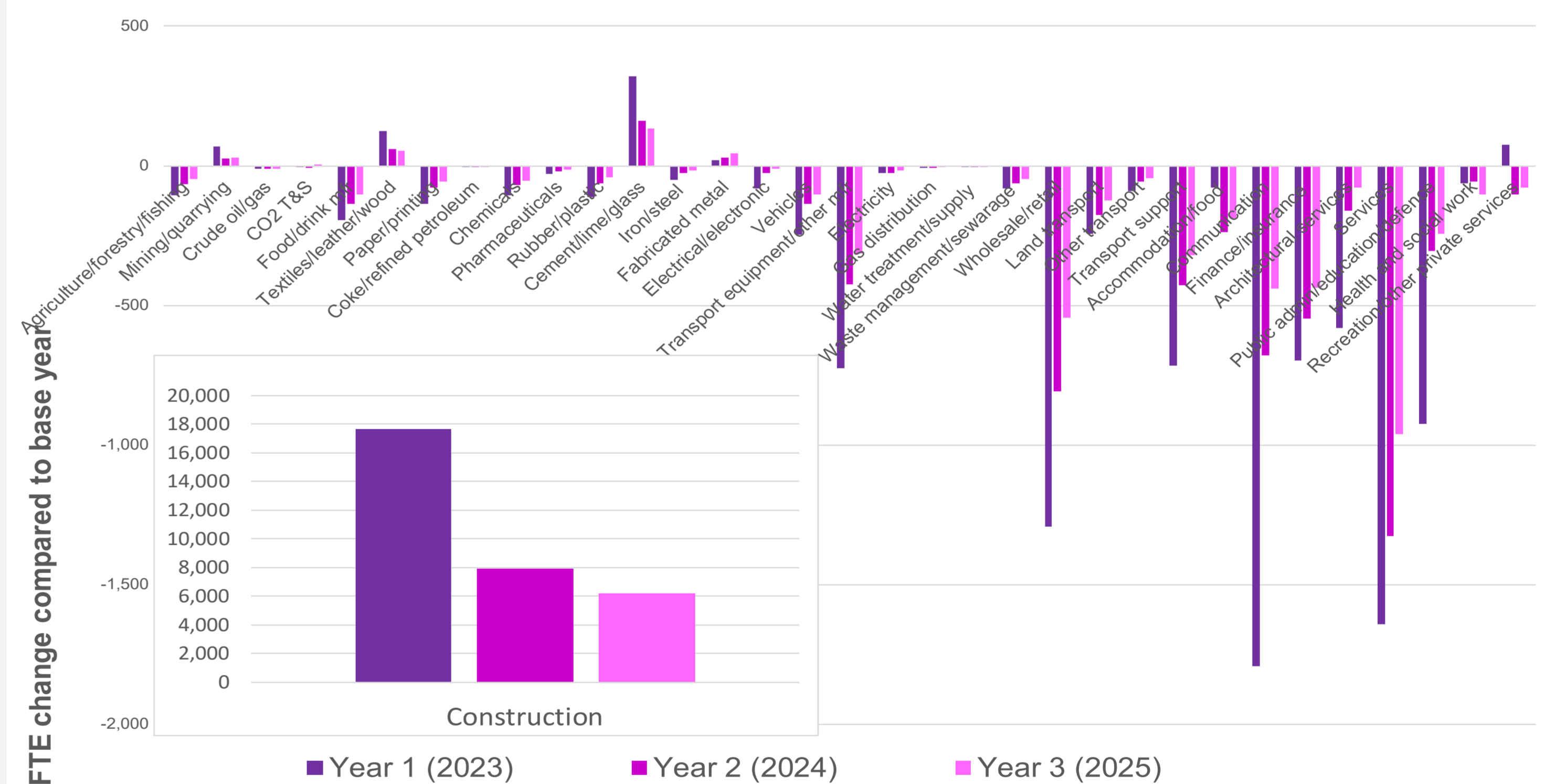
This research project will develop, tests and effectively communicate outcomes from our economy-wide CGE model for value chain analysis. This involves focussing on employment supported and associated wage generation for carbon capture relevant industries.

Expected results from implementing CCUS and decarbonising UK industrial clusters are likely to include:

- Net employment **gains mainly driven by Construction** requirements.
- Employment losses across different sectors.
- Labour market constraints + significant labour requirements to develop the T&S infrastructure **drive labour cost upward.**
- These labour market constraints negatively affect the labour-intensive sectors and those not involved in infrastructure development.

The figure below show an example of the type of results we are expecting to see, where we analyse impacts on employment from introducing a CO₂ transport and storage (T&S) industry to service track 1 clusters: HyNet and East coast (see <https://strathprints.strath.ac.uk/83992/> for more detail on this particular analysis).

Figure 3. Impacts on sectoral (full-time equivalent, FTE) employment between 2023 and 2025 of introducing the CO₂ T&S industry to service the Track 1 clusters



Relevance to non-academics

- Decision-making processes within governments (national and devolved) and industry in all clusters, including on CCUS business models and Track 2 clusters, are informed via understanding of labour market/other economic conditions on industrial decarbonisation project delivery.
- Planning and coordination at national, devolved and regional government level in partnership with unions and industry around labour and skills in relation to Net Zero is strengthened.
- Wider discourse and debate on Net Zero project delivery across UK parliament and devolved parliaments, industry networks, trade unions and academia is informed by a strengthened understanding of the impact of labour market and other economic conditions, including but not limited to energy price volatility.

Conclusion and next steps

Throughout this project, an active programme of engagement and communication is planned, and all outputs will be available through the CEP and IDRIC website. Our research and engagement activity will be conducted in consultation with key policy actors – including BEIS and wider UK stakeholders, Scottish Government,. This research will also have impact with industry actors, who need to distinguish private and wider societal value generated through their decarbonisation actions in making cases for investment.

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