

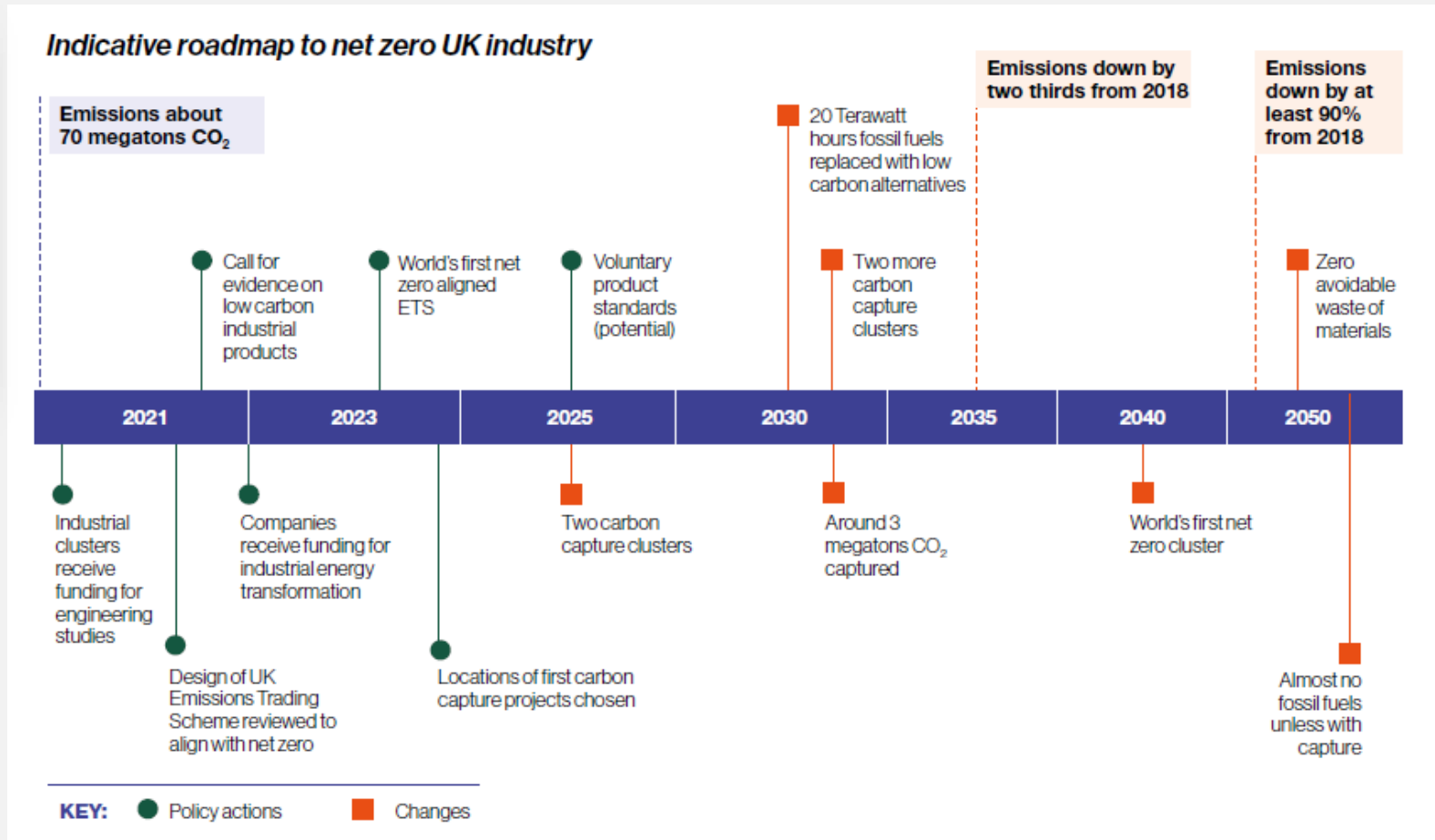
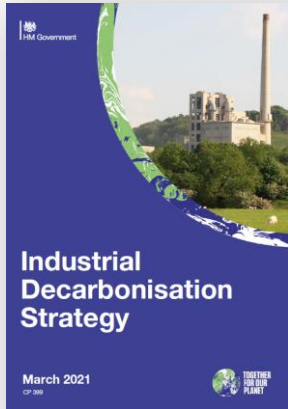
IDRIC

The UK Industrial Decarbonisation Research and Innovation Centre

Prof Mercedes Maroto-Valer
IDRIC Director



UK Industrial Decarbonisation Strategy



BEIS, March 2021

“ We will also draw on our world-class universities and research institutions, including through our £20 million funding that is being used to establish the Industrial Decarbonisation Research and Innovation Centre ”

UK Industrial Clusters

Key: Cement Chemicals Food & Drink Iron & Steel Non-ferrous metals Non-metallic minerals Other industry Paper & Pulp Refining

Grangemouth

MtCO₂e: Chemicals **2.29** | Food and Drink **0.06** | Iron and Steel **0.03** | Non-metallic minerals **0.18** | Other industry **0.09** | Paper and pulp **0.01** | Refining **2.35**

Humberside

MtCO₂e: Cement **0.30** | Chemicals **0.50** | Food and drink **0.04** | Iron and steel **5.09** | Non-metallic minerals **0.51** | Refining **3.59**

Mersyside

MtCO₂e: Cement **0.55** | Chemicals **1.35** | Food and drink **0.10** | Iron and steel **0.06** | Non-ferrous metals **0.06** | Non-metallic minerals **0.57** | Other industry **0.15** | Paper and pulp **0.27** | Refining **1.93**

South Wales

MtCO₂e: Cement **0.34** | Chemicals **0.02** | Iron and steel **6.08** | Non-ferrous metals **0.01** | Non-metallic minerals **0.09** | Other industry **0.1** | Paper and pulp **0.06** | Refining **2.28**

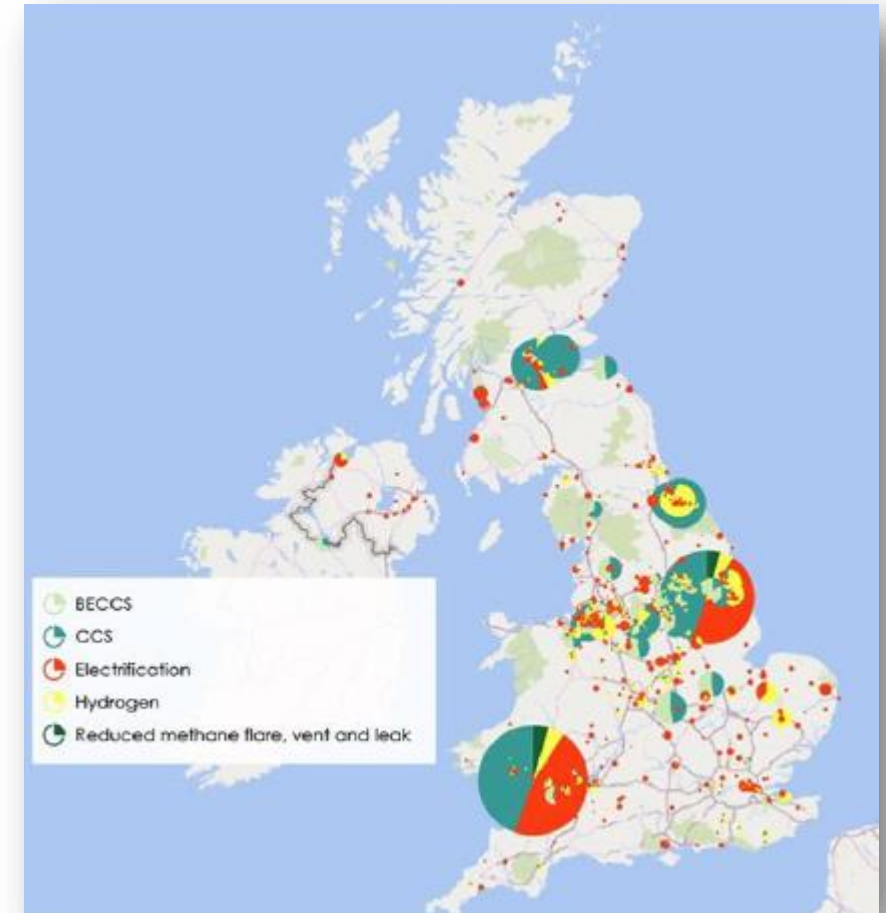
Southampton

MtCO₂e: Chemicals **0.07** | Non-metallic minerals **0.02** | Refining **3.14**

Teeside

MtCO₂e: Chemicals **3.66** | Food and drink **0.02** | Iron and steel **0.11** | Non-metallic minerals **0.02** | Refining **0.05**

percentage of emissions by sector



Decarbonisation measures for manufacturing and construction sector (balanced pathway)
6th C budget, CCC, Dec 2020

Industrial Decarbonisation Challenge

The Industrial Decarbonisation Challenge is funded by £210M from the Industrial Strategy Challenge Fund (ISCF) to be matched up to £261M.

Delivered through three complementary strands:

1. Industrial Demonstrators and Shared Infrastructure (£171M, UKRI-InnovateUK). *Phase 1 completed; Phase 2 in progress.*
2. Cluster Decarbonisation Roadmaps and Feasibility Studies (£8M, UKRI-InnovateUK). *Phase 1 completed; Phase 2 in progress.*
3. **Industrial Decarbonisation Research and Innovation Centre (£20M, UKRI-EPSRC).** *Phase 1 completed; Phase 2 in progress.*

What are industrial clusters and why are they important to the UK?



Clusters are key hubs of local economic activity and an important part of the UK economy.

They offer high quality jobs that tend to pay above the average UK wage and are key to local supply chains and the local economy.

Industry that uses energy intensively, within and outside of clusters, has a value of around £150 billion to the UK economy (GVA).

They secure around **1.5 million jobs**. They export goods and services worth around **£320 billion**.

Get in touch

If you're an innovative business working to support Clean Growth, we want to hear from you. Write to us at GrandChallenges@BEIS.gov.uk

Why do they matter to our future clean economy?

Industry accounts for around a **quarter of all UK greenhouse gas emissions** - with more than two thirds of these industrial emissions coming from a small number of energy intensive industries.

For the world to meet the ambitions of the Paris Climate Change Agreement, industry needs to reduce its emissions. This is a challenge that needs new cutting-edge tech, like **Carbon Capture Usage and Storage** and **low-carbon fuels** such as **hydrogen, bioenergy** and **clean electricity**.

The move to **low carbon industry** is a **huge opportunity** - with the chance for the UK to take the lead and seize a large share of a growing global market.

We want to show what is possible in the UK - to transform our industry at home and encourage other countries to use these technologies in the future.

<https://www.ukri.org/innovation/industrial-strategy-challenge-fund/industrial-decarbonisation/#pagecontentid-1>



- World-leading Super Places that unite clean industry with transport and power, where **renewable energy, CCUS and hydrogen congregate** at the forefront of technological development.
- Pioneering **hydrogen heating trials**, starting with a Hydrogen Neighbourhood.
- £1 billion up to 2025 to facilitate the **deployment of CCUS** in two industrial clusters by the mid-2020s, with a further two by 2030.
- £240 million **Net Zero Hydrogen Fund** for low carbon hydrogen production.



Industrial Decarbonisation Challenge

Cluster Plans

Deployment/Infrastructure

IDRIC- Research and Innovation

The Net Zero NW Cluster Plan

HyNet (onshore)

HyNet (offshore)

Black Country Cluster Plan

South Wales Industry Cluster Plan

S. Wales Industry Cluster Deployment

Scotland's Net Zero Roadmap

Scotland Net Zero Infrastructure (onshore)

Scotland Net Zero Infrastructure (offshore)

Net Zero Tees Valley Cluster Plan

Net Zero Teesside (onshore)

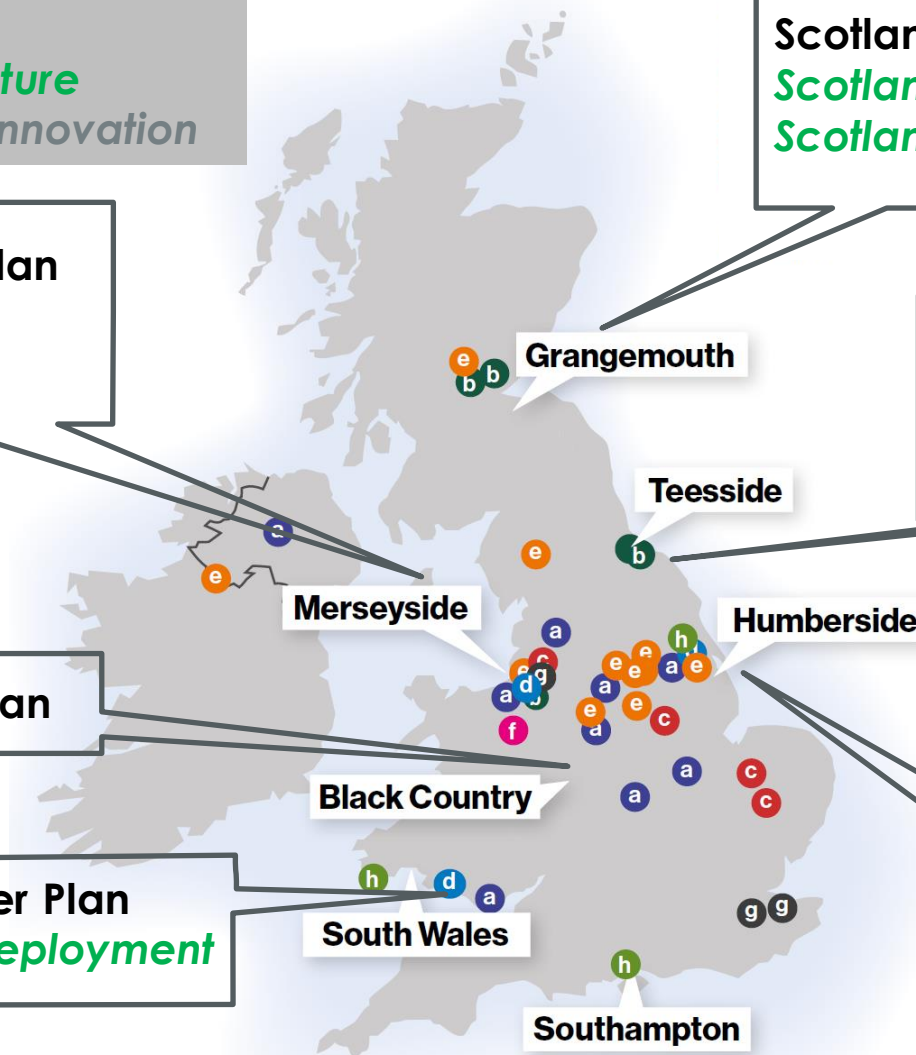
Northern Endurance Partnership (offshore)

Humber Industrial Cluster Plan

Humber Zero

Zero Carbon Humber Partnership

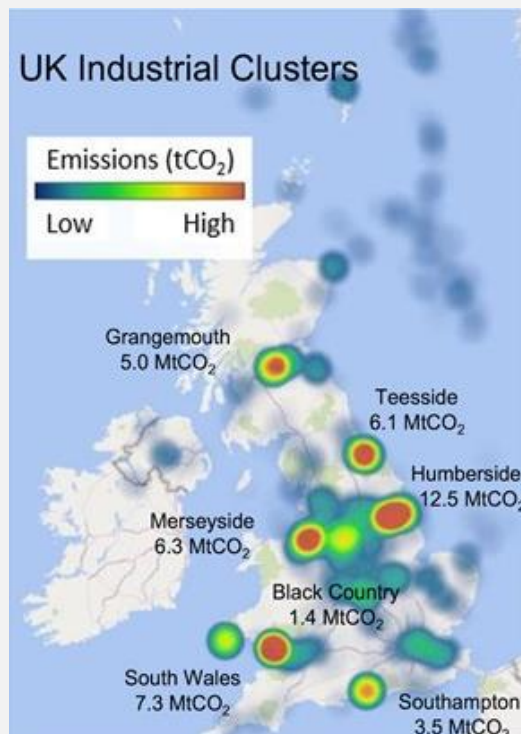
Northern Endurance Partnership (offshore)



IDRIC delivers solutions to accelerate the decarbonisation of the industrial clusters



Collaborations at scale and pace



Source: Climate Change Committee & Element Energy Ltd

142 partners
£20m funding

Impact Areas

Reducing
Costs

Reducing
Risks

Reducing
Timelines

Reducing
Emissions

Economic
Aspects

Policy
Aspects



23 Research
Organisations



74 Industry
Partners



35 Associations, NGOs
Trade Organisations



10 Policy Makers
Government bodies

Research and Innovation Programme

Multidisciplinary Integrated Programmes, MIPs

Identify, direct
and coordinate
research



Facilitate
industry
alignment



Enable
implementation
and impact



MIP1: System planning for net-zero industrial clusters

MIP2: Infrastructure for net-zero industrial clusters

MIP3: Operating net-zero industrial clusters

MIP4: Scale up opportunities at cluster and value chain level

MIP5: Energy vectors for industrial decarbonisation

MIP6: Accelerating deployment of CCUS for industrial decarbonisation

MIP7: Large scale deployment of hydrogen systems for industrial decarbonisation

MIP8: Reducing costs and risks of CDRs and their integration in industrial clusters

MIP9: Integration: Policy, knowledge exchange and skills



Whole-systems approach integrating engineering, environmental and technical solutions with economic, behavioural and policy interactions.

Wave 1 of projects available at <https://idric.org/research-innovation/>

Research and Innovation Programme • Wave 1



50

Research Associates



41

Principal Investigators



43

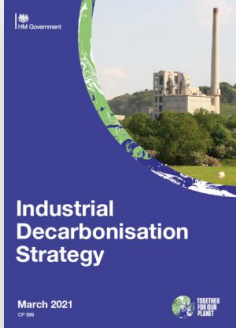
Research Projects



23

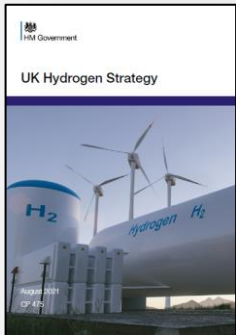
Research Institutions

IDRIC – UK Strategy for Net Zero



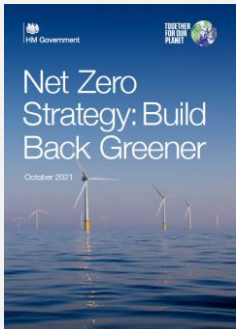
March 2021

“We will also draw on our world-class universities and research institutions, including through our £20 million funding that is being used to establish the Industrial Decarbonisation Research and Innovation Centre”



August 2021

“To accelerate fuel switching to low carbon hydrogen, we will seek to support research and innovation through the existing NetZero Innov. Portfolio and initiatives led by the Industrial Decarbonisation Research & Innovation Centre (IDRIC)”



October 2021

“... initiatives led by the Industrial Decarbonisation Research & Innovation Centre (IDRIC)”

Contact information

*For any questions about IDRIC,
please contact info@idric.org
or visit www.idric.org*



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THANK

YOU