IDRIC

14th May 2020
SCI Energy

Industrial Decarbonisation Research & Innovation Centre IDRIC

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UKRI Industrial Decarbonisation Champion

INDUSTRIAL STRATEGY

UKRI Engineering and Physical Sciences Research Council

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Agenda

- Overview of the Industrial Decarbonisation Challenge
- Developing IDRIC research agenda
- Stakeholder engagement
- Next steps and summary

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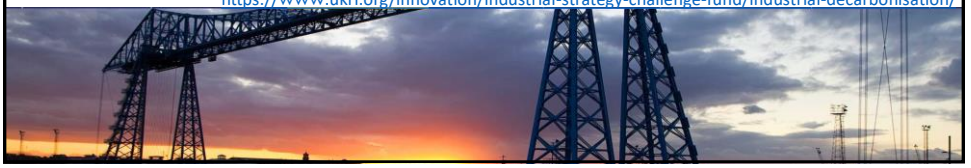
Industrial decarbonisation challenge

This challenge aims to accelerate the cost-effective decarbonisation of industry by developing and deploying low-carbon technologies.
It also aims to enable the deployment of infrastructure at scale by the mid-2020s.

- ❑Boost the competitiveness of key industrial regions and drive inward investment, creating and protecting jobs for a low-carbon global economy with growing low-carbon export markets.
- ❑Support delivery of the Clean Growth Grand Challenge and the Industrial Clusters Mission.

The Industrial Strategy Challenge Fund is part of government's Industrial Strategy, the long-term plan to raise productivity and earning power in the UK.

https://www.ukri.org/innovation/industrial-strategy-challenge-fund/industrial-decarbonisation/



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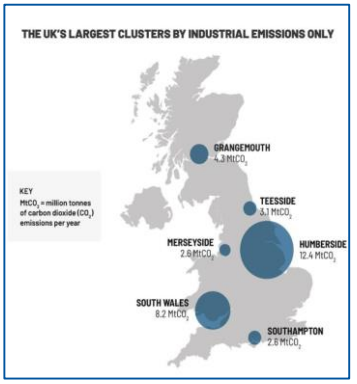
Industrial Clusters Mission

Establish at least one low-carbon industrial cluster by 2030 and the world's first net-zero carbon industrial cluster by 2040

- Clusters of large industrial plants for energy-intensive industries.
- The largest six clusters, recently mapped by the Industrial Clusters Mission, have high emission plants totalling around 40 million tonnes of CO_2 per year.
- Manufacturing businesses in industrial clusters often share infrastructure and resources (both supply chains and workforce).
- Industrial Decarbonisation seeks to harness the scale of the industrial clusters to **create opportunities to work together to find cost-effective solutions to decarbonisation.**



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

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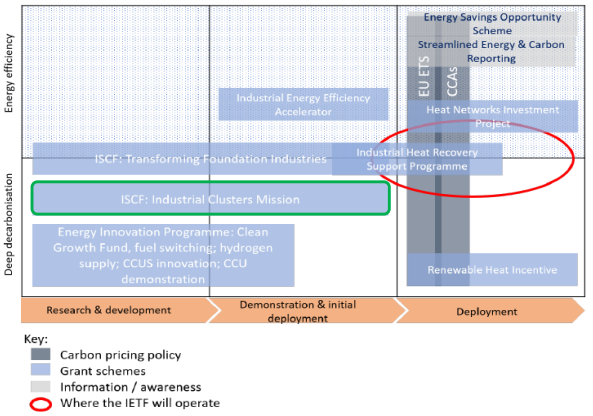
Where does the Programme sit?

Current UK Decarbonisation Policy Landscape



https://www.gov.uk/guidance/industrial-energy-transformation-fund

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Industrial Clusters Mission

The Industrial Decarbonisation programme is funded by £170 million from the Industrial Strategy Challenge Fund which is expected to be matched by funding of up to £261 million from industry

The ISCF challenge will be delivered through three different programme strands:

1. Industrial Demonstrators and Shared Infrastructure (£132m, Innovate UK)
2. Cluster Decarbonisation Roadmaps and Feasibility Studies (£8m, Innovate UK)
3. ***Industrial Decarbonisation Research and Innovation Centre (£20m, EPSRC)***

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/803086/industrial-clusters-mission-infographic-2019.pdf

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UKRI Industrial Decarbonisation Deployment projects

Name of project	Region	Description
Scotland's Net Zero Infrastructure	Scotland	This project enables CCS by linking the gathering of CO_2 from industrial emitters around Grangemouth, with a pipeline to transport CO_2 to St Fergus in Aberdeenshire, with the Acorn CCS Project.
Net Zero Teesside Project	Teesside	Net Zero Teesside is a Carbon Capture, Utilisation and Storage (CCUS) project. In partnership with local industry and world class partners, it aims to decarbonise a cluster of carbon-intensive businesses by as early as 2030. Each year, the project plans to capture up to 6 million tonnes of CO_2 emissions equivalent to the annual energy use of up to 2 million UK homes.
Humber Industrial Decarbonisation Deployment Project (Humber-DP)	The Humber	Humber-DP will identify and develop potential anchor projects to maximise emission reductions in the most appropriate, timeliest, cost effective and efficient manner and develop world leading industrial CO_2 transport and storage system
HyNet Carbon Capture Utilisation and Storage (CCUS)	North West	HyNet was conceived in 2016 as a hydrogen / CCUS project to provide a decarbonisation pathway in the North West. The HyNet CCUS network will provide the infrastructure to transport and store the carbon dioxide produced as a by-product of the hydrogen production process.
South Wales Industrial Cluster (SWIC)	Wales	SWIC will identify process options to reduce carbon emissions, options for Carbon Capture Usage and Storage (CCUS) and for an infrastructure backbone to enable large scale CO_2 emissions reduction across Wales and beyond.
Green Hydrogen for Humber	The Humber	"Green Hydrogen for Humberside" will lead to the production of renewable hydrogen, at the Gigawatt (GW) scale, from polymer electrolyte membrane (PEM) electrolysis. This will be distributed to a mix of industrial energy users in Immingham, Humberside. Humberside, the UK's largest cluster by industrial emissions (12.4MtCO_2 per year), contributes £18bn to the national economy each year and has access to a large renewable resource from offshore wind in the North Sea.

https://www.ukri.org/news/ukri-allocates-funding-for-industrial-decarbonisation-deployment-and-roadmap-projects/

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UKRI Industrial Decarbonisation Roadmap projects

Name of project	Region	Description
Net Zero Tees Valley - Decarbonising the Full Cluster: Roadmap Pathfinder	Tees valley	Net Zero Tees Valley will allow the industrial net-zero roadmap of the Teesside Industrial Cluster to be extend. This will develop a deliverable and holistic plan for regional deep decarbonisation which can be adopted by Industry, Government, Local Government, finance sector and inward investors.
Scotland's Net Zero Roadmap (SNZR)	Scotland	SNZR builds upon work by SCCS in Carbon Capture and Storage research, and by the University of Strathclyde's Centre for Energy Policy in identifying decarbonisation pathways that deliver economic prosperity, and applies them to a high value industrial cluster.
Humber Industrial Decarbonisation Roadmap	The Humber	HIDR will enable the Humber's large industrial emitters, low carbon infrastructure providers and other stakeholders to develop a shared approach to achieving net zero by 2040.
North West Hydrogen and Energy Cluster: Route to Net Zero	North West	This project's primary focus is on the industrial emissions of Cheshire, parts of North East Wales, Warrington, Liverpool City Region and Greater Manchester.
South Wales Industrial Cluster (SWIC)	Wales	The Phase-1 work will establish NZC options for SWIC members; including two of the largest industrial UK CO_2 emitters, several large sites and several medium sized sites. This will allow the several mini-local clusters to form, before growing and combining with each other, ultimately merging to connect to the large coastal CO_2 emitters, at which point large scale CCU-CCS options exist creating value from residual regional carbon.
Repowering the Black Country	Midlands	This study will specifically identify the best ways to deliver zero carbon power to local businesses using local resources, including commercial waste and renewable energy. Small-scale, unobtrusive power stations, located on brownfield sites, will deliver electricity and heat to nearby homes and businesses.

https://www.ukri.org/news/ukri-allocates-funding-for-industrial-decarbonisation-deployment-and-roadmap-projects/

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IDRIC Overview

- IDRIC vision is ***to realise the opportunities for industrial cluster decarbonisation by integrating research and innovation programmes, supporting policy, building capacity, developing leadership, sharing knowledge, forming active networks and mission advocacy.***
- Conduct a series of consultation and engagement events with industry, academia, policymakers and technical experts **to develop an industrial decarbonisation proposal** for approval August 2020.
- Delivery phase is due to get underway in **September 2020 and is backed by £20m funding until March 2024**.

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The remit of IDRIC includes (1)

Research on multidisciplinary topics relevant to industrial decarbonisation such as carbon capture and storage, hydrogen, gasification, policy, economic analysis and institutional and regulatory analysis.

Knowledge sharing activities across a breadth of industrial clusters stakeholders such as academia industry and government through workshops, seminars, networking and engagement events

Funding secondments to build a critical mass of individuals who can work across academia and industry and share learning by understanding the research challenges in each environment

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The remit of IDRIC includes (2)

- **Enhancing links between academia, the industrial clusters and policy makers**
- **Managing a flexible fund of £2m to ensure that the Research and Innovation Centre can be agile and respond to research challenges faced by the industrial clusters**
- **Options assessment to support skills and (re-)training, informed by the broader challenge**
- **Other impact activities such as public engagement, training of staff, early stage commercialisation exploration etc.**

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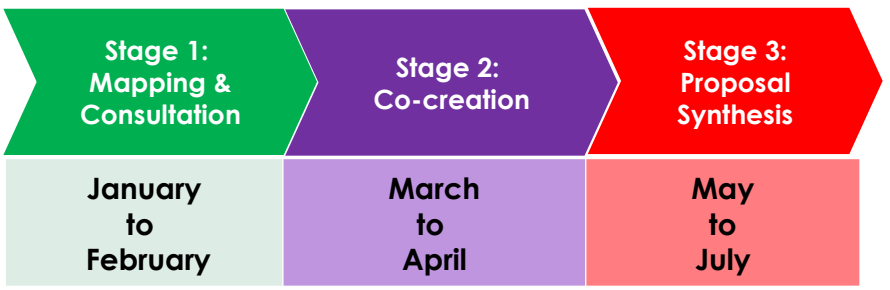
IDRIC Development Timeline



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Challenge-led themes development

Identify Challenges
January-February

Explore Solutions
February-April

Define Programmes
April-June

- Ideas Factory workshop (80 delegates)
- 14 'deep dive' interviews
- Over 100 questionnaires
- Visits/video calls to the industrial clusters
- 5 workshops /seminars/roundtables

Bottom Up Approach: 32 Challenges

Top Down Approach: 16 Priorities

- Focused approach
- Discussions with clusters to prioritise research and innovation themes

- ***Mission Model Canvas*** for co-creation of research programmes.
- ***Top-down*** synthesis of multidisciplinary projects
- ***Collaborative events*** to disseminate projects, identify gaps and add collaborators.

Proposal Submission

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Ideas Factory Workshop

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Ideas Factory Workshop
Day two: Defining impact and activities

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Ideas Factory
20th-21st February 2020

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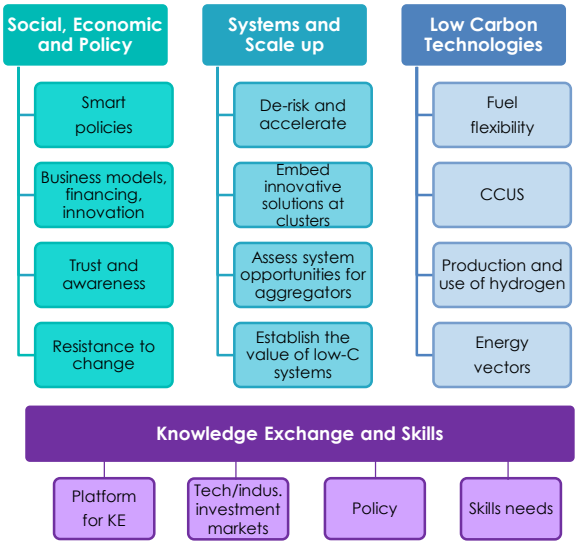
Theme Outputs Analysis



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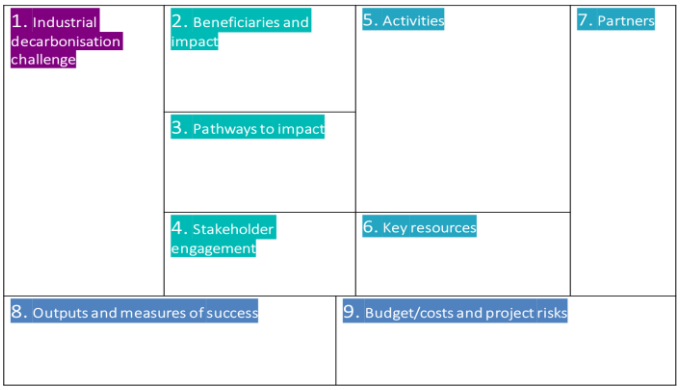
Research and innovation programmes definition



- We are currently defining the initial set of projects -Sept 2020.
- We are planning further calls over the Centre's lifetime.
- Please, visit https://idric.org/events/ and download the presentation (12th May webinar) for further details.

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156 organisations

Key Stakeholders

Local communities

Wider public, including younger generation (schools)

Third sector organisations

Nonprofits, industry associations, charities, expert/consultancy organisations

Industry/business

Cluster industries key to meeting decarbonisation targets, their sites and incubation facilities

Academia

Academia and research and innovation centres, inside and outside of the clusters

Government

Local and central
Setting policies and regulations

Funders

Public and private, including corporate/industry-led funding programmes
Access to finance

44 Academia Research Organisat.

64 Industries Companies

32 Associations, NGOs Trade Organisations

16 Government Regulatory

875 Newsletter Total Reads

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156 organisations

Mapping stakeholder & engagement activities

Key stakeholders	Webinars, workshops, meetings, assemblies	Work package/ project meetings	Crucible events (IRAF calls)	Multi-cluster meetings	Annual showcase events	Digital media (incl. newsletters, VR experiences)	Position papers, case studies, reports
Government	●				●	●	●
Academia	●	●	●	●	●	●	●
Industry / businesses	●	●	●	●	●	●	●
Funders	●	●	●		●	●	●
Third sector organisations	●	●	●	●	●	●	●
Local communities						●	●
International community	●				●	●	●

● Feb-July'20 ● Sept-Dec'20 ● Jan'21+

44 Academia Research Organisat.

64 Industries Companies

32 Associations, NGOs Trade Organisations

16 Government Regulatory

875 Newsletter Total Reads

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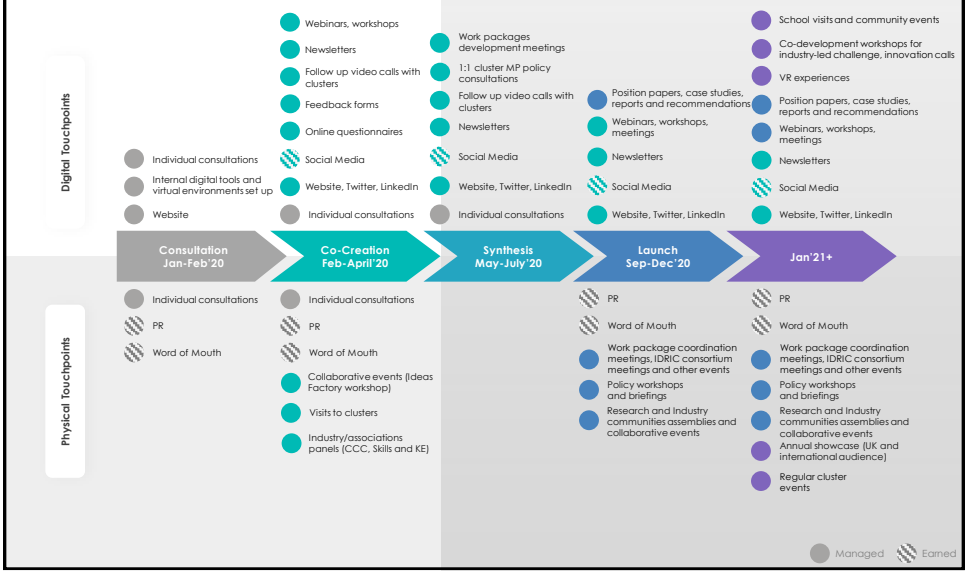
Stakeholder engagement



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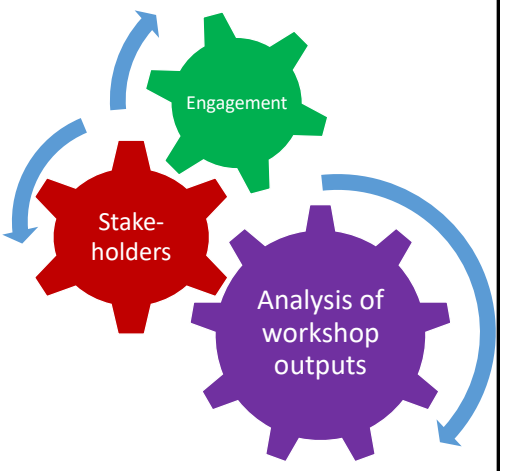
What's next?

Activity	Deadline
Development of Phase 2	Jan.-June 2020
Webinar UKCCSRC	5th June
Webinar CREDS	18th June
Submission of full bid	6th July 2020
Phase 2	2nd September 2020 – March 2024



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How IDRIC can help UK reach its industrial decarbonisation goals

- Transforming multidisciplinary research and innovation
- Forming active networks of stakeholders
- Growing our skills together
- Sharing knowledge
- Supporting policy

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The Industrial Decarbonisation Research and Innovation Centre.

To find out more about IDRIC,

please contact info@idric.org

or visit www.idric.org

IDRIC Team

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Thank you and close

Contacts for follow up:
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Register following the link:
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